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Department of Management

Business Research Methods (MGMT 2211)

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Course Introduction

Dear learner! Welcome to the course Business Research Methods, those who are studying this subject for their bachelor degree program.

As a student, you are now embarking on a scientific journey. By the time you finish your post-graduate training you would have acquired sufficient know-how, and critical and analytical thinking to be able to frame your questions in a scientific context, as well as devise ways to systematically obtain answers to your questions. In short, you will conduct scientific research. This course is a survey course intended to develop the students' ability in scientific analysis and to provide opportunity for application of concepts and tools in the study of economic and social problems. It also gives students a preliminary knowledge with the art of using different research methods, techniques in solving research problems. Specifically, it covers scientific inquiry; experimentation; survey; fact finding, design of questionnaire and interpretation of data; and formulation of management research project by students. This teaching material is organized under 8 chapters:chapter-1 addresses research methods: an introduction ; chapter -2 deals with defining research problem and hypothesis formulation; chapter -3 is concerned with research proposal ; chapter -4 discusses issues related to research design (planning of research project); chapter -5 explores sources and methods of data collections; chapter -6 describes pertinent issues related to sampling design and procedures ; chapter -7 highlights different data analysis & interpretation techniques and chapter -8 deals with interpretation and research report writing.

Module Introduction

Just close your eyes for a minute and utter the word research to yourself. What kinds of images does this word conjure up for you? Do you visualize a lab with scientists at work with Bunsen Burners and test tubes, or an Einstein –like character writing dissertation on some complex subject, or someone collecting data to study the impact of a newly introduced day-care system on the morale of employees? Most certainly, all these images do represent different aspects of research. Research is somewhat intimidating term for some, is simply the process of finding solutions to a problem after a thorough study and analysis of the situational factors.

Business research is an organized , systematic , data based , critical , objective , scientific enquiry or investigation into a specific problem undertaken with the purpose of finding answers or solutions to it In essence , research provides the needed information that guides managers to make informed decisions to successfully deal with problems.

Managers in organizations constantly engage themselves in studying and analyzing issues and hence are involved in some form of research activity as they make decisions at the workplace. As is well known, sometimes managers make good decisions and the problem gets solved, sometimes they make poor decisions and the problem persists, and on occasions they make such colossal blunders that the organization gets stuck in the mire.

The difference between making good decisions and committing blunders lies in how managers go about the decision-making process. In other words, good decision making fetches a “yes” answer to the following questions.

- Do managers identify where exactly the problem lies ,
- Do they correctly recognize the relevant factors in the situation needing investigation,
- Do they know how to make use of information so collected and draw appropriate conclusions to make the right decision ,and finally ,
- Do they how to implement the results of this process to solve the problem? This is what this reading material is all about.

Module Objectives

Dear learner! After completing this course you should be able to:-

- Understand the role of business research
- Differentiate the different types of research
- Identify and define research problem
- Design appropriate research design
- Know sampling design
- Differentiate types of data and instrument of data gathering methods
- Analyze and interpret data
- Prepare standard research project

This course is a survey course intended to develop the students' ability in scientific analysis and to provide opportunity for application of concepts and tools in the study of economic and social problems. It also gives students a preliminary knowledge with the art of using different research methods, techniques in solving research problems. Specifically, it covers scientific inquiry; experimentation; survey; fact finding, design of questionnaire and interpretation of data; and formulation of management research project by students.

CHAPTER ONE

RESEARCH METHODS: AN INTRODUCTION

Introduction

Dear Leaner! You sit the first chapter of the module research method in business. In this unit we are going to give you an overview of research method. The aim of this unit is to present you an overview of what is all about research method and how managers use research to make decision and solve problems. Research is essentially an investigation recording and analysis of evidences for the purpose of gaining knowledge. Research is an organized enquiry designed and carried out to provide information for solving a problem. Research is a careful enquiry or examination to discover new information or relationship and to expand or verify the existing knowledge.

Research in management is the application of the scientific methods in searching for the truth about business phenomena. It is a process that includes activities of idea and theory development, problem definition, searching for and collecting information, analyzing data, and communicating the findings and their implication.

Objectives

Dear Leaner! At the end of this Chapter, you will be able to:

- ✓ Explain and define research
- ✓ Describe the purpose and type of research
- ✓ Describe the major components of the research process
- ✓ Define business research and its importance
- ✓ Explain when business research is needed and when it should not be conducted
- ✓ Identify the various categories of business research activities
- ✓ Discover the various area of business research
- ✓ Describe the characteristics of a good research

Activity:-

1. Discuss about meanings of research and motivation of doing research

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Managers in organizations constantly engage themselves in studying and analyzing issues and hence are involved in some form of research activity as they make decisions at the workplace. As is well known, sometimes managers make good decisions and the problem gets solved, sometimes they make poor decisions and the problem persists, and on occasions they make such huge mistake that the organization gets stuck in the swamp.

The difference between making good decisions and committing blunders lies in how managers go about the decision-making process. In other words, good decision making fetches a "yes" answer to the following questions.

- Do managers identify where exactly the problem lies ,
- Do they correctly recognize the relevant factors in the situation needing investigation,
- Do they know how to make use of information so collected and draw appropriate conclusions to make the right decision, and finally,
- Do they how to implement the results of this process to solve the problem? This is what this reading material is all about.

1.1. Meaning of Research

The word research is derived from the word search preceded by the prefix *re (re-search)*. Thus literally the meaning of research is searching again. Different scholars may define research differently. For the purpose of this course, however, research may be defined as the systematic and objective process of (planning), gathering, recording, analyzing and interpreting data to prove or disprove a hypothesis (Zikmund, 2000).

1.2. **Important Points in this Definition**

- Research is a process that involves planning, gathering, recording, processing, analyzing and interpreting data; the data can be primary or secondary -Strives to be objective and logical, applying every possible test to validate the procedures employed, the data collected, and the conclusion reached.
- Research is systematic that it is based on scientific techniques of inquiry and analysis; it does not refer haphazard and subjective processes - emphasizes the development of generalizations, principles, or theories that will be helpful in predicting future occurrences

- Research is objective that it is reliable and can be repeated by the same or other researchers; this calls for using clearly prescribed research techniques and methodologies which a researcher may use them for testing the validity of a hypothesis - is based upon observable experience or empirical evidence
- Research is purposeful that it aims at testing a hypothesis or a tentative solution - directed toward the solution of a problem

  Generally, research is an organized inquiry carried out to provide information for the solution of a problem. Research is an organized and systematic way of finding answers to questions.

  Business Research is an organized, systematic, data based on critical, objective, scientific enquiry or investigation into a specific problem, undertaken with the purpose of finding answers or solutions to it. In essence research provides the needed information that guides managers to make informed decisions to successfully deal with problems. The role and prominent characteristics of research may be described by the ***Acronym RESEARCH.***

  - **R**ecognition of information needs
  - **E**ffective decision making
  - **S**ystematic and objective
  - **E**xude or disseminate information
  - **A**nalysis of information
  - **R**ecommendations for action
  - **C**ollection of information
  - **H**elpful to managers.

1.3. Types of Research

Dear leaner! What are the types of research (specify the types of research you do know on the space provided below)

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Research is knowledge/Knowing the gap between what is happening and what we think to happen. Research is conducted for various purposes and on the basis of the purpose of research and the methodology employed; the following are the common types of research and their Basis of Classification.

- ☐ Goal of research

1. Basic research
2. Applied research

- ☐ Specific Objectives of Research

1. Descriptive
2. Explanatory
3. Exploratory/investigative

- ☐ Approaches of research

1. Qualitative research
2. Quantitative research

- ☐ Designs

1. Experimental
2. Quasi-experimental
3. Non-experimental

- ☐ The type of data used in research

1. Primary or field research
2. Secondary or desk research

- ☐ Fields of study.
    1. Natural science research,
    2. Social science research,

3. Educational research,
4. Behavioral science research,
5. Health science research, *etc*

Basic vs. Applied Research

Basic Research/Pure Research/Fundamental Research

It is the investigation of problems to further and develop existing Knowledge. It is mainly concerned with generalization and formulations of theories. Gathering information and acquiring knowledge for knowledge‘s sake is termed basic research. It aims to solve confusing questions of a theoretical nature that have little direct impact on action, performance, or policy decisions. It leads to major scientific breakthrough.

The major **aims** of basic research include:

- ☐ Obtaining and using empirical data to formulate, expand, or evaluate theory; and
- ☐ Discovery of knowledge solely for the sake of additional power.

Basic research:

- ☐ Represents a rigorous and structured type of analysis;
- ☐ Employs careful sampling procedures in order to extend the findings beyond the group or situation;
- ☐ Basic research lays down the foundation for the applied research that follows; and
- ☐ Has little concern for the application of the findings or social usefulness of the findings

Problem That Calls For Basic Research

1) Right from her days as a clerical employee in a bank , Belyou had observed that her colleagues , though extremely knowledgeable about the nuance and intricacies of Banking , were exerting very little effort to improve the efficiency and effectiveness of the bank in the area of customer relations and services. They took on the minimum amount of work load, availed of long tea and lunch breaks, and seamed not motivate d in their dealings with the customers or the management. That they were highly

knowledgeable about banking policies and practices was clearly evident from their mutual discussions about these as they processed applications from customers . Belyou herself was very hard working and enjoyed her work with customers. She always used to think what a huge waste it was for talented employees to goof off rather than contribute to GNP. When she left the bank and did her dissertation for her Ph.D.' her topic of investigation was job involvement, or the ego investment of people, in their jobs. The conclusion of her investigation was that the single most important contributory factor to job involvement is the fit or match between the nature of the job and the personality predispositions of the people engaged in performing it. For example, challenging jobs allowed employees with high capabilities to get job –involved, and people –oriented employees got job-involved with service activities. Belyou then understood why the highly intelligent bank employees could not get job-involved with service activities. Belyou then understood why the highly intelligent bank employees could not get job-involved or find job satisfaction in the routine jobs that rarely called for the use of their abilities. Subsequently, when Belyou joined the internal research team of a Fortune 500 company, she applied this knowledge to solve problems of motivation, job satisfaction, job involvement, and the like, in the organization.

- ☐ The above is an instance of basic research, where knowledge was generated to understand a phenomenon of interest to the researcher.
- ☐ Most research and developments in various industries , as well as many professors in colleges and universities , do basic or fundamental research , so that more knowledge is generated in particular areas of interest to industries , organizations, and researchers.
- ☐ Though the objectives of engaging in basic research is primarily to equip oneself with additional knowledge of certain phenomena and problems that occur in several organizations many professors in colleges and universities , do basic or fundamental research , so that more knowledge is generated in particular areas of interest to industries , organizations , with a view to finding solutions , the knowledge generated from such research is often applied later for solving organizational problems.

2) An investigation on the causes of Global warming.

3) A general electric company engaged on generating knowledge on the different application of electrical energy under the Motto “we bring good things to life.”
4) How to improve the effectiveness of information systems, integrate and the like. ate technology into the overall strategic objectives of an organization, assess the impact of logos, increase the productivity of employees in service industries , Monitor sexual harassment incidents at the work place , increase the effectiveness of small businesses , evaluate alternative inventory valuation methods , change the institutional structures of the financial and capital market .University professors engage in basic research in an effort to understand and generate more knowledge about the various aspects of business-which these findings later become useful for application in business situations.

Applied Research

Research done with the intention of applying the results of the findings to solve specific problems currently being experienced in the organization. It has a practical problem solving emphasis, although the problem solving is not always generated by negative circumstances. Problem solving based as it is conducted to reveal answers to specific questions related to action, performance, or policy needs. It is undertaken to solve a specific problem. It attempts to solve specific management problems.

- Applied research is designed to solve practical problems of the modern world, rather than to acquire knowledge for knowledge's sake.
- The goal of the applied scientist is to improve the human condition. It is undertaken to solve immediate practical problem and the goal of adding to the scientific knowledge is secondary.
- The primary purpose for applied research is discovering, interpreting, and the development of methods and systems for solving practical problems.

Problem That Calls For Applied Research

1) Oxford health plans Inc. Saw trouble brewing. It was a company in distress experiencing computer problems. Turnover among Oxford’s programmers was, unusually high and processing of claims become a big terrible. Clients started cancelling their policies, claims for bypass surgery and such were way up, and premiums paid out relative to clients’ medical expenses, on a percentage basis, was close to 85%.

- It is obvious that Oxford has a multitude of problems and an outside consultant- researcher would perhaps be able to design a scientific study that would look into them.
- Presumably, this would be a lengthy investigation that could then consider them, make the right decision, and thereby solve Oxford's problems.
- This problem illustrates the need for applied research and can be solved through investigation and good managerial decision making.

2) Xerox is insular and is not ready for the increasingly competitive, high tech world. Xerox still relies on old fashioned and slow- selling analog copiers, for more than half its revenue and despite its double –digit growth in digital products and services, its sales rose just 4 %. In this situation, Xerox also needs to look into the efficacy of the analog technology used in copiers and examine what should be done to increase efficiency and promote its sales. This problem illustrates the need for applied research and can be solved through investigation and good

In sum , both applied and basic business research are scientific in nature , the main difference being that the former is undertaken specifically to solve a current business problem whereas the latter is primarily resorted to because of the importance of the subject to the researcher. A deeper understanding of the phenomenon would be useful for its own sake as well as for application later, as needed. It is also possible that some applied research could have a shorter time frame than some basic research.

Descriptive/Explanatory& Exploratory Research

Descriptive research

- ☐ It sets out to describe and to interpret what is.
- ☐ It looks at individuals, groups, institutions, methods and materials in order to describe, compare, contrast, classify, analyze and interpret the entities and the events that constitute the various fields of inquiry.
- ☐ It aims to describe the state of affairs as it exists.
- ☐ The goal of descriptive research is to describe some aspect of a phenomenon, i.e., the status of a given phenomenon.

***Exploratory* Research**

- ***Exploratory* research** aims at establishing the cause and effect relationship between variables.
- The researcher goes beyond merely describing the characteristics, to analyze and explain why or how something is happening.
- ***Exploratory*** or analytical research aims to understand phenomena by discovering and measuring causal relations among them.
- Explanatory research builds on both exploratory and descriptive researches.
- It involves:
    - Explaining things not just reporting. Why? Elaborating and enriching a theory's explanation.
    - Determining which of several explanations is best.
    - Determining the accuracy of the theory; test a theory's predictions or principle.
    - Providing evidence to support or refute an explanation or prediction.
    - Testing a theory's predictions or principles.

Quantitative Vs. Qualitative Research Vs. Pluralistic Research

Quantitative Research: Based on the measurement of quantity or amount. Applicable to phenomenon that can be expressed in terms of quantity.

- Quantitative research is the systematic and scientific investigation of quantitative properties and phenomena and their relationships.
- The objective of quantitative research is to develop and employ mathematical models, theories and hypotheses pertaining to natural phenomena.
- The process of measurement is central to quantitative research.

- Quantitative research involves surveys and experiments
- Quantitative approach typically concentrates on measuring or counting and involves collecting and analyzing numerical data and applying statistical tests.

Qualitative Research: Concerned with qualitative phenomena. Is important in behavioral sciences where the aim is to discover the underlying motives, interests, personality and attitudes of human beings.

Qualitative research is a type of empirical enquiry that entails purposive sampling for gathering data. It involves:-

- in-depth interviews,
- group discussions,
- projective techniques,
- Observations without formal measurement.
- A case study, which is an in-depth examination of one person, is a form of qualitative research.

Pluralistic Research: Defined as the combination of qualitative & quantitative research methods in order to gain the advantages of both. With pluralistic research , it is common to begin with exploratory qualitative techniques as, for example , in-depth interviews of selected dealers or a series of group discussion with customers in order to understand how they perceive your product and service as compared to those of competitors. The qualitative phase serves as the foundation for the quantitative phase of the research project because it provides the researcher with first-hand knowledge of the research problem. Armed with this knowledge, the researcher's design and execution of the quantitative phase is invariably superior to what it might have been without the qualitative phase. With pluralistic research , the qualitative phase serves to frame the subsequent quantitative phase , and in some cases , a qualitative phase is applied after a Quantitative study to help the researcher understand findings in the quantitative phase.

1.4. Objective and Significance of Research

Objectives of Research

According to Kothari (2004), the objectives of research can be summarized as follows. Then purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies):-

- ❖ To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies);
- ❖ To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies);
- ❖ To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

Significance of Research

All progress is born of inquiry. Doubt is often better than overconfidence, for it leads to inquiry, and inquiry leads to invention. Kothari (2004) summarizes the significance of research as follows.

- ✓ Research provides the basis for nearly all government policies in our economic system.
- ✓ Research has its special significance in solving various operational and planning problems of business and industry
- ✓ Research is equally important for social scientists in studying social relationships and it's seeking answers to various social problems.
- ✓ Research can also mean the out let for new ideas and insights

Emory and Cooper (1991) summarize the importance of research from individual angle, particularly in management and business as follows.

- ✓ A manager often needs more information before making certain decisions. Your options are limited if there is no one to whom you can delegate this task; you either do not gather the information, or gather it yourself, it is hoped, with some reasonable level of skill. It is obvious which option is the better.

- ✓ You may be called upon to do a research study for a higher-level executive.
- ✓ You may find a career position as a research specialist. As a specialized function, it offers attractive career opportunities especially in the areas of financial analysis, marketing research, and operations research.

1.5. Methods of Scientific Research

Activity:-

What is the major difference between Research methods and Research Methodology?

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The basic differences between Research methods and Research methodology

- ☐ A method is a particular research technique or way to gather evidence about a phenomenon.
- ☐ Methods are the specific tools to gather data such as surveys, interviews, participant observations.
- ☐ Methodology describes "the theory of how inquiry should proceed"
- ☐ Methodology encompasses our entire approach to research – how we design and implement research studies.

Research methods are rules and procedures, and can be seen as "tools or ways of proceeding to solve problems "research methods play several roles, such as:

- ☐ "logic" or ways of reasoning to arrive at solutions;
- ☐ Rules for communication, i.e. to explain how the findings have been achieved;
- ☐ Rules of inter-subjectivity, i.e. outsiders should be able to examine and evaluate research findings.

Scientific research is concerned with observed facts systematically classified, and includes trustworthy methods to discover truths. This method of inquiry is a very important aspect of

science. Observation, hypothesis & verification are the three important components of scientific enquiry.

Working ***Assumption of Science***

In searching for causes, a researcher will adopt any one of these assumptions:-

- ***Realism-*** the philosophy that perceived objects has an existence outside the mind.
- ***Rationality-*** a view that reasoning is the basis for solving problems.
- ***Regularity***- a belief that phenomena exist in recurring patterns that conform to universal laws.
- ***Discoverability-*** the belief that is possible to find solution to questions posed.
- ***Determinism***: the doctrine that all events happen because of preceding causes.

Characteristics of Scientific Methods

Two general traits characterize the scientific method:-

- ***Validity***: is the characteristics used to describe research **that measures what it claims to measure** For example , to measure TV-viewing audiences people meter –mechanical device is put on TV sets to determine when they are turned on.
- ***Reliability:*** is the characteristic of a research methodology that allows it to be **repeated again and again by any researcher** –always with the same results.

Scientists working in their laboratories control all aspects of their experiments and report them in detail so that other scientists can attempt the same study and confirm the results.

Distinction between the Scientific and Non-Scientific Methods

The main differences between scientific and nonscientific methods include the following:-

- **Objectivity of the Researcher**: researchers must base their judgment on facts, not on preconceived notions or intuitions.
- ***Accuracy of Measurement:*** the scientific method attempts to obtain the most accurate measurement possible.
- **Continuing & exhaustive Nature of investigation**: a scientific investigation considers all facts pertinent to the problem at hand. It needs being courageous.

1.6. The output of Research

Activity:-

Dear Learner! Is research a means to an end or an end by it-Self?

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Information is often required to solve a specific problem to minimize risk and uncertainty which makes research a means to end **(Applied research**).Research can also be used to increase knowledge or understanding. This makes research an end in itself **(Basic Research).**

1.7. Chapter Summary

Research in management is the application of scientific methods in searching for the truth about business phenomena. It is a process that includes activities of idea and theory development, problem definition, searching for and collecting information, analysis data, and communicating the findings and their implication.

Research is a careful enquiry or examination to discover new information or relationship and to expand and verify the existing knowledge. Research comprises defining and redefining problems, formulating hypothesis, collecting, organizing and evaluating data, making deduction and reaching conclusion and lastly carefully testing the conclusion to determine whether the fit for formulating hypothesis. Research is thus an original contribution to the existing stock of knowledge-making for its advancement, the research for knowledge through objective and systematic methods of finding solution to a problem.

Here are different ways of classifying research. As illustration, in this module research is classified based on goal of research, specific objectives of research, approaches of research, designs, the type of data used in research, and fields of study.

- In terms of goals, research is divided into basic and applied research.
- In terms of specific objectives, research is divided into descriptive, explanatory, and exploratory research.

In terms of approach, research is divided into qualitative and quantitative research.
• In terms of design, research is divided into experimental, quasi-experimental, and non-experimental research.
•In terms of the type of data to be generated, research can be classified as primary and secondary research.
• In terms of fields of study, research can be classified as natural science, social science, health science, engineering, behavioral science, etc. research.
•The aim of basic research is the advancement of knowledge and involves rigorous and structured type of analysis.
•Applied scientific research can be about finding out the answer to a specific problem.
•Descriptive research sets out to describe and to interpret what is.
•Explanatory research, aims at establishing the cause and effect relationship between variables.
• Exploratory research focuses on gaining background information and helps to better understand and clarify a problem.
•The methods that come under descriptive research are: surveys, correlation studies, observation studies, and case studies.
•There are two types of explanatory research: experimental research and *ex post facto* research
• Qualitative and quantitative approaches differ in terms of the nature of reality, relationship of the researcher to the research participants, the possibility of generalizations, the possibility of causal linkage, and in terms of the role of values in research.

1.8. Self-Check Exercises

1. Which of the two types of research (basic or applied) will be the focus of your graduate research?_____
_____

2. Is there commercial value involved in the discoveries that result from basic research?
_____
_____

3. Is basic research important for progress to take place?
_____

4. When do we use basic research?
5. Is applied research different from action research?

6. When do we use applied research?

_____

_____

7. How do basic and applied researches differ? Is one type of research more important than the other?

_____

_____

8. When is each type of research useful? Can you give examples?

CHAPTER TWO

DEFINING RESEARCH PROBLEM AND HYPOTHESIS FORMULATION

Chapter Objectives

After completing this chapter, students will be able to:

- ✓ Define research problem
- ✓ Identify Components of research problem
- ✓ Formulate research Problem, hypothesis and research question
- ✓ Identify Criteria for hypothesis formulation

1.1. Introduction

Activities:

1. Discus on the approaches to problem definition and formulation of research problem

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2. Develop your own research problem and formulate research questions and hypothesis

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The research process starts with an idea or a title. Hence, formulating and clarifying the research topic is the starting point of a research project. Once a researcher is clear about this, he/she will be able to choose the most appropriate research strategy and data collection and analysis techniques.

A starting point while writing research questions is to begin with one general-focus research question that flows from your research idea. This may lead to several more detailed questions or the definition of research objectives. Before discussing the research problem is s pertinent to discuss the need for research and situations in which research may not be inappropriate.

The Need for Research

To establish the need for research, all organizations should monitor their surrounding environments on a continuous basis using a monitoring system. The primary objective of a

monitoring system is to bring operating information to management. Such information allows management:

- To evaluate whether their current operating information results in meeting performance objectives.
- If proposed legislation has an impact on consumer spending or other industry interests,
- Whether changes in consumer values and lifestyles are occurring , or
- If new strategies are being implemented by competitors.

Note: Monitoring may be accomplished either formally or informally and in a variety of ways.

- A firm may have a sophisticated formal management information system (MIS).
- Another firm may have a more traditional control system that primarily relies on financial statements as feedback.
- A small business owner /manager may diligently observe the environments that affect his or her firm.

Situations in Which Research May Not Be Needed

The four major situations where research may not be needed include the following:

1. ***Information Is Already Available***
    - If management knows its markets, competition, and the product/services, they may have the necessary information to make an informed decision without commissioning a research study.
    - It is possible to have information on sales, costs, and profitability available by product, customer, region, salesperson, and so on, at the touch of a key.
2. ***There Is Insufficient Time For Research***
    - Occasionally, a problem is discovered that requires an immediate response on the part of management.
    - When competitive pressure or customer shifts demand quick management actions, there may not be enough time to carry out a properly conducted research project.

- Although research will be helpful, circumstances argue strongly against performing it.

3. Resources Are Not Available

- Oftentimes resources are not available for research.
- If conducted in-house, research requires a commitment of personnel, facilities, and budget.
- If conducted by an outside firm, money as well as some personnel time is needed.
- If there is not enough money to devote to the research, management must simply make the decision that those resources are better spent elsewhere.

4. Costs Outweigh The Value Of The Research

- Even when funds and other resources are available to conduct research, management must always weight the costs of conducting the research with the potential value of conducting the research.
- Some decisions have relatively little impact on company sales, profits, consumer loyalty, dealer goodwill, and so on, and, as a result, they simply do not justify the expenditure.

Once we are very clear about the above two –steps, we will then shift to define the Business problem.

2.2 Meaning of Research Problem

Dear Leaner! What does it mean research problem to you (specify your view on the space provided below)

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After the interviews and the literature review, the researcher is in a position to narrow down the problem from its original broad base and define the issues of concern more clearly. It is critical that the focus of further research, or in other words, the problem, be unambiguously identified

and defined. No amount of good research can find solutions to the situation, if the critical issues or the problem to be studied is not clearly pinpointed.

A Problem does not necessarily mean that something is seriously wrong with a current situation that needs to be rectified immediately. A "problem" could simply indicate an interest in an issue where finding the right answers might help to improve an existing situation.

Thus, it is fruitful to define a problem as any situation where a gap exists between the actual and the desired ideal seats. Basic researchers usually define their problems for investigation from this perspective. For instance, we would ideally like to see zero defects, low inventory of unsold goods, and high share quotation in the stock market, and so on. These "problems "could then very well become the foci of research. Thus, problem definitions could encompass both existing problems in a current setting, as well as the quest for idealistic states in organization.

Problem definition or problem statements ,as it is also often referred to, is a clear , precise ,and concise statement of the question or issue that is to be investigated with the goal of finding an answer or solution. As mentioned earlier, problem definition could pertain to:

- → Existing business problems where a manger looking for a solution,
- → Situations that may not pose any current problems but which the manager feels have scope for improvement ,
- → Areas where some conceptual clarity is needed for better theory building, or
- → Situations in which a researcher is trying to answer a research question empirically because of interest in the topic.
- → The first two fall within the realm of applied research, and the latter two under basic research.

Defining the problem is critical to setting the direction for all subsequent phases of the research process. This is particularly true for custom designed research, as opposed to standardized / syndicated research.

- ***Standardized /syndicated research*** is generic research that is provided in identical fashion to all customers by the research Business.

- **Custom- designed research** is research that is fashioned to address a unique management problem confronting a client manager. Custom- designed research requires that the researcher fully understand the circumstances of the manager‘s problem.

It is common for the manager and the researcher to define the problem. If the problem is not defined correctly, satisfactory performance at the other stages in the research process will not remedy the situation. Careful attention to problem definition allows the researcher to set the proper research objectives. Problem definition is the indication of a specific business decision area that would be classified by answering some research questions. Problem definition is problem selected area of research. A problem definition error or omission is likely to be a costly mistake that cannot be corrected in latter stages of the process.

Broad problem areas that a manager could observe at the work place are as follows:

- → Training programs are perhaps not as effective as anticipated.
- → The sales volume of a product is not picking up.
- → Minority group members in organizations are not advancing in their careers.
- → The introduction of flexible work hours has created more problems than has solved in many companies.
- → Inventory control is not effective.
- → The installation of an MIS keeps getting slowed down E.T.C.

The broad problem area would be narrowed down to specific issues for investigation after some preliminary data are gathered by the researcher. This may be through interviews and literature research.

THE PROCESS OF PROBLEM DEFINITION

Just because a problem has been discovered or an opportunity has been recognized not mean that the problem has been defined. A problem definition indicates a specific managerial decision area that will be clarified by answering some research questions. Defining a research problem involves the following interrelated steps.

1. Ascertain the decision maker's objectives.
2. Understand the background of the problem.
3. Isolate and identify the problem rather than its symptoms.

4. Determine the unit of analysis.

5. Determine the relevant variables.

6. State the research questions (hypotheses) and research objectives.

1. Ascertain the Decision Maker's Objective

Despite a popular misconception to the contrary, objectives are seldom clearly articulated and given to the researcher. The decision maker seldom formulates his objectives accurately. He is likely to state his objectives in the form of tired expressions which have no operational significance. Consequently, objectives usually have to be extracted by the researcher. In so doing, the researcher may well be performing his most useful service to the decision maker.

One effective technique for uncovering elusive research objectives consists of presenting the manager with each possible solution to a problem and asking whether he or she would follow that course of action. If the decision maker says "no," further questioning to determine why the course of action is inappropriate usually will help formulate objectives. Often exploratory research can illuminate the nature of the opportunity or problem and help managers clarify their objectives and decisions.

2. Understanding the Background of the Problem

Although no textbook outline exists for identifying the business problem, the iceberg principle illustrates that understanding the background of a problem is vital. In situations in which the decision maker's objectives are clear, the problem may be diagnosed exclusively by exercising managerial judgment. In other situations in which information about what has happened previously is inadequate or if managers have trouble identifying the problem, a **situation analysis** is the logical first step in defining the problem. A situation analysis involves a preliminary investigation or informal gathering of background information to familiarize researchers or managers with me decision area gaining an awareness of organizational or environmental conditions and an appreciation of the situation often requires exploratory research. The exploratory research techniques can be important tools.

3. Isolating and Identifying the Problem, Not the Symptoms

Anticipating all of the dimensions of a problem is impossible for any researcher or executive.

For instance, a firm may have a problem with its advertising effectiveness. The possible causes of this problem may be low brand awareness, the wrong brand image, use of the wrong media, or perhaps too small a budget. Management's job is to isolate and identify the most likely causes. Certain occurrences that appear to be "the problem" may be only symptoms of a deeper problem. The illustration in the following page shows how symptoms may cause confusion about the nature of the true problem.

Indicators of Symptoms and True Problems

Organization	**Symptoms**	**Problem Definition Based on Symptoms**	**True Problem**
20-year-old neighborhood swimming association in a major city	Membership has been declining for years; new water park with wave pool and water slides moved into town a few years ago.	Neighborhood residents prefer the expensive water park and have a negative image of the swimming pool.	Demographic changes: Children in the neighborhood have grown up, and older residents no longer swim at all.
Brewery	Consumers prefer taste of competitor's product.	Taste of brewery's product needs to be reformulated	Old-fashioned

4. What is the unit of analysis?

The researcher must specify whether the level of investigation will focus on the collection of data about organizations, departments, work groups, individuals or objects. There searchers who think carefully and creatively about situations often discover that a problem may be investigated at more than one level of analysis.

Researchers who think carefully and creatively about situations often discover that a problem may be investigated at more than one level of analysis. Determining the unit of analysis, although relatively straightforward in most projects, should not be overlooked during the problem definition stage of the research. It is a crucial aspect of problem definition.

5. What are the Relevant Variables?

Another aspect of problem definition is identification of the key variables. The term *variable* is an important one in research. A variable is defined as anything that varies or changes in value. Because a variable represents a quality that can exhibit differences in value, usually in magnitude or strength, it may be said that a variable generally is anything that may assume different numerical or categorical values.

Key variables should be identified in the problem definition stage. In causal research the terms *dependent variable* and *independent variable* are frequently encountered. A dependent variable is a criterion or a variable that is to be predicted or explained. An independent variable is a variable that is expected to influence the dependent variable. For example, average hourly rate of pay may be a dependent variable that is influenced or can be predicted by an independent variable such as number of years of experience!

6. **State the research questions and research objectives**.

Both managers and researchers expect problem solving efforts to result in statements of research questions and objectives. At the end of the problem solving stage of the research process researchers should prepare a written statement that clarifies any ambiguity about what the hope the research will accomplish. Formulating a series of research questions and hypothesis can add clarity to the statement of the business problem.

The inclusion of research questions makes it easier to understand what perplexing to managers is and indicate the issues to be resolved. A research question is the researcher' translation of the business problem into a specific need for inquiry. The goal of defining the problem is to state the research questions clearly and to have well formulated hypothesis.

Research Objectives: -The research objective is the researcher's version of the business problem. Once the research questions and/or hypotheses have been stated, the research project

objectives are derived from the problem definition. These objectives explain the purpose of the research in measurable terms-and define standards of what the research should accomplish. In addition to stating the reasons for initiating the research project, outlining objectives helps to ensure that the project will be manageable in size.

In some instances the business problems and the research objectives are the same. The objectives must, however, specify the information needed to make a decision. Identifying the information needed may require managers or researchers to be as specific as listing the exact wording of the question in a surveyor explaining exactly what behavior might be observed or recorded in an experiment. Statements about the required precision of the information or the source of the information may be required to clearly communicate exactly what information is needed. Many career decisions, for example, are made by both a husband and wife. If this is the case, the husband-wife decision-making unit is the unit of analysis. The objective of obtaining X information about research questions from this unit should be specifically stated.

It is useful if the research objective is a managerial action standard. The number of research objectives should be limited to a manageable quantity. The fewer the study objectives, the easier it is to ensure that each will be addressed fully.

Therefore, specific objectives influence the research design because they indicate the type of information needed. Once the research is conducted, the results may show an unanticipated aspect of the problem and may suggest that additional research is required to satisfy the main objective.

2.3. Components of Research Problem

A **research problem** refers to some difficulty either of a theoretical or practical character which an individual or organization is experiencing and wants to obtain a solution for the same. There are a number of elements (components) which a problem must have before it becomes a research problem ready for study. The Following are the 5 Elements of a Research Problem:-

1. **Objective or aim of the problem which is to be investigated.** This answers the question "Why?" Why is there a need for investigation, inquiry or study? - **There must be some objectives to be attained.**

2. **The topic or theme which needs to be investigated.** This answers the question "What?"

What is to be researched or studied?" For example: What would a rival company do if we decrease our prices by 25%? What would sales be if prices were Rs. 89 ? Rs. 99? How would a rival firm's action influence our sales and profits? The right question needs to be addressed if research is to help decision makers. The decision maker can't acquire all the information, but it is often feasible to identify the factors that are critical to the existing problem. These factors are then included in the problem definition. -**There must be an individual or a group that has some difficulty or problem**

3. **The time dimension of a decision problem is always the future.** The period or time of the study when the data are to be gathered. This answers the question "When?" When is the research to be performed?" Managers frequently run the risk of making the correct decision at incorrect time. It is essential that the decision maker as well as the researcher determine the right time reference for-the decision.

4. **The area or location in which the study is to be conducted.** This answers the question "Where?" Where we need to conduct the study? The space coordinates give you the geographic boundaries within which the action is to be taken. In the problem definition, these lines are hardly ever neat political divisions or subdivisions. The universe of interest should be defined either conceptually or by enumeration.

5. **Population or universe from whom the data needs to be gathered.** This answers the question "Who?" or "from whom?" Who are the respondents? From who are the data to be collected?" They may include persons, groups of persons, business establishments.

Sources of Problems

The ways in which one may be able to identify research problems/ develop problem awareness are:

Reading: When we critically study books and articles relating to the subject of our interest, pertinent questions may arise in our minds. Similarly, areas of research may strike us when we read research reports.

Academic experience: Classroom lecture, class discussions, seminar discussions and out-of-class exchange of ideas with fellow students and professors will suggest many stimulating to be

studied.

Daily experience: Life is dynamic. We learn new things and undergo new experiences every day. If we are alert, inquisitive and sensitive to life situations, we may hit upon questions worth investigating.

Exposure to field situations: Field visits, internship training and extension work provide exposure to practical problems, which call study.

Consultations: Discussions with experts, researchers, administrators, and business executives help a researcher identify meaningful problems for research.

Brainstorming: Intense discussion by a group of interested persons may often be a means of identifying pertinent questions, and of developing new ideas about a problem.

Research: Research on one problem may suggest problems for further research.

Intuition: Sometimes new ideas may strike one like a flash. A reflective mind is a spring of knowledge.

Defining research problem

A problem clearly stated is a problem half solved. The problem to be investigated must be defined unambiguously for that will help to discriminate relevant data from the irrelevant ones. A proper definition of research problem will enable the researcher to be on the track whereas an ill-defined problem may create hurdles. Formulation of a problem is often more essential than its solution. It is only on careful detailing the research problem that we can work out the research design and can smoothly carry on all the consequential steps involved while doing research. Defining a problem involves the task of laying down boundaries within which a researcher shall study the problem with a pre-determined objective in view. Hence, the research problem should be defined in a systematic manner, giving due weight age to all relating points.

Formulation of research problem

A research problem, in general, refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain a solution for the same. an individual or a group of persons can be said to have a problem which can be technically described as a research problem, if they (individual or the group), having one or more desired outcomes, are confronted with two or more courses of action that have some but not equal efficiency for the desired objective(s) and are in doubt about which course of action is best.

Selecting research problem

The research problem undertaken for study must be carefully selected. Help may be taken from a research guide in this connection. Nevertheless, every researcher must find out his own salvation for research problems cannot be borrowed. A problem must spring from the researcher's mind like a plant springing from its own seed. Thus, a research guide can at the most only help a researcher choose a subject. However, the following points may be observed by a researcher in selecting a research problem or a subject for research:

Subject which is overdone should not be normally chosen, for it will be a difficult task to throw any new light in such a case.

Controversial subject should not become the choice of an average researcher.

Too narrow or too vague problems should be avoided.

The subject selected for research should be familiar and feasible so that the related research material or sources of research are within one's reach. Even then it is quite difficult to supply definitive ideas concerning how a researcher should obtain ideas for his research.

The importance of the subject, the qualifications and the training of a researcher, the costs involved, and the time factor are few other criteria that must also be considered in selecting a problem.

The selection of a problem must be preceded by a preliminary study. This may not be necessary when the problem requires the conduct of a research closely similar to one that has already been done. But when the field of inquiry is relatively new and does not have available a set of well-developed techniques, a brief feasibility study must always be undertaken.

Evaluation of the problem

Before the final decision is made on the investigation of the problem, the feasibility of the problem has to be tested with regard to personal suitability of the researcher and social value of the problem. In short, the research problem should be evaluated in terms of the following criteria.

Is the problem researchable?

Some problems cannot be effectively solved through the process of research. Particularly, research cannot provide answers to philosophical and ethical questions that do not show the relationship existing between two or more variable vividly. Therefore, the problem must be stated in workable research question that can be answered empirically.

Is the problem new?

As much as possible, the research problem needs to be new. One should not target his investigation to the problem that had already been thoroughly investigated by other researchers. To be safe from such duplication, the researcher has to go through the record of previous studies in a given field. However, there are times where by a problem that has been investigated in the past could be worthy of study. A researcher may repeat a study when he wants to verify its conclusion or to extend the validity of its findings in situation entirely different from the previous one.

Is the problem significant?

The question of significance of the problem usually relates to what a researcher hopes to accomplish in a particular study. What is his purpose in undertaking to solve the particular problem he has chosen? What new knowledge does he hopes to add to the sum total of what is known? And what value is this knowledge likely to have? When these all questions are answered clearly by the researcher, the problem should be considered for investigation.

The researcher should show that the study is likely to fill the gaps in the existing Knowledge to help resolve some of the inconsistencies in previous research or to help in the reinterpretation of the known facts. The findings should become a basis for theory generalization, or principles and should lead to new problems further research.

Is the problem feasible?

In addition to the above-stipulated points, the feasibility of the research problem should also be examined from the point of view of the researcher's personal aspects as stated hereunder.

Researcher Competence: The problem should be in an area in which the researcher qualified and competent. Before indulging into investigation of the problem, the researcher has to make sure that he is well acquainted with the existing theories, concepts and laws related to the problem. He must also possess the necessary Skills and competence that may be needed to develop, administer, and interpret the necessary data gathering tools. What is more, he needs to consider whether he has the necessary knowledge of research design and statistical procedure that may be required to carry out the research through its completion.

Interest and enthusiasm: The researcher has to make sure that the problem really interests him. He must also be truly enthusiastic about the problem. If the problem is chosen properly by observing these points, the research will not be boring; rather it will be love's labor.

F**inancial consideration:** Research is an expensive endeavor, which requires a great deal of money to invest. In this regard, the researcher should ascertain whether he has necessary financial resources to carry on the investigation of the selected problem. An estimate of the expenditure involved in the data gathering equipment, printing, test material, travel, and clerical assistance to be specified. Furthermore, the possible sources of fund must be consulted ahead of time.

Time requirement: Research should be undertaken within a given scope of time, which was allocated, with careful analysis of the prevailing situation. Each and every activity of a research process requires time. Particularly, it is worthwhile to plan for the time that will be needed for the development and administration of tools, processing and analysis of data, and writing of the research report. While allocating time for research project, care should be taken for the researcher's other engagement or commitments, the respondents' accessibility, the expiry data of the required data.

Administrative consideration: The researcher has to pay to all administration matters that are necessary to bring his study to its full administrative matters that are necessary to bring his study to its full completion. In this regard the researcher should consider the kinds of data equipment, specialized personnel. And administrative facilities that are needed to complete the study successfully. The researcher must assure whether the pertinent data are available and accessible to him.

2.4. Problem Formulation and Research Question

Conditions for effective formulation of research problems are the following:-

1. Systematic immersion/interest in the subject through first hand observation (information)

The researchers must dip themselves thoroughly in the subject area within which she wishes to solve a specific problem. No experience is more rewarding in terms of getting a deep feel of the situation. For example, a research study on absenteeism may require discussions with the

employees themselves, their family background, their colleagues, and their superiors. This may include observation & secondary data sources.

2. Study of relevant literature on the subject

The researcher must be well equipped to experience some difficulty or challenge. Literature review enables the researcher to know if there are certain gaps in the theories or whether the prevailing theories applicable to the problem are inconsistent with each other or whether the finding of different studies do not follow a pattern consistent to the theoretical expectations & so on.

3. Discussions with persons with practical experience in the field of study: experience survey

It is also important to consult people with adequate experience on the subject of the study

2.5. What is Hypothesis?

Activity:-

Dear Learner! What do you think the difference between research question and hypothesis development?

_____

_____

_____

_____

Research Questions & Development of Hypothesis

Research Questions: are refined statements of the specific components of the problem.

Hypothesis: an unproven statement or proposition about a factor or phenomenon that is of interest to the researcher.

Specific Research Questions:-

RQ1: what foods are considered to be comfort foods?

H1: potato Chips are considered comfort foods.

H2: Ice cream is considered comfort food.

RQ2: when do people eat comfort foods?

H3: people eat comfort foods when they are in a good mood.

H4: people eat comfort foods when they are in a bad mood.

RQ3: How do people become attached to comfort foods?

H5: People are attached to comfort foods that are consistent with their personality.

H6: People are attached to comfort foods because of past association.

A General Procedure for Hypothesis Testing

Null hypothesis is a statement in which no difference or effects are expected. If the null hypothesis is not rejected, no changes will be made.

- → The null hypothesis is a proposition that states a definitive, exact relationship between two variables.
- → It states that the population correlation between two variables is equal to zero or that the difference in the means of two groups in the populations is equal to zero or the difference in the means of two groups in the population is equal to zero(or some definite number).
- → In general, the null statements are expressed as no (significant) relationship between two variables or no (significant) difference between two groups.

Alternative Hypothesis: is a statement that some difference or effect is expected. Accepting the alternative hypothesis will lead to changes in opinions or actions.

Directional and Non –Directional Hypothesis

Directional Hypothesis (DP)

- → DH is refers to those hypothesis that deals with relationships between two variables or comparing two groups.
- → In stating such hypothesis terms such as ***positive, negative, more than, less than,*** and the like are used.

Non Directional Hypothesis (NDH)

→ NDH are those that do no postulate a relationship or difference, but offer no indication of the direction of these relationships or differences.

→ In other words, though it may be conjectured that there would be a significant relationship between two variables, we may not be able to say the relationship would be positive or negative.

Parametric tests: hypothesis –testing procedures that assume that the variables of interest are measured on at least an interval scale.

Nonparametric test: hypothesis testing procedures that assume that the variables are measured on a nominal or ordinal scale.

The following steps are involved in hypothesis testing:-

→ Formulate the null hypothesis H_0 and the alternative hypothesis H_A.

→ Select an appropriate statistical technique and the corresponding test statistic.

→ Choose the level of significance, α.

→ Determine the sample size and collect the data .Calculate the value of the test statistics.

→ Determine the probability associated with the test statistics under the null hypothesis using the sampling distribution of the test statistics. Alternatively, determine the critical values associated with the test statistics that divide the rejection and non-rejection regions.

→ Compare the probability associated with the test statistics with the level of significance specified. Alternatively, determine whether the test statistics has fallen into the rejection or the non-rejection region.

→ Make the statistical decision to reject or not to reject the null hypothesis.

→ Express the statistical decision in terms of the marketing research problem.

Testable Statements

- If the pilots are given adequate training to handle midair crowded situations, air – safety violations will be reduced.
- If employees are more healthy, then they will take sick leave less frequently.(DH)

- The greater the stress experienced in the job, the lower the job satisfaction of employees.(DH)
- There is a relationship between age and job satisfaction.(NDH)
- There is a difference between the work ethic values of American and Asian employees.(NDH)
- The greater the extent of gender stereotyping in organizations, the fewer will be the number of women at the top.(DH)
- Male managers have more access to critical information than women managers in the same ranks.(DH)
- There will be a significant positive correlation between access to information and chances for promotion to top –level positions.(DH)
- The more the sex-role stereotyping, the less the access to critical information for women.(DH)
- Sex-role stereotyping and access to critical information will both significantly explain the variance in promotional opportunities for women to top-level positions.(NDH)

2.6. Importance of Hypothesis

Definition: Hypothesis or proposition is a tentative intelligent guess postulating from the purpose of directing the research towards the solution of the problem. Or it is a statement which predicts the relation between two or more variables. It is necessary link between theory and investigation, usually stated after an extensive survey of the literature.

A proposition is a statement about concepts that may be judged as true or false to observable phenomena. When a proposition is formulated for empirical testing it is hypothesis. Hypothesis has also been described as statements in which we assign variable to a case

***Importance of Research Hypothesis*:-**

- ❖ It is an indicator of the type of data needed.
- ❖ It gives direction to the research objectives
- ❖ It gives direction to data gathering techniques(Procedures)
- ❖ It facilitates the extension of knowledge because it links theory and investigation.

The initial hypothesis is called working hypothesis because it is subject to modifications as the investigation proceeds.

2.7. Criteria for Hypothesis Formulation

Once the problem to be answered in the course of research is finally instituted, the researcher may proceed to formulate tentative solutions or answers to it. These set of proposed solutions or explanations, which the researcher is obliged to test on the bases of already known facts are collectively termed as *hypothesis*. Collection of facts merely for the sake of collecting them would yield no fruits. To be fruitful the researcher should collect such facts as are for or against some point of view or proposition. Simply stated, a hypothesis helps the researcher to see and appreciate:

- The kind of data that need to be collected in order to answer the research question.
- The way in which they should be organized and classified most efficiently and meaningfully.

A hypothesis provides basic guide/direction/ frame work to be researcher. It is a tentative solution/proposition/explanation.

Research hypothesis may refer to an unproven proposition or supposition that tentatively explains certain facts; phenomena; a proposition that is empirically testable. Research questions are guides to the formulation of a research hypothesis. The goal of defining the problem is to state research questions clearly and to have well formulated hypothesis that again add clarity to the statement of the business problem. Hypotheses are statements that can be empirically tested. Problem statements & hypothesis are similar because both state relationships. But problem statements phrased as questions are interrogative and hypothesis are declarative. Besides hypothesis are usually more specific than problem statements; they are usually nearer to the actual research operations and testing.

In social science, particularly business, the hypothesis formulation may be replaced by research questions and objectives. It is also possible to use research questions simultaneously with the research hypothesis. Research question is the researcher's translation of the problem into specific need for inquiry. On the other hand a research objective is the purpose of the research in measurable terms; the definition of what the research should accomplish.

Source of Hypothesis

Hypothesis may be developed from a variety of sources, including the following.

1. Hypothesis originates in the science itself or in the scientist

The history of science provides an eloquent testimony to the fact that personal and idiosyncratic experiences of the scientist contribute a great deal to the type and form of questions one may ask, as also the kinds of tentative answers to this question (hypothesis) that he/she might provide. Here the kinds of a person's perception and conception would play a major role. Researchers should think differently and carefully.

2. Analogies are often a fountainhead of valuable hypothesis. This involves comparisons or analogies between social and natural systems.

3. Hypothesis may rest also on the findings of other studies- in social science research is usually exploratory. I.e. they start with explicit hypothesis

4. **A hypothesis may stem from a body of theory**, which may afford by way of logical deduction; the predictions that if certain conditions are present certain results would follow.

5. It is worthy of note that **value orientation of the culture** in which a science develops may furnish many of its basic hypotheses.

To conclude the ideal source of fruitful and relevant hypothesis is a fusion of past experience and imagination of the researcher.

Characteristics of a Useable Hypothesis

A fruitful hypothesis is distinguished by the following characteristics:

1. A hypothesis should be empirically testable- its concepts must have clear empirical correspondence and should be explicitly defined in a way it can be proved or disproved. e.g Bad parents beget bad children. Bad cannot be explicitly defined.

2. The hypothesis should be conceptually clear- the concepts should be clearly defined, operationally if possible, and the definitions should be commonly accepted and communicable rather than the production of the researcher himself. An ambiguous hypothesis characterized by undefined or ill deigned concepts cannot be tested.

3. The hypothesis should be closest to things observable- It should provide conditions for comparison with empirical facts.

4. The hypothesis must be specific- It should be concrete and objective and predictable rather than subjective.

5. The hypothesis should be related to a body of a theory or some theoretical orientation.

The theoretical gains of testing the hypothesis should be justified so that the research outcome will help to qualify, support, correct or refute a theory. Moreover the function of research may be elaborating, extending and improving a theory.

5. The hypothesis should be related to the available techniques its research ability may be determined by available analytical techniques and the hypothesis should be formulated after duly considering the methods and techniques of researches.

2.8. Chapter Summery

A research problem, in general, refers to some difficulty which a researcher experiences in the context of either theoretical or practical situations and wants to obtain a solution for the same.

In the research process, the first and for most step happens to be that of selecting and properly defining a research problem. A researcher must find the problem and formulate it so that it becomes susceptible to research. Like a medical doctor, a researcher must examine all the symptoms Presented to him/her or observed by him/her) concerning a problem before he/she can diagnosis correctly. To define a problem correctly, a researcher must know: what a problem is?

Identification of a research problem is the first step in scientific inquiry. A problem in simple words some difficulty experienced by the researcher in a theoretical or practical situation solving this difficulty is the task of research.

The problem defines the goal of the researcher in clear terms. Thus, without a problem research cannot proceed because there is nothing to processed from and proceed toward. In social sciences, quit a number of researchers may be faced with this problem, i.e, the problem of not being able to see a problem.

2.9. Self-Check Exercise

1. What is a research problem? Discuss

_____

_____

2. What is a research question?

_____

_____

3. What are the types of substantive and methodological criticisms that are made of past research?

_____

_____

4. What are a theory; a hypothesis and a variable?

_____

_____

5. What is an independent variable, dependent variable, mediator variable, moderator variable, and control variable?

_____

_____

6. What is an empirical study?

_____

_____

7. Why is causality hard to show in the social sciences? What should you do to help overcome this problem?

_____

_____

CHAPTER THREE

RESEARCH PROPOSAL

Introduction

Dear Leaner! Once researches problems are defined and fruitful research hypothesis are formulated, the researcher should plan his/her research design. The research questions and objectives delineate the type of information to be collected and provided a framework for the scope of the study of the research project. A research proposal is a written statement of the research design that includes a statement explaining the purpose of the study and a detailed, systematic outline of a particular research methodology. A research proposal is often incorporated into the research program of an organization.

Objectives:-

Dear Leaner! At the end of this unit, students will be able to:

- ✓ Define research proposal
- ✓ Define function of research proposal
- ✓ Define the general format of research proposal

3.1. Definition

Dear Leaner! What do you mean research proposal to you? (Specify you answer on the space provided below)

_____

_____

_____

A research proposal is an activity that incorporates decisions made during early research-project planning phase of the study including management –research questions hierarchy and

exploration. ***A research proposal*** is a work plan, outline, prospectus, statement of intent, draft plan.

A proposal is an individual's or a company's offer to produce a product or render a service to a potential buyer or sponsor.

The purpose of a research proposal is to:-

- Present the management question to be researched and its importance.
- Discuss the research efforts of others who have worked on related management questions.
- Suggest the data necessary for solving the management questions and how the data will be gathered, treated, and interpreted.

3.2. Elements of Research Proposal

Dear Leaner! What do you think the major components of research proposal? _____

_____

_____

_____

The major components of a proposal include:-

1. **Title Page**
   - ☐ A title ought to be well studied and give a definite and concise indication of what is to come.
   - ☐ The title of a research proposal should state your topic exactly in the smallest possible number of words.
   - ☐ Put your name, the name of your department/faculty/college, the name of your advisor(s) and date of delivery under the title.
   - ☐ First impressions are strong impressions: make your title an attention grabber.
2. **Abstract/*Executive Summary***

- The abstract is a one of the brief presentation of the thesis proposal.
- It needs to show a reasonably informed reader why a particular topic is important to address and how you will do it.
- Specify the question that your research will answer, establish why it is a significant question; show how you are going to answer the question.
- Do not put references, figures, or tables in the abstract**.**
- The abstract is a concise summary of the material presented in the proposal. As such, it should include a brief statement of the problem, the objectives of the study, and the benefits of your approach.
- Though it appears at the front of the proposal, it is written last.
- A well-prepared summary enables the reader to

  Identify the basic content of a document quickly and accurately,

  Determine its relevance to their interests, and

  Decide whether they need to read the document in its entirety.

3. Introduction/Background of the Study

- The introduction is the part of the proposal that provides readers with the background information for the research proposal.
- The introduction should address the following points:

Sufficient background information to allow the reader to understand the context and significance of the question you are trying to address.

Proper acknowledgement of the previous work on which you are building.

Sufficient references

The introduction should be focused on the research question(s).

All cited work should be directly relevant to the goals of the research.

Explain the scope of your work, what will and will not be included.

A verbal "road map" or verbal "table of contents" guiding the reader to what lies ahead.

4. Statement of the problem

This section convinces the sponsor to continue reading the proposal. You should capture the reader's attention by stating the problem, its background, and consequences. As discussed earlier, the problem can be represented by the management question. This is the question that starts the research task. The importance of the problem should be emphasized here if a separate module on the importance/benefits of study is not included later in the proposal. In addition, the problem statement will include any restrictions or areas of the problem that will not be addressed.

A problem too broadly stated cannot be addressed adequately by one study. It is important that the problem is distinct from related problems and that the sponsor can see the delimitations clearly. Be sure that your problem is clearly stated without the use of idioms or formulas. After reading this section, the potential sponsor should know the problem, its significance, and why something should be done to change the status quo. Statement of the problem sum up the question you are trying to answer.

- ☐ Effective problem statements answer the question *"**Why does this research need to be conducted**."*

5. Literature Review(optional)

- ☐ The literature review asks how similar and related questions have been answered before. A literature review can be organized as:
- ☐ **Introduction:** define the topic, together with your reason for selecting the topic.
- ☐ **Body:** this is where you discuss your sources.
- ☐ **Conclusion:** summarize the major contributions, evaluating the current position, and pointing out flaws in methodology, gaps in the research, contradictions, and areas for further study

6. Objective/Aim Of The Study

- The objectives of a research delineate the ends or aim which the inquirer seeks to bring about as a result of completing the research undertaken.
- An objective may be thought of as either a solution to a problem or a step along the way toward achieving a solution; an end state to be achieved in relation to the problem.
- The objectives of a research project summarize what is to be achieved by the study.
- Objectives should be closely related to the statement of the problem.
- After statement of the primary objective, secondary objectives may be mentioned.

Objectives should be

- simple (not complex),
- specific (not vague),
- stated in advance (not after the research is done), and
- stated using "action verbs" that are
- Specific enough to be measured.
- Commonly, research objectives are classified into **general objectives and specific objectives.**

7. Hypotheses /Questions

- Hypotheses and questions are linked to the speculative proposition of the problem statement.
- The term hypothesis implies a derivation, within a hypothetic-deductive theoretical system, of a particular assertion or prediction.

- Hypotheses are tentative statements/solutions or explanations of the formulated problem
- The hypothesis is subject to test, i.e., to confirmation or rejection on empirical grounds.
- The term question implies an interrogative statement that can be answered by data.

The formulation of objectives will help you to:-

- **Focus** the study (narrowing it down to essentials);
- **Avoid** the collection of data which are not strictly necessary for understanding and solving the problem you have identified; and
- **Organize** the study in clearly defined parts or phases.

8. ***Importance/Benefits of the Study***

This section allows you to describe explicit benefits that will accrue from your study. The importance of "doing the study now" should be emphasized. Usually, this section is not more than a few paragraphs. If you find it difficult to write, then you have probably not understood the problem adequately. Return to the analysis of the problem and ensure, through additional discussions with your sponsor, your research team, or by a re-examination of the literature, that you have captured the essence of the problem. .

This section also requires you to understand what is most troubling to your sponsor. If it is a potential union activity, you cannot promise that an employee survey will prevent unionization. You can, however, note the importance of knowing what the employees think and the implications that may have. This benefit may allow management to respond to employee concerns and forge their own linkage between those concerns and unionization.

The importance/benefits section is particularly important to the unsolicited external proposal.

It is here that you must convince the potential sponsor that the data you plan to collect will completely meet its needs. This section also contains the contractual statement telling the sponsor exactly what types of information will be received. Statistical conclusions, applied

findings, recommendations, action plans, models, strategic plans, and so forth are examples of the forms of results.

9. Research Design/Methodology

Up to now, you have told the sponsor what the problem is, what your study goals are and why it is important for you to do the study. The proposal has presented the value and benefits of the study for the sponsor. This module lays out exactly what you are going to do in technical terms. It is here that the sponsor understands exactly what it is "buying."

The research design section should include as many subsections as needed to show the phases of the project. Provide information on your proposed design for such tasks as sample selection and size, data collection method, instrumentation, procedures, and ethical requirements. When more than one way exists to approach the design, discuss the methods you rejected and why your selected approach is superior.

10. Data Analysis

A brief section on the methods used for analyzing the data is appropriate for large-scale contract research projects and doctoral theses. With smaller projects, the proposed data analysis would be included within the research design section. Describe your proposed treatment and the theoretical basis for using the selected techniques. The object of this section is to assure the sponsor that you are following correct assumptions and using theoretically sound data analysis procedures.

This is often an arduous section to write. By use of sample charts and dummy tables, you can make it easier to conceptualize your data analysis. This will make the section easier to write and easier to read. The data analysis section is important enough in contract research that you should contact an expert to review the latest techniques available for your use. If there is no statistical or analytical expertise within your company, be prepared to hire a professional to help with this activity.

Nature and Form of Results

Upon finishing this section, the sponsor should be able to go back to the problem statement and research objectives and discover that each goal of the study has been covered. One should also specify the types of data to be obtained and the interpretations that will be made in the analysis. If the data are to be turned over to the sponsor for proprietary reasons, make sure that this is reflected. Alternatively, if the report will go to more than one sponsor, that should be noted.

Generally, Research methods, materials and procedures concerned on:-

- Study area
- Study design
- Study subjects
- Eligibility Criteria (if any)
- Sample size
- Sampling methods
- Method of data collection
- Description of variables
- Data quality assurance
- Plan of data analysis

11. Work Plan

- Work plan is a schedule, chart or graph that summarizes the different components of a research proposal and how they will be implemented.

- In the work plan
  - *Different components/phases/stages of the study should be stated*
  - *Description of activities in each phase*
  - *Time required to accomplish the various aspects of the study should also be indicated*

12. THE GANTT CHART

- A Gantt chart is a planning tool that depicts graphically the order in which various tasks must be completed and the duration of each activity.

- The GANTT chart indicates:-
  - the tasks to be performed;
  - who is responsible for each task; and
  - the time each task is expected to take.

13. Budget and Funding

- Budget items need to be explicitly stated
  - Cost for every budget item should be quantitatively shown

- There might be a need for budget justification of certain costs whose requirement is not obvious

14. References

References may be made in the main text using index numbers in brackets (Vancouver style) or authors name (Harvard style).

- **For a journal paper give:-**
  - the names of the authors,
  - the year of publication,
  - the title of the paper,
  - the title of the journal,
  - the volume number of the journal,
  - the first and last page numbers of the paper.

For a book give:-

- the author,
- the year of publication,
- the title, and the edition number if there is one,
- the name of the publisher,
- the page numbers for your reference.

For an internet reference give:-

- the author of the web page,
- the title of the item on the web page,
- the date the item was posted on the web page
- the date the item was accessed from the web page
- the complete and exact URL.

15. Appendices/Annexes

Include in the appendices of your proposal any additional information you think might be helpful to a proposal reviewer. Example,

Appendix includes:-

- Questionnaire & other collection forms

- Dummy tables
- Biographical data on the principal investigator
- The consent form (if any)

3.3. The Ethics of Business Research

Ethics is a state of good or bad**.**

Ethics Vs Rules and Regulations**:** Rules are formal and ethics is societal law

Research demands ethical behavior from its participants. The goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from research activities. Ethical questions are philosophical questions that are based on the perceptions of a society. Societal norms are codes of behavior adopted by a group, suggesting what a member of a group ought to do under given circumstances.

Ethics bridges the gap between laws and actual practices. In business research ethical issues are concerns of the three major stakeholders:

- The researcher,
- The subject or respondent, and
- The sponsor.

Therefore ethical issues in business research are explained by the *interaction of the rights and obligations* of these three stakeholders.

Ethics-norms or standards of behavior are that guide moral choices about our behavior and our relationships with others.

As research is designed several ethical issues must be considered:

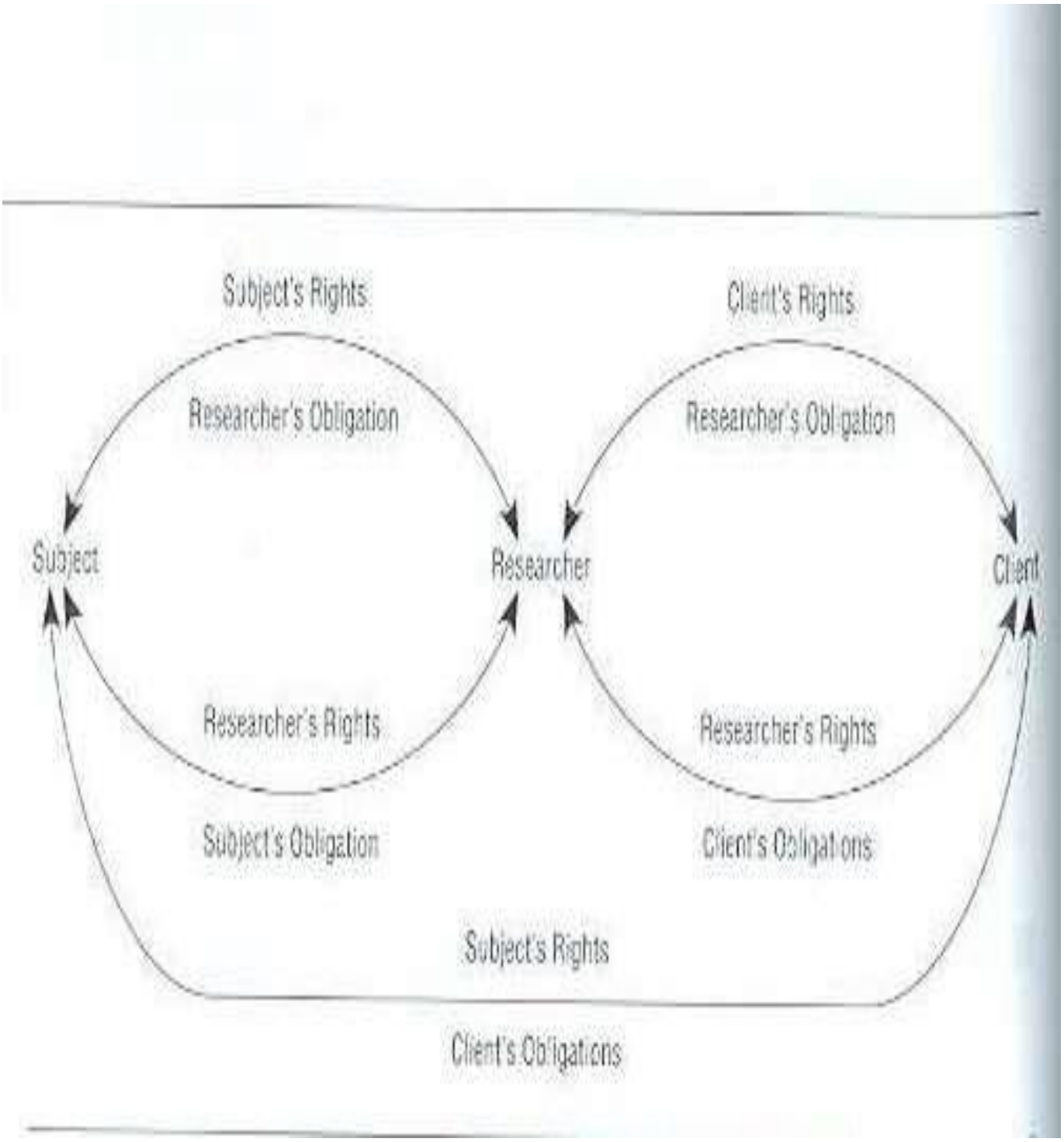
- Protect the right of the participants/subjects
- Follow ethical standards when designing research
- Protect the safety of the researcher and team
- Ensure the researcher follow the design
- Ensure the sponsor receives ethically conducted and reported research

Research must be designed so that a participant does not suffer physically harm, discomfort, pain, embarrassment, or loss of privacy.

- Begin data collection by explaining to participants the benefit expected from the research
- Explain the rights and well-being will be protected and how it will be done

- Be certain interviewer obtain the informed consent of the participant
- Provide sponsor with the research design needed to solve questions and show the data.

The figure below shows Rights and Obligations of research stakeholders



Rights and Obligations of the Respondent

Obligation

- To provide truthful information.

Rights:

i) Privacy

Collecting and giving out of personal information of respondents without their knowledge can be a serious violation

- ❖ This involves the subject's freedom to choose whether or not to comply with the investigator's request.
- ❖ Field interviewers indicate their legitimacy by
  - ✓ Passing out business cards,
  - ✓ Wearing nametags, or
  - ✓ Identifying the name of their company.

ii) Deception/The right not to be deceived

- ❖ Deception occurs when the respondent is only told a portion of the truth or when the truth is fully compromised.
- ❖ Some suggest two reasons to legitimate deception:
- ✓ to prevent biasing the respondents prior to the survey and
- ✓ to protect the confidentiality of a third party (e.g., the client).

a. The benefits to be gained by deception should be balanced against the risks to the respondents.

b. Once the research is completed, the subjects who were deceived should be "debriefed."

c. Debriefing explains the truth to the participants and explains why deception was used.

d. Researchers are not expected to create a false impression by disguising the purpose of the research

iii) . ***The right to be informed***

- ➢ The right to be informed of all aspects of the research including:
  - ✓ its purpose and
  - ✓ sponsorship
- ➢ not to exaggerate/Neither overstate nor understate
- ➢ Explain to the respondent that their rights and well-being will be adequately protected and indicate how that will be done.

  E.g. maintaining confidentiality
- ➢ Ensure that interviewers obtain informed consent from the respondents.
- ➢ Debriefing Respondents - it is a good practice to offer them follow-up information.

- Consent must be voluntary and free from coercion, force, requirements, and so forth.
- Respondents must be adequately informed in order to make decisions.
- Respondents should know the possible risks or outcomes associated with the research projects.

Rights and Obligations of the Researcher

- A code of ethics may also be developed by professional associations.
- Code of ethics is a statement of principles and operating procedures for ethical practice.
- Points that deserve attention in the efforts of the researcher in relation to ethics.

i) The purpose of Research is Research

- The purpose should be explained clearly
- The researcher should not misrepresent himself/herself for the sake of getting admission or information.
- Research should not be politicized for any purpose.

ii) Objectivity

- Researchers must not intentionally try to prove a particular point for political purposes.
- The researcher should not try to select only those data that are consistent with his/her personal intentions or prior hypothesis.

iii) Misrepresentation of Research

- To analyze the data honestly and to report correctly the actual data collection methods.

iv) Protecting the Right to Confidentiality of both Subjects and Clients

- The privacy and anonymity of the respondents are preserved.
- Both parties also expect objective and accurate report from the researcher.

v) Dissemination of Faulty Conclusions

- Researchers and clients should be reserved from disseminating conclusions from the research project that are inconsistent with or not warranted by the data.

Rights & Obligations of the sponsor (Client/User)

i) Buyer-seller relationship

- The general business ethics expected to exist between a buyer and a seller

- ❖ It is unethical to solicit competitive bids that have no chance of' being accepted just to fulfill a corporate purchasing policy stating that a bid must be put *out* to three competitors.

ii) An Open Relationship with Researchers

- ❖ The obligation to encourage the researcher to seek *out* the truth objectively.
- ❖ This requires a full and open statement of
    - ✓ the problem,
    - ✓ explication of time and money constraints, and
    - ✓ any other insights that may help the supplier,

iii) An Open Relationship with Interested Parties

- ❖ Conclusions should be based on the data.
- ❖ Violation of this principle may refer to justifying a self-serving, political position that is not warranted from the data poses serious ethical questions.

iv) Commitment to Research

- ❖ This involves requesting research proposals when there is a low probability that the research will be conducted.
- ❖ Researchers believe that the client has the obligation to be serious about considering a project before soliciting proposals.

v) Pseudo-Pilot Studies

- ❖ Tell the researcher that it is a pilot study and that if a good job is performed during the pilot study stages there will be an additional major contract down the line.

vi) Right to Quality Research

- ❖ Ethical researchers provide the client with the type of study he/she needs to solve the managerial question.
- ❖ The design of the project should be suitable for the problem
- ❖ The ethical researcher reports results in ways that minimize the drawing of false conclusions.

3.4. Chapter Summery

Scientific research commences with the writing of a research proposal which is a detailed plan that the researcher intends to follow and which will give an adjudicator or evaluator a

clear idea of what the researcher plans to do and how he or she intends to complete the research. The research proposal contains a description of the research topic and the literature survey, motivation for the research, a statement of the problem, a hypothesis, the research methodology to be used, clarification of terms, and the sources consulted to demarcate the research problem Quality writing is critical in all good proposals. It should be clear, concise, and free of jargon. There should be no spelling or grammatical errors, and the proposal should be easy to read. Sloppy proposals and proposals laden with jargon do not provide a positive image to the reader, nor do they lend confidence that solid research will follow. Proposals that are well-written and attractive are a pleasure to read, and they make a good impression with readers/reviewers.

3.5. Self-Check Exercises

1. Identify your own research topic.

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2. Write the introduction section of the topic you identified.

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3. Write the statement of the problem for your topic.

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4. Review literature for your identified topic

---

5. Formulate your own research question and hypothesis (relevant to your topic)

---

6. Develop a conceptual framework (if needed)

---

7. Define clearly your general and specific objectives.

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8. Write clearly the research design/methods for the identified topic.

---

9. Develop your work plan

---

10. Prepare estimated budget of your research

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11. Choose one method of citing references and write all the references you used.

CHAPTER FOUR

4. Research Design /Research Methodology/ Research Approach /Planning of Research Project)

Introduction

Dear Leaner! In this chapter, you are going to tell the meaning of the research design, type, importance, etc. the research design section should include as many sub-section as needed to show the phase of the project. Provide information on your proposed design for such tasks as sample selection and size, data collection method, instrumentation, procedures, and ethical requirement. When more than one way exists to approach the design, discuss the methods you rejected and why your selected approach is superior. Up to now, you have told the sponsor what the problem is, what your study goals are and why it is important for you to do the study. The proposal has presented the value and benefits of the study for the sponsor. This module lies out exactly what you are going to do in technical terms. It is here that the sponsor understands exactly what it is "buying.|" formally defined, decision making is the process of resolving a problem or choosing among alternative opportunities. The key to decision making to recognize the nature of the problem or opportunity to identify how much information is available and to recognize what information is needed. Every business problem or decision making situation can be classified on a continuum ranging from complete certainty to absolute ambiguity.

Objectives:

Dear Leaner! At the end of this unit you will be able to:

- ✓ Understand the meaning of research design
- ✓ Identify the features and forms of research design
- ✓ Identify characteristics of a good research design

Activity: Dear Learner! What do you mean research design to you (use the space provided below to write your answer)

_____

_____

_____

_____

The formidable problem that follows the task of defining the research problem is the preparation of the design of the research project, popularly known as the "research design". Decisions regarding what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design. "A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure."

4.1. Meaning of Research Design

A Research Design is a framework for conducting the research project. It specifies the details of the procedures necessary for obtaining the information needed to structure and /or solve research problems.

A Research Design is the detailed blueprint/master plan used to guide a research study toward its objectives.

A Research Design is the specification of procedures for collecting and analyzing the data necessary to help identify or react to a problem or opportunity, such that the difference between the cost of obtaining various levels of accuracy and the expected value of the information associated with each level of accuracy is maximized.

Several aspects of these definitions are worthy of emphasis:-

- ***Research design requires the specification of procedures***. These procedures involve decisions on what information to generate, the data collection method, the measurement approach, the object to be measured, and the way in which the data are to be analyzed.
- ***The data are to be collected to help identify or react to a problem or opportunity.*** All data collected should eventually relate to decisions faced by management. Obviously, the efficient collection of data relevant to a decision requires a clear definition of the problem /opportunity.
- ***The information has value.*** Information acquires values as it helps improve decisions.

- ***The varying levels of accuracy of information can be generated in response to the same problem.*** Information accuracy is affected by the occurrence of a number of potential errors.
- **The goal of applied research design is not to generate the most accurate information possible**. Rather, the objective is to generate the most valuable information in relation to the cost of generating the information.

4.2. Need for Research Design

Activity

What are the importances of good research design? Dear Leaner! Please try to list out those importances write what know on the space provided below:

_____

_____

_____

_____

Research design is needed because it facilitates the smooth sailing of the various research operations, thereby making research as efficient as possible yielding maximal information with minimal expenditure of effort, time and money. Just as for better, economical and attractive construction of a house, we need a blueprint (or what is commonly called the map of the house) well thought out and prepared by an expert architect, similarly we need a research design or a plan in advance of data collection and analysis for our research project. Research design stands for advance planning of the methods to be adopted for collecting the relevant data and the techniques to be used in their analysis, keeping in view the objective of the research and the availability of staff, time and money. Preparation of the research design should be done with great care as any error in it may upset the entire project.

It is, therefore, vital that an efficient and appropriate design must be prepared before starting research operations. The design helps the researcher to organize his ideas in a form where by it will be possible for him to look for flaws and inadequacies. Such a design can even be given to others for their comments and critical evaluation. In the absence of such a course of action, it will be difficult for the critic to provide a comprehensive review of the proposed study.

4.3. Characteristics of a Good Research Design

A good design is often featured by adjectives like flexible, appropriate, efficient, and economical and so on. Generally, the design which minimizes bias and maximizes the reliability of the data collected and analyzed is considered a good design. The design which gives the smallest experimental error is supposed to be the best design in many investigations. Similarly, a design which yields maximal information and provides an opportunity for considering many different aspects of a problem is considered most appropriate and efficient design in respect of many research problems. Thus, the question of good design is related to the purpose or objective of the research problem and also with the nature of the problem to be studied. A design may be quite suitable in one case, but may be found wanting in one respect or the other in the context of some other research problem. One single design cannot serve the purpose of all types of research problems.

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

- The means of obtaining information;
- The availability and skills of the researcher and his staff, if any;
- The objective of the problem to be studied;
- The nature of the problem to be studied; and
- The availability of time and money for the research work.

If the research study happens to be an **exploratory or a formulative one**, wherein the major emphasis is on discovery of ideas and insights, the research design most appropriate must be flexible enough to permit the consideration of many different aspects of a phenomenon. But when the purpose of a study is accurate description of a situation or of an association between variables (or in what are called the **descriptive studies**), accuracy becomes a major consideration and a research design which minimizes bias and maximizes the reliability of the evidence collected is considered a good design.

Studies involving the testing of a hypothesis of a causal relationship between variables require a design which will permit inferences about causality in addition to the minimization of bias and maximization of reliability. But in practice it is the most difficult task to put a particular study in a particular group, for a given research may have in its elements of two or more of the functions

of different studies. It is only on the basis of its primary function that a study can be categorized either as an exploratory or descriptive or hypothesis-testing study and accordingly the choice of a research design may be made in case of a particular study. Besides, the availability of time, money, skills of their search staff and the means of obtaining the information must be given due weight while working out the relevant details of the research design such as experimental design, survey design, sample design and the like.

4.4. Important Concepts Relating to Research Design

Before describing the different research designs, it will be appropriate to explain the various concepts relating to designs so that these may be better and easily understood.

1. Dependent and independent variables: A concept which can take on different quantitative values is called a variable. As such the concepts like weight, height, income are all examples of variables. Qualitative phenomena (or the attributes) are also quantified on the basis of the presence or absence of the concerning attribute(s).

If one variable depends upon or is a consequence of the other variable, it is termed as a dependent variable, and the variable that is antecedent to the dependent variable is termed as an independent variable. For instance, if we say that height depends upon age, then height is a dependent variable and age is an independent variable. Further, if in addition to being dependent upon age, height also depends upon the individual's sex, then height is a dependent variable and age and sex are independent variables. Similarly, readymade films and lectures are examples of independent variables, whereas behavioral changes, occurring as a result of the environmental manipulations, are examples of dependent variables.

2. Extraneous variable: Independent variables that are not related to the purpose of the study, but may affect the dependent variable are termed as extraneous variables. Suppose the researcher wants to test the hypothesis that there is a relationship between children's gains in social studies achievement and their self-concepts. In this case self-concept is an independent variable and social studies achievement is a dependent variable. Intelligence may as well affect the social studies achievement, but since it is not related to the purpose of the study undertaken by the researcher, it will be termed as an extraneous variable.

3. Control: One important characteristic of a good research design is to minimize the influence or effect of extraneous variable(s). The technical term 'control' is used when we design the study

minimizing the effects of extraneous independent variables. In experimental researches, the term 'control' is used to refer to restrain experimental conditions.

4. Confounded relationship: When the dependent variable is not free from the influence of extraneous variable(s), the relationship between the dependent and independent variables is said to be confounded by an extraneous variable(s).

5. Research hypothesis: When a prediction or a hypothesized relationship is to be tested by scientific methods, it is termed as research hypothesis. The research hypothesis is a predictive statement that relates an independent variable to a dependent variable. Usually a research hypothesis must contain, at least, one independent and one dependent variable. Predictive statements which are not to be objectively verified or the relationships that are assumed but not to be tested are not termed research hypotheses.

6. Experimental and non-experimental hypothesis-testing research: When the purpose of research is to test a research hypothesis, it is termed as hypothesis-testing research. It can be of the experimental design or of the non-experimental design. Research in which the independent variable is manipulated is termed 'experimental hypothesis-testing research' and a research in which an independent variable is not manipulated is called 'non-experimental hypothesis-testing research'. For instance, suppose a researcher wants to study whether intelligence affects reading ability for a group of students and for this purpose he randomly selects 50 students and tests their intelligence and reading ability by calculating the coefficient of correlation between the two sets of scores. This is an example of non-experimental hypothesis-testing research because herein the independent variable, intelligence, is not manipulated. But now suppose that our researcher randomly selects 50 students from a group of students who are to take a course in statistics and then divides them into two groups by randomly assigning 25 to Group A, the usual studies programme, and 25 to Group B, the special studies programme. At the end of the course, he administers a test to each group in order to judge the effectiveness of the training programme on the student's performance-level. This is an example of experimental hypothesis-testing research because in this case the independent variable, viz., the type of training programme, is manipulated.

7. Experimental and control groups: In an experimental hypothesis-testing research when a group is exposed to usual conditions, it is termed a 'control group', but when the group is exposed to some novel or special condition, it is termed an 'experimental group'. In the above

illustration, the Group A can be called a control group and the Group B an experimental group. If both groups A and B are exposed to special studies programmes, then both groups would be termed 'experimental groups.' It is possible to design studies which include only experimental groups or studies which include both experimental and control groups.

8. Treatments: The different conditions under which experimental and control groups are put are usually referred to as 'treatments'. In the illustration taken above, the two treatments are the usual studies programme and the special studies programme.

9. A construct is an abstract concept that is specifically chosen (or "created") to explain a given phenomenon. A construct may be a simple concept, such as a person's *weight*, or a combination of a set of related concepts such as a person's *communication skill*, which may consist of several underlying concepts such as the person's *vocabulary*, *syntax*, and *spelling*.

4.5. Different Research Designs

Activity

List out the different research design on the space provided below (try to identify them before you are going to read the text):

_____

_____

_____

_____

Different research designs can be conveniently described if we categorize them as: Research Design Can Be Classified into Two:-

- Exploratory Research And
- Conclusive Research.

1) **Exploratory research** is one type of research design, which has as its primary objective the provision of insights into and comprehension of the problem situation confronting the researcher.

   Example:-

   The manager of a multinational corporation is curious to know if the work ethic values of employees working in its subsidiary in London city will be different from that of

pennathur a small city in northern Indies .there is very little information about London , and since there is considerable controversy about what work ethic alues mean to people in other cultures , the manager's curiosity can be satisfied only by an exploratory study , interviewing the employees in the organization in Pennathur. Religion, political, economic, and social conditions, upbringing, cultural values, and so on play a major role in how people view their work in different parts of the world. Here, since very little is known about work ethic values in India's, an exploratory study will have to be undertaken.

Exploratory studies can be done by interviewing individuals and through focus groups. For instance , if a company manufacturing cosmetics wants to obtain a thorough understanding of what it is that arouses emotive appeal for the product an induces people to buy cosmetics , several focus groups can be convened to discuss the related issues. This exploratory study will offer the needed preliminary information for a full-fledged study on the matter, later.

Exploratory research could be used for any of the following purposes:-

1) **Gain background information**.
   - When very little is known about the problem or when the problem has not been clearly formulated, exploratory research may be used to gain much-needed background information.
   - This is easily accomplished d in firms having information system in which a review of internal information tracked over time can provide useful insights into the background of the firm, brand, sales territories, and so on.
   - Even for very experienced researchers it is rare that some exploratory research is not undertaken to gain current, relevant background information.

2) **Formulate a problem or define a problem more precisely**.
   - Gain insights for developing an approach to the problem.
   - By conducting exploratory research to define a question such as "what is image?"

- The researcher quickly learns that "image "is composed of several components-perceived convenience of location, friendliness of employees, and so on.
- For example, not only would exploratory research identify the components of bank image but it could also demonstrate how these components may be measured.

3) ***Clarify problems and Develop hypothesis***.

- Isolate key variables and relationships for further examination
- Exploratory research is used to clarify and problems and hypothesis. For example, bank image reveals the issue of different groups of bank customers.
- Banks have three types of customers, commercial customers, and other banks for which services are performed for fees.
- Exploratory research can also be beneficial in the formulation of hypothesis, which are statements describing the speculated relationships among two or more variables.

4) ***Establish priorities for further research.***

- Exploratory research can help a firm prioritize research topics in order of importance, especially when it is faced with conducting several research studies.
- A review of customer complaint letters may indicate which product or services are most in need of management's attention.

5) **Identify alternative sources of action.**

Exploratory Research is most commonly unstructured, informal research that is undertaken to gain background information about the general nature of the research problem.

- By unstructured we mean that exploratory research does not have a formalized set of objectives, sample plan, or questionnaire.
- Exploratory research is aimed at gaining additional information about a topic and generating possible hypothesis to test.

- Such research may consist of going to the library and reading published secondary data; of asking customers, sales persons, and prices; or simply observing everyday company practices.
- Exploratory research is systematic, but it is very flexible in that it allows the researcher to investigate whatever sources he or she desires and to the extent he or she feels is necessary in order to gain a good feel for the problem at hand.

Methods of Conducting Exploratory Research

A variety of methods are available to conduct exploratory research. These include:

1) Secondary Data Analysis

- Secondary data analysis refers to the process of searching for and interpreting existing information relevant to the research problem.
- Data that have been collected for some other purposes.
- Libraries and internet are full of secondary data, which includes information found in books, journals, magazines, special reports, bulletins, newsletters, and so on.
- An analysis of secondary data is often the "core" of exploratory research.

2) Experience surveys

- Experience survey refers to gathering information from those thought to be knowledgeable on the issues relevant to the research problem.
- If the research problem deals with difficulties encountered when buying infant clothing, then surveys of mothers or fathers with infants may be in order.
- If the research problem deals with forecasting the demand for sulphuric acid over the next 2 years, researchers may begin by making a few calls to some "experts" on this issue.

3) Case Analysis

- Case analysis refers to a review of available information about a former situation (s) that has some similarities to the present research problem.
- There are few research problems that do not have some similarities to some situation in the past.

- Even when the research problem deals with a radically new product, there are often some similar past experiences that may be observed.

4) Focus groups and

- Focus groups are groups of people brought and guided by a moderator through an unstructured, spontaneous discussion for the purpose of gaining information relevant to the research problem.
- The moderator should ensure the discussion is "focused "on some general area of interest.

5) Projective techniques.

- Projective techniques seek to explore hidden consumer motives for buying goods and services by asking participants to project themselves into a situation and then to respond to specific questions regarding the situation.
- For example, sentence completion test may be used.

2) Conclusive Research. Research designed to assist the decision maker in determining, evaluating, and selecting the best course of action to take in a given situation.

- is typically more formal and structured than exploratory research. It is based on large, representative samples, and the data obtained are subjected to quantitative analysis.
- The findings from the research are considered to be conclusive in nature in that they are used as input into managerial decision-making.
- However, it should be noted that from the perspective of the philosophy of science, nothing can be proven and nothing is conclusive.
- **Conclusive research can be either descriptive or causal** and descriptive research can be either cross-sectional or longitudinal.

2.1. Descriptive Research

A Descriptive Research is a type of conclusive research that has as its major objective the description of something-usually market characteristics or functions. Provides answers to questions such as who, what, where, when and how, as they are related to the research problem. Typically, answers to these questions, are found in secondary data or by conducting surveys.

The decision makers often need answers to these basic questions before they can formulate effective business strategies:

- → ***Who may*** be defined as the firm's (competitor's) customers?
- → ***What may be defined*** as the products, brands, size, and so on that are being purchased?
- → ***Where may be*** defined as the places the customers are buying these products?
- → ***How may mean*** the questions such as why sales increase or decrease if we increase or decrease advertising or
- → **Why one ad garners** attention than another r are questions that must be answered through causal research designs.

For Example

- → A bank manager wants to have a profile of the individuals who have loan payments outstanding for 6 months and more .It would include details of their average age, earnings, nature of occupations, full-time /part time employment status, and the like. This might help him to elicit further information or decide right away on the types of individuals who should be made ineligible for loans in the future.

- → A CEO may be interested in having a description of organizations in her industry that follow the LIPO system. In this case, the report might include the age of the organizations, their locations, their locations, their production levels, assets, sales, inventory levels, suppliers, and profits. Such information might allow comparison later of the performance levels of specific types of companies.

- → A marketing manager might want to develop a pricing, sales, distribution, and advertising strategy for her product. With this in mind, she might ask for information regarding the competitors, with respect to the following:

- ✓ The percentage of companies who have prices higher and lower than the industry norm, a profile of the terms of sale, and the percentage where prices are controlled regionally instead of from central headquarters.
- ✓ The percentage of competitors hiring in-house staff to handle sales and those who use independent agents.
- ✓ Percentage of sales groups organized by product line , by accounts, and by region.
- ✓ The types of distribution channels used and the percentage of customers using each.
- ✓ Percentage of competitors spending more dollars on advertising /promotion than the firm and those spending less; a categorization of their target audience, and the types of media most frequently used.
- ✓ Percentage of those using the web ("dot coms") to sell the product.

Descriptive research is conducted for the following reasons-

- ***To describe the characteristics' of relevant groups, such as consumers, salespeople, organizations, or market areas***. For example we can develop a profile of the "heavy users" (frequent shoppers) of prestigious department stores.
- ***To estimate the percentage of units in a specified population exhibiting a certain behavior***. For example, we might be interested in estimating the percentage of heavy users of prestigious department stores who also patronize discount department stores.
- ***To determine the perceptions of product characteristics'***. For example, how do households perceive the various department stores in terms of salient factors of the choice criteria?
- ***To determine the degree to which marketing variables are associated.*** For example, to what extent is shopping at department stores related to eating out?
- ***To make specific predictions.*** For example, what will be the retail sales of wow international (a specific store) for fashion clothing (specific product category) in Bole area (specific region)?

Descriptive Research can be further classified into cross-sectional and longitudinal research.

i) Cross-Sectional Designs: A type of research design involving the collection of information from any given sample of population elements only once.

a) Single cross-sectional design

- A type of research design involving the collection of information from any given sample of population elements only once.
- In this type of design only one sample of respondents is drawn from the target population, and information is obtained from this sample only once.

b) Multiple-cross-sectional design:

- A cross sectional design in which there are two or more samples of respondents, and information from each samples is obtained only once.
- Often, information from different samples is obtained at different times over long intervals.
- It allows comparisons at the aggregate level but not at the individual respondent's level.
- Because a different sample is taken each time a survey is conducted, there is no way to compare the measures on individual respondents across surveys. For example cohort analysis.

A cohort analysis: is a multiple cross-sectional design consisting of a series of surveys conducted at appropriate time intervals. The cohort refers to the group of respondents who experience the same event within the same time interval. Example birth or age cohort is a group of people who were born during the same time interval such as 1961 through 1970.

The term cohort analysis refers to any study in which there are measures of some characteristics' of one or more cohorts at two or more points in time. Cohort analysis is also used to predict changes in voter opinions during political campaigns. It is unlikely that any of the individuals studied at time one will also be in the sample at time two. For example, the age cohort of people between 8 and 19 years old was selected and their soft drink consumption was examined every 10 years for 30 years. In other words, every 10

years a different sample of respondents was drawn in this study from the population of those who were then between 8 and 19 years old.

II) Longitudinal Design: A type of research design involving a fixed sample of population elements that is measured repeatedly on the same variables. The sample remains the same over time, thus providing a series of pictures which, when viewed together, portray a vivid illustration of the situation and the changes that are taking place over time. Longitudinal data are used for tracking markets. Market tracking studies are those that measure some variable(s) of interest like market share or unit sales overtime. *For example, by having representative data on brand market shares, a business manager can "track" how his or her brand is doing relative to a competitive brand's performance.*

A Panel: A sample of respondents who have agreed to provide information at specified intervals over an extended period. (Sometimes a panel is used interchangeably with longitudinal design).There are two types of panels: ***Traditional Panels***

- Ask panel members the same questions on each panel measurement.
- They are also demographically matched to some larger entity, implying representativeness as well.
- Usually, firms are interested in using data from traditional panels because they can gain insights into changes in consumer's purchases, attitudes, and so on.
- For example, data from traditional panels can show how members of the panels switched brands from one time period to the next.
- Studies examining how many consumers' switched brands are known as brand-switching studies.

Omnibus Panels

- Vary questions from one panel measurement to the next.
- May be used for a variety of purposes, and the information collected by an omnibus panel varies from one panel measurement to the next.
- Essentially, the omnibus panel's primary usefulness is that it represents a large group –people, stores, or some other entity-that is agreeable to providing marketing research information.

- Omnibus panels are also demographically matched to some larger entity, implying representativeness as well.

Relative advantages and disadvantages of longitudinal and cross-sectional design

Evaluation Criteria	*Cross-Sectional Design*	*Longitudinal Design*
Detecting change	-	+
large amount of data collection	-	+
Accuracy	-	+
representative sampling	+	-
response bias	+	-

Note: A + indicates a relative advantage over the other design, whereas a – indicates a relative disadvantage.

2.2 Causal Research

A type of research where the major objective is to obtain evidence regarding cause –and effect (causal) relationships. Causality may be thought of as understanding a phenomenon in terms of conditional statements in the form of "if X, then Y."

- These," if -then" statements become our way of manipulating variables of interest.
- For example, if the thermostat is lowered, then the air will get cooler.
- If I spend more on advertising, then sales will rise.
- Commercial managers are always trying to determine what will cause a change in consumer satisfaction, a gain in market share, or an increase in sales.
- Our desire to understand our world in terms of causal, if-then statements is very difficult, if not impossible because there are formal conditions that must be in place before a researcher can attest to causality.

Example

A causal study question:

→ Does smoking cause cancer?

→ A correlational study question:

→ Are smoking and cancer related?

OR

Are smoking, drinking and chewing tobacco associated with cancer? If so, which of these contributes most to the variance in the dependent variable?

Fears of an earthquake predicted recently in the new Madrid fault zone were instrumental or causal in an unprecedented number of house owners in the Midwest region taking out of the earth quake insurance policy.

This example indicates a causal relationship between the earthquake prediction and insurance.

Increases in interest rates and property taxes, the recession, and the predicted earthquake considerably slowed down the business of real estate agents in the Midwest. This example indicates that several factors, including the predicted earthquake influenced not caused the slowdown of real estate agents business. This is a correlational study, which was not intended to establish a cause –and –effect relationship.

Causal Research is Appropriate for the Following Purposes:-

- To understand which variables is the cause (independent variables) and which variables are the effect (dependent variables) of a phenomenon.
- To determine the nature of the relationship between the causal variables and the effect to be predicted.

Formal Requirements of Causality

1) Co Variation

- It must be demonstrated that the causal variable occurs with the caused variable and that the two variables have an orderly relationship
- For example as prices goes down sales goes up.

2) Time Sequence

- It must be demonstrated that the causal variables changed prior to or simultaneous with observed changes in the caused variable.
- For example, prices were lowered on Monday, and sales go up for Monday, and sales go up for Monday and all other days when prices were lower.

3) Systematic Elimination

- It must be demonstrated that all other possible causal variables are eliminated from candidacy.
- For example, if an advertising campaign began on the days we lowered prices, we could not eliminate the ad campaign as a cause of sales going up.

4) Experimental Design

- It must be demonstrated that a valid experiment has been conducted in order to state the variable is unequivocally causal.
- For example, a formal market test would be designed and conducted in order to determine the effect of a price reduction on sales.

Relationships among Exploratory, Descriptive, and Causal Research

A given marketing research project may involve more than one type of research design *and serve several purposes. When combination of research design should be employed depends on the nature of the problem.*

Activity

What types of research guidelines you are going to use or develop to choose a good research design?

_____

_____

_____

General guidelines for choosing research designs include the following:-

1. ***When little is known about the problem situation, it is desirable to begin with exploratory research***. Exploratory research is appropriate when the problem needs to be defined more precisely , alternative courses of action identified , research questions or hypothesis developed , and key variables isolate d and classified as dependent or independent.
2. **Exploratory research is the initial step *in the overall research design framework.*** It should, in most instances, be followed by descriptive or causal research. For example, hypothesis developed via exploratory research should be statistically tested using descriptive or causal research. Exploratory research in the form of secondary data analysis and focus groups was conducted to identify the social causes that Ethiopian businesses should be

concerned about. Then a descriptive cross-sectional survey was undertaken to quantify the relative salience of these causes.

3. ***It is not necessary to begin the survey research*** **design with exploratory research.** It depends upon the precision with which the problem has been defined and the researcher's degree of certainty about the approach to the problem. A research design could well begin with descriptive or causal research. To illustrate, a consumer satisfaction survey is conducted annually need not begin with or include an exploratory phase each year.

4. ***Although exploratory research is generally the initial step, it need not be.*** Exploratory research may follow descriptive or causal research. For example, descriptive or causal research results in findings that are hard for mangers to interpret. Exploratory research may provide more insights to help understand these findings.

Differences between Exploratory and Conclusive Research

S/N	Factors	Exploratory	Causal
1)	Objective	• to provide insights and understanding	• to test specific hypothesis and examine relationship
2)	Characteristics	• Information needed is defined only loosely. • Research process is flexible and unstructured. • Sample is small and non-representative. • analysis of primary data is qualitative	• Information needed is clearly defined. • Research process is formal and structured. • sample is large and representative • Data analysis is quantitative.
3)	Findings/Results	Tentative	conclusive
4)	Outcomes	• Generally followed by further exploratory or conclusive research.	• findings used as input into decision making

A Comparison of Basic Research Design

S/N	*Factors*	*Exploratory*	*Descriptive*	*Causal*

1)	***Objective***	• discover ideas and insights	• describe market characteristics or functions	• determine cause and effect relationships
2)	***Characteristics***	• Flexible • Versatile • often the front end of total research design	• Marked by the prior formation of specific hypothesis. • preplanned and structured design	• Manipulating of one or more independent variables. • control of other mediating variables
3)	***Methods***	• expert surveys • pilot surveys • secondary data(analyzed quantitatively) • qualitative research	• secondary data (analyzed quantitatively) • surveys • panels • observational and other data	• experiments

Extent of Researcher Interference with the Study

The extent of interference by the researcher with the normal flow of work at the workplace has a direct bearing on whether the study undertaken is causal or correlational.

A correlational study is conducted in the natural environment of organization with minimum interference by the researcher with the normal flow of work .For example, if the researcher wants to study the factors influencing training effectiveness, all that individual has to do is is develop a theoretical framework ,collect the relevant data ,and analyze them to come up with findings. Though there is some disruption to the normal flow of work in the system as the researcher interviews employees and administers questionnaires at the workplace , the researcher ‘s interference in the routine functioning of the system is minimal as compared to that caused during casual studies.

There are three varying degrees of interference –minimal, moderate, and excessive.

Minimal Interference

A hospital administrator wants to examine the relationship between the perceived emotional support in the system and the stresses experienced by the nursing staff. In other words, she wants to do a correlational study. Here the administrator /researcher will collect data from the nurses to indicate how much emotional support they get in the hospital and to what extent they experience stress. By correlating the two variables, the answer that is being sought can be found.

In this case, beyond administering a questionnaire to the nurses, the researcher has not interfered with the normal activities in the hospital. In other words, researcher interference has been minimal.

Moderate Interference

The same researcher is now no longer content with finding the correlation, but wants to firmly establish a causal connection. That is the researcher wants to demonstrate that if the nurses had emotional support, this indeed would cause them to experience less stresses. If this can be established, then the nurse's stress can definitely be reduced by offering them emotional support.

To test the causes –and –effect relationship, the researcher will measure the stress currently experienced by the nurses in three wards in the hospital ,and then deliberately manipulate the extent of emotional support given to the three groups of nurses in the three wards for perhaps a week ,and measure the amount of stress at the end of that period. For one group, the researcher will ensure that a number lab technians and doctors help and comfort the nurses when they face stressful events-for example, when they care for the patients suffering excruciating pain and distress in the ward. Under a similar setup, for a second group of nurses in another ward, the researcher might arrange for them only a moderate amount of emotional support and employing only the lab technians and excluding Doctors. The third ward might operate without any emotional support.

If the experimenter's theory is correct, then the reduction in the stress levels before and after the one-week period should be greatest for the nurses in the first ward, moderate for those in the second ward, and nil for the nurses the third ward.

Excessive Interference

The above researcher, after conducting the previous experiments, feels that the results may or may not be valid since other external factors might have influenced the stress levels experienced by the nurses. For example, during that particular experimental week, the nurses in one or more wards may not have experienced high levels of stress because there were no serious illnesses or deaths in the ward. Hence, the emotional support received might not be related to the level of stresses experienced. The researcher might now want to make sure that such extraneous factors as might affect the cause –and –effect relationship are controlled. So she might take three groups of medical students, put them in different rooms, and confront all of them with the same stressful task. For example, she might ask them to describe in the minutest detail, the surgical procedures in performing surgery on a patient who has not responded to chemotherapy and keep bombarding them with more and more questions even as they respond. Although all are exposed to the same intensive questioning, one group might get help from a doctor who voluntary offers clarifications and help when students stumble. In the second group, a doctor might be nearby, but might offer clarifications and help only if the group seeks it. In the third group, there is no Doctor present and no help is available.

4.6. Chapter Summery

Many definitions of research design have been advanced, but no one definition imparts the full ranges of important aspects. Several examples from leading authors can be cited:

The research design constitutes the blue print for the collection, measurement, and analysis of data. It aids the scientist in the allocation of his limited resources by posting crucial choices: it is the blue print to include experiments, interviews, observation, and the analysis of records, simulation, or some combination of these? Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research. It includes an outline what the investigator will do from writing hypotheses and their operational implications to the final analysis of data. A structure is the frame work, organization, or configuration of … the relations among variables of the study. It express both the structure of the research problem and the plan of investigation used to obtain empirical evidence on the relation of the problem.

These definitions differ in detail, but together they give the essentials of a good research design. First the design is a plan for selecting the sources and types of information relevant to the research question. Second, it is a frame work for specifying the relation among study's variables. Third, it is the blue print for outlining all of the procedures from the hypotheses to the analysis of data. The design provides for answers of the following questions:

- What techniques will be used to gather data?
- What kinds of sampling will be used?
- How will time and cost constraints be dealt with?

4.7. Self-Check Exercise

1. What is research design?
2. What are the different types of research designs?
3. What is the difference between qualitative and quantitative designs?
4. What is documentation when used as a method of research?
5. When can documentation be used in research design?
6. What are the main types of documentation used in research?
7. What are problems with the use of documentation?
8. What are the strengths of using documentation?
9. What are the steps in using documentation in research design?
10. How can documentation be analyzed?
11. What are the steps in a typical documentation study?
12. What is observation research? What are the main types of observation used in research design?
13. What is participant observation research? When is participant observation used in research design?
14. What are the advantages and disadvantages of participant observation as a data collection method?
15. What are the steps in participant observation? How is structured observation carried out?
16. What are the problems with observation?
17. What is a correlation field study design?

18. When should researchers use a correlation field study design? How do researchers conduct correlation field studies?
19. What are some of the problems with the correlation field study design?
20. Why is control variables used in correlation field studies? How are they dealt with and analyzed?
21. Why multiple independent variables are usually measured in a correlation field study?
22. What is a mediator variable? What does it help to explain?
23. Why do researchers need to test mediator or moderator effects in correlation field studies?
24. Why do researchers need to carry out longitudinal correlation field study designs?
25. Why do researchers need a large sample size? What are the characteristics needed of a sample to help the validity of a correlation field study?
26. Why is it important to use not only subjective but also hard data in correlation field studies?
27. Why is it important to use different sources, not same-source data, in correlation field studies?
28. When do you need to gather data at different levels?
29. What is the problem with self-report data in correlation field studies?
30. Define ‘common method variance’. How do you overcome its invalidating effect on survey/co relational field study results?
31. Using mail-out surveys, how do you collect better data and increase return rates?
32. How do researchers overcome the problems in co relational field research?
33. Overall, what are the characteristics of an interpretable co relational field study?

CHAPTER FIVE

5. SOURCES AND METHODS OF DATA COLLECTION

Introduction

Dear Learner! In this chapter, you are going to deal about the different methods of data collection. The two major sources of data are primary and secondary. Primary data is data collected from the original sources and are collected especially for the task hand by the researcher. Studies made by others including books for another purpose represent secondary data. Most of the time, both of them are used together to complement each other. Sometimes research may be conducted based on secondary data only and the research is known as documentary research. Primary data loses its originality when you used for purposes other than for which they are collected. The choice between primary and secondary data mainly depends up on the nature, objectives, and scopes of enquiry, availability of time and money: degree of accuracy desired the status of the investigator.

Objectives:-

Dear Learner! At the end of this unit, we will be able to:-

- ✓ Understand and distinguish between primary and secondary and their characteristics
- ✓ Describe the secondary data and their sources
- ✓ Understand and apply the methods for collecting primary data
- ✓ Design and apply questionnaires and focus on group discussion
- ✓ Describe the characteristics of a good research design
- ✓ Apply personal interviews for collecting primary data

5.1. Primary Data and Their Sources

Activity

What do you know about the primary and secondary sources? Please list out some of them on the space provided below:

_____

_____

_____

Primary data are generally information gathered or generated by the researcher for the purposes of the project immediately at hand. When the data are collected for the first time, the responsibility for their processing also rests with the original investigator. Ordinarily, experiments and surveys constitute the principal sources of primary data for the purpose of the study.

Advantages of primary data

- Primary data provide a firsthand account of the situation. We can observe the phenomenon as it takes place.
- The information is more reliable. As the investigator collects the data himself/herself, he can take all precautions to ensure their reliability.
- Primary data are the only way of finding out opinions, personal qualities, attitudes, etc.

Disadvantages

- Collecting primary data is expensive in terms of both time and money. It is for this reason that researchers/organizations try to limit their scope to a manageable level.
- Sample selection is yet another problem. If the conclusions of the study are to be meaningful, the researcher must select a representative sample.
- The limitations of the methods of collecting primary data turn out to be disadvantageous. For example, the limitations of the observation technique, like non-cooperation by respondents, non-observability of the situation, low reliability of the conclusions, etc.

5.2. Secondary Data and Their Sources

Secondary data are statistics that already exist; they had been gathered for a previous purpose, not for the immediate study at hand. Primary data, in contrast, are originated by the researcher for the purpose of the investigation at hand. The purpose, therefore, defines the distinction.

The most significant advantages of secondary data are the cost and time economies they offer the researcher. If the required information is available as secondary data, the researcher simply needs to get online or go to the library, locate the appropriate sources, and extract and record the information desired. Doing so should take no more than a few days and would involve little cost.

On the other hand, two problems commonly arise when secondary data are used: (1) they typically do not completely fit the problem; and (2) there may be problems with their accuracy.

Problems of fit: Because secondary data had been collected for someone else's purposes, it will be rare when they perfectly fit the problem as defined. The problems of fit are particularly acute in studies from different countries, because the various censuses are inconsistent in the information they collect, when they collect it, and how they present it.

Problems of accuracy: The accuracy of much secondary data is also questionable. Numerous sources of error are possible in the collection, analysis, and presentation of management information. When the researcher collects the information, the individual's firsthand experience should allow the assessment of the accuracy of the information and its bounds of error.

Secondary data can be classified in several ways. One of the most useful is by source: internal data are those found within the organization for which the research is being conducted, whereas external data are those obtained from outside sources.

Internal secondary data: Data that originate within the firm for which the research is being conducted are internal data. If they were collected for some other purpose, they are internal secondary data. Internal records in the company comprise information about the product being researched, its history, company background and history, market share, and competitor information. These types of information are maintained by the marketing department, sales department, or corporate cell for marketing intelligence in the company.

External secondary data: External information sources include syndicated reports such as retail sales data, or market share data, or industry analyses. Some of this information may be available from public sources such as business newspapers, magazines, industry associations, or trade bodies, or the net.

Generally, Strengths of primary data over secondary data

- ✓ Gives data in greater details compared to secondary source,
- ✓ Less possibility of mistake due to errors in transcription
- ✓ Includes definition of terms and units used
- ✓ Includes a prescription of the procedure used in:
    - ❖ Selecting the sample,
    - ❖ Determining the sample size, and
    - ❖ Collection the data that affect the accuracy, validity, reliability and representativeness of the data.

- ✓ Flexible to meet:
  - ❖ Resources requirements
  - ❖ The scope and objective of the study.

5.3. Methods of Data Collection

Activity:

What methods of data collection you know before? Please specify the data collection instruments on the space provided below:

_____

_____

_____

The most common methods of collecting primary data are following.

1) Questionnaires
2) Interviews
3) Focus Group Discussions
4) Observation

1. QUESTIONNAIRES

"A Survey is only as Good as the Questions It Asks"

- ➢ Questionnaire design is one of the most critical stages in the survey research process.
- ➢ Inexperienced researchers believe that constructing a questionnaire is a simple task.
- ➢ Amateur researchers find it easy to prepare a short questionnaire in a matter of hours.
- ➢ Assuming that people will understand the questions is a common error.
- ➢ People simply may not know what is being asked.
- ➢ They may be unaware of the product or topic of interest, they may confuse the subject with something else, or
- ➢ The question may not mean the same thing to everyone interviewed.

A. Questionnaire Design: An Overview of the Major Decisions

- ☐ *Relevance* and *accuracy* are the two basic criteria to be met if the questionnaire is to achieve the researcher's purposes.
- ☐ A researcher who plans systematically to design a questionnaire will be required to make several decisions:-

  1. What should be asked?

2. How should each question be phrased?

3. In what sequence should the questions be arranged?

4. What questionnaire layout will best serve the research objectives?

5. How should the questionnaire be pretested? Does the questionnaire need to be revised?

B. WHAT SHOULD BE ASKED?

 Determine the content of the questions by referring to the:

- ✓ Problem definition
- ✓ Research objectives
- ✓ Literature covered
- ✓ The communication medium of data collection-telephone interview, personal interview, or self-administered survey-will have been determined.
- ✓ Forward linkage that influences the structure and content of the questionnaire.

 As the questionnaire is being designed, the researcher should be thinking about the types of statistical analysis that will be conducted.

Questionnaire Relevancy

 A questionnaire is relevant:

- ✓ if no unnecessary data is collected and
- ✓ if the information that is needed to solve the business problem is obtained.

 Asking the wrong or an irrelevant question is a pitfall to be avoided

 To ensure information relevancy, the researcher must be specific about data needs, and there should be a rationale for each item of information.

 When planning the questionnaire design, it is essential to think about possible omissions:

 Is information being collected on the relevant demographic and psychographic variables?

 Are there any questions that might clarify the answers to other questions?

 Will the results of the study provide the solution to the manager's problem?

Questionnaire Accuracy

 Accuracy means that the information is reliable and valid

 But no step-by-step procedure to ensure accuracy

 Accuracy is strongly influenced by the researcher's ability to design a questionnaire that facilitates recall and that will motivate the respondent to cooperate.

 There is a higher probability of unbiased answers:

- when the subject of the research is interesting
- if questions are not lengthy, difficult to answer, or
- if questions are not ego-threatening,. Question wording and sequence substantially influence accuracy.

PHRASING QUESTIONS

 There are two ways to phrase questions based on the amount of freedom respondents are given:

- Open ended
- Closed ended/Fixed-Alternative

Open ended questions

 Pose some problem or topic and ask the respondent to answer in his or her own words.

1. What things do you like most about your job?
2. What names of local banks can you think of offhand?
3. What comes to mind when you look at this advertisement?

Fixed Alternate Questions

 The fixed-alternative question or "closed question," provides respondent a given specific, limited alternative responses and asked to choose the one closest to his or her own viewpoint.

For example:

Did you work overtime or at more than one job last week?

Yes____ no_____

Compared to ten years ago, would you say that the quality of most products made in Japan is higher, about the same, or not as good?

Higher _____ About the same _____ Not as good _____

 Open-ended response questions are most beneficial in exploratory research, especially if the range of responses is not known.

 Respondents are free to answer with whatever is uppermost in their thinking.

 Open-ended response questions are especially valuable at the beginning of an interview.

 They are good first questions because they allow respondents to warm up to the questioning process.

 The cost of coding, editing, and analyzing open ended is quite extensive.

 Another potential disadvantage of the open-ended response question is that interviewer bias may influence the responses.

 There is a tendency for interviewers to take short cuts in recording answers, and a few words that are different from the respondents'

 Contrasted with open-ended questions, fixed-alternative questions require less interviewer skill, take less time, and are easier for the respondent to answer.

Types of fixed-alternative questions.

 The simple-dichotomy or dichotomous-alternative question requires the respondent to choose one of two alternatives.

 The answer can be a simple "yes" or "no" or a choice between "this"and "that."

The checklist question

 Allows the respondent to provide multiple answers to a single question.

 The respondent indicates past experience, preference, and the like merely by checking off an item.

THE ART OF ASKING QUESTIONS or Principles of Questionnaire Design

1. Avoid Complexity: Use Simple, Conversational Language
    - Words used in questionnaires should be readily understandable to all respondents.
2. Avoid Leading and Loaded Questions
    - Leading questions suggest or imply certain answers.
    - *Loaded questions* are slanted with social desirability or biased with emotional charge.
    - When taking personality tests, respondents frequently are able to determine which answers are most socially acceptable, even though the answers do not portray the respondents' true feelings.
3. Avoid Ambiguity: Be as Specific as Possible
    - Indefinite words such as *often, occasionally, usually, regularly, frequently, many, good, fair,* and *poor are vague and general*.
4. Avoid Double-Barreled Items
    - A question covering several issues at once
    - It's easy to make the mistake of asking two questions rather than one

5. Avoid Making Assumptions

- The researcher should not place the respondent in that sort of bind by including an implicit assumption in the question.

6. Avoid Burdensome Questions That May Tax the Respondent's Memory

WHAT IS THE BEST QUESTION SEQUENCE?

- ❖ When the opening questions, *interesting, simple to comprehend, and, easy to answer*, respondents' cooperation and involvement can be maintained throughout the questionnaire.
- ❖ Asking easy-to-answer questions teaches respondents their role and allows them to build confidence.
- ❖ If respondents' curiosity is not aroused at the outset, they can become disinterested and terminate the interview.
- ❖ In their attempts to "warm up" respondents toward the questionnaire, researchers frequently ask demographic or classification questions at the beginning of the questionnaire. This is sometimes not advisable because asking personal information, such as income level or education, may be embarrassing or threatening to respondents.
- ❖ It is generally better to ask embarrassing questions at the middle or end of the questionnaire, after a rapport has been established between respondent and interviewer.
- ❖ It is often recommended to set easy and more general questions at the beginning and gradually continue to more complex, personal and technical questions to the latter stages of the questionnaire

WHAT IS THE BEST LAYOUT?

The layout and the physical attractiveness of the questionnaire is of crucial importance in self-administered mail questionnaires. Questionnaires should be designed to appear as brief and small as possible. Sometimes it is advisable to use a booklet-form questionnaire, rather than a large number of pages stapled together.

2. Interviews

- Personal interviews are direct communications wherein interviewers in face-to-face situations ask respondents questions.

- This versatile and flexible method is a two-way conversation between an interviewer and a respondent.
- Personal interviews may be conducted at the respondent's home or office or in many other places

Advantages of Personal Interviews

- The opportunity for immediate Feedback
- Probing Complex Answers- complex questions that cannot easily be asked in telephone or mail surveys can be handled by skillful interviewers.
- Length of Interview- If the research objective requires an extremely lengthy questionnaire, personal interviews may be the only alternative
- Complete Questionnaires
- Props and Visual Aids Interviewing
- High Participation.

3. Focus Group Discussion

a) A Focus Group: Defined as an interview conducted by a trained moderator in a non-structured and natural manner with a small group of respondents. The main purpose of focus groups is to gain insights by listening to a group of people from the appropriate target market talk about issues of interest to the researcher. The value of the technique lies in the unexpected findings often obtained from a free-flowing group discussion. They are so popular that many marketing research practioners consider this technique synonymous with qualitative research.

The key characteristics of a focus group may be described by acronym *FOCUS GROUP.*

- **F** ocused (on a particular topic).
- **O** outline prepared for discussion.
- **C** haracteristics of the moderator.
- **U** nstructured.
- **S** ize 8-12.

- **G** roup composition: homogeneous.
- **R** ecorded audiocassettes and videotapes.
- **O** bservation: one way mirror.
- **U** ndisguised.
- **P** hysical setting: relaxed.
- **S** everal sessions needed: 1-3 hours each.

Major Characteristics of Focus Groups

S/N	Characteristics	Description
1	Group size	8 to 12
2	Group composition	Homogeneous, respondents prescreened
3	Physical setting	Relaxed , informal atmosphere
4	Time duration	1 to 3 hours
5	Recording	Use Of Audiocassettes And Videotapes'
6	Moderator	Observational, Interpersonal And Communication Skills of the Moderator.

Key Qualifications of Focus Groups Moderators

1. ***Kindness with firmness:*** The moderator must combine a disciplined detachment with understanding empathy in order to generate the necessary interaction.
2. ***Permissiveness:*** The moderator must be permissive yet alert to signs that the groups cordially or purpose is disintegrating.
3. ***Involvement:*** The moderator must encourage and stimulate intense personal involvement.
4. ***Incomplete understanding:*** The moderator must encourage respondents to be more specific about generalized comments by exhibiting incomplete understanding.
5. ***Encouragement:*** The moderator must encourage unresponsive members to participate.
6. ***Flexibility:*** The moderator must be able to improve and alter the planned outline amid the distractions of the group process.
7. ***Sensitivity:*** The moderator must be sensitive enough to guide the group discussion at an intellectual as well as emotional level.

4. Observation Methods

Observation is defined as the recording of behavioral patterns of people, objects and events in a systematic manner to obtain information about the phenomenon of interest.

- → The observer does not question or communicate with the people being observed.
- → Information may be recorded as the events occur or from records of past events.

Conditions for the Use of Observation

Certain conditions must be met before a researcher can successfully use observation as a research tool. These conditions are:

1. ***The Event Must Occur in a Short Time Interval:*** Short-time interval means that the event must begin and end within a reasonable short time span. Examples include a shopping trip in a supermarket, waiting in a teller line at a bank, or purchasing a clothing item. Some decision-making processes can take a long time, for example buying a home, and it will be unrealistic in terms of the time and money required to observe the entire process. Because of this factor, observational research is usually limited to scrutinizing activities and is therefore not
2. ***The Observed Behaviors Must Occur in a Public Setting:*** Public behaviour refers to behaviour that occurs in a setting the researcher can readily observe. Action such as cooking, playing with one's children, or private worshipping are not public activities and are therefore not suitable for observational studies such as those described here.
3. ***When the possibility of faulty recall rules out collecting information by asking the person:*** Occurs when actions or activities are so repetitive or automatic that the respondent can not recall specifics about the behaviour under question.

Observation Methods

The observational methods are divided into the following:

1. **Structured Vs. Unstructured Observation:** Structured observation where the researcher clearly defines the behaviors to be observed and the methods by which they will be measured. An example would be an auditor performing inventory analysis in a store. This reduces the potential for observer bias and enhances the reliability of the data. Structured

observation is appropriate when the marketing research problem has been clearly defined and the information needed has been specified. In these circumstances the details of the phenomenon to be observed can be clearly identified. Structured observations are suitable for use in conclusive research. In unstructured observation, the observer monitors all aspects of the phenomenon that seem relevant to the problem at hand, for example, observing children playing with new toys. This form of observation is appropriate when the problem has to be yet formulated precisely and flexibility is needed in observation to identify key components of the problem and to develop hypothesis. In an unstructured observation, potential for observer bias is high. For this reason, the observation findings should be treated as hypothesis to be tested, rather than as conclusive findings. Thus, unstructured observation is most appropriate for exploratory research.

2. **Disguised Vs. Undisguised Observation:** In disguised observation, the respondent is unaware that they are being observed. Disguise enables respondents to behave naturally, since people tend to behave differently when they know they are being observed. Disguise may be accomplished by using one way mirrors, hidden cameras, or in conscious mechanical devices. Observers may be disguised as shoppers or sales clerks or in other appropriate roles. In disguised observation, the respondents are aware that they are under observation. For example, they may be aware of the prescience of the observer. Researchers disagree on how much effect the prescience of an observer has on behaviour. One viewpoint is that the observer effect is minor and short-lived. The other position is that the observer can seriously bias the behaviour patterns.

3. **Natural vs. Contrived Observation:** Natural observation involves observing behaviour as it takes place in the environment. For example, one could observe the behaviour of respondents eating fast food at Burger King. The *advantage of natural observation* is that the observed phenomenon will more accurately reflect the phenomenon. The *disadvantages are the cost of waiting* for the phenomenon to occur and the difficulty of measuring the phenomenon in a natural setting. Contrived observation involves to observing the behaviour in an artificial environment.

5.4. Secondary Data Collection Methods

Activity

Dear learner! Which types of documents have been using to get information for research?

_____

_____

_____

_____

A). Document Analysis

This refers to the process of using any kind of document, films, television programs and photographs as well as written sources, such as books, papers and letters, for analysis in relation to a particular research question. Document analysis, also referred to as content analysis

In general, documents have been written from the perspective of those from official sources but a different perspective can be gained from using personal accounts and oral testaments such as letters, diaries, and autobiographies.

Reliability and validity are central concerns in document analysis. Documents generally exist for some purpose and the knowledge of this purpose is important in understanding and interpreting the results of the analysis.

Advantages

The data never alters and can be subject to reanalysis.

- Cheap.
- Computers can aid analysis and lead to complete reliability in applying the rules you set down for coding the text.

Disadvantages

- Evidence may be out of date.
- May not be accurately recorded.
- Documents available may be limited.
- Can be laborious and time consuming.

5.5. Chapter Summery

In large organization consisting of many divisions, it is not unusual for one division to conduct research that proves useful to another division. One department usually does not know what another department is doing or has done so, to avoid duplicate efforts, researchers should exhausts all sources within the company before searching elsewhere. Too often, secondary data analysis of internal data is ignored because research practioners are inclined to design a new study every time management is in a quandary. The primary source gives data in greater detail compared to secondary source, in the secondary source there is possibility of mistake due to errors in transactions made in copying from the primary source. The primary sources include definition of terms and units used; the primary source includes a prescription of the procedure used in selecting the sample, determining the sample size, and collection the data. This all affects the accuracy, validity, reliability and representativeness of the information. A survey is only as good as the questions it asks. Each stage of the business research process is important because of its independent nature. The importance of wording questions is easily overlooked, but questionnaire design is one of the most critical stages in the survey research process. A good questionnaire appears as easy to compose as does a good poem. The end product should look as if effortlessly written by an inspired child – but it is usually the result of long, painstaking work.

5.6. Self-Check Exercise

1. What are the main broad categories of interviews?
2. When are group (focus group) interviews appropriate?
3. How is theory dealt with in interviews and questionnaires?
4. What are the problems with interview and questionnaire data?
5. What are ways for reducing problems with interviews and questionnaires?
6. What is the TAP procedure for constructing questions?
7. What are the general principles for designing questions using the TAP approach?
8. When should you use (a) open-ended questions and (b) closed-ended questions?
9. How can you avoid difficult questions?
10. How can you avoid bias from preceding questions?
11. What are leading questions, and why should they be avoided?
12. What are different types of interview questions?

13. What are story-telling and probing questions?
14. What are the issues to watch out for in piloting questions?
15. How should you organize the questions in an interview schedule?
16. How should answers be recorded in questionnaires and interviews?

CHAPTER SIX

SAMPLING AND SAMPLING TECHNIQUES

Introduction

Dear Learner! In this chapter, you will be able to deal about what is the meaning of sampling, the difference between sampling and census, etc. sampling also refers to choosing a smaller, more tangible number of people to take part in the research. Sampling should not be regarded as necessary evil. Also it is not generally recognized surveys are more accurate then census results because them may require large number of skilled staff, more time, and more money would make census very difficult to ensure accuracy. The quality of data collection may be compromised because of difficulties in administering the process of research. However, survey methods suffer from serious consequences related to errors in survey research such as sample bias, vague questions, administrative errors, and processing errors.

Objectives:

Dear Learner! At the end of this unit, you will be able to:

- ✓ Understanding what sampling is
- ✓ Differentiate between sampling and census
- ✓ Specify sampling frame
- ✓ Discuss how to select a sample
- ✓ Sampling Design and Procedures

6.1. What is sampling?

Activity:

Dear Learner! What do you think of the term sampling? (you can write your response on the space left below)

_____

_____

_____

_____

Sampling is the process of using a small or parts of a larger population to make conclusions about the whole population.

Sampling is one of the components of research design. Sampling design involves several basic questions:

- Should a sample be taken?
- If so, what process should be followed?
- What kind of sample should be taken?
- How large it should be?
- What can be done to control and adjust for non-response errors?

6.2.Basic Terminologies in Sampling

1. **Population (Universe):** The aggregate of all elements, sharing some common set of characteristics that comprises the universe for the purpose of marketing research problem.
2. **Target population:** the specific complete group relevant to the research group.
3. **Population element:** an individual member of a specific population.
4. **Census:** a complete enumeration of the elements of a population or study objects.
5. **Sample**: a subgroup of the elements of the population selected for participation in the study.
6. **Probability Sampling:** a sampling procedure in which each element of the population has a fixed probabilistic chance of being selected for the sample.
7. **Non-Probability Sampling:** sampling techniques that do not use chance selection procedures, rather, they rely on the personal judgment of the researcher.
8. **Primary Sampling Unit (PSU):** a unit selected in the first stage of the sampling.
9. **Secondary Sampling Unit (SSU**): a unit selected in the second stage of sampling.
10. **Sample Size:** The number of elements to be included in a study.
11. **Sampling Error:** the difference between a sample and the population from which it is selected, even though a probability sample has been selected.
12. **Non –Response:** a source of non-sampling error that is particularly likely to happen when individuals are being sampled. It occurs whenever some members of the sample

refuse to cooperate, cannot be contacted, or for some reason cannot supply the required data, because of mental incapacity.

6.3. Probability Sampling Vs. Non-Probability Sampling

Sampling technique can be broadly classified into two broad categories: Probability and Non-probability sampling.

1) Probability Sampling Technique

A **probability sampling** is one in which every unit in the population has a chance (greater than zero) of being selected in the sample, and this probability can be accurately determined.

Probability sampling techniques includes the following:

a) Simple Random Sampling(SRS)

- SRS is a probability sampling technique in which each element in the population has a known and equal probability of selection. Every element is selected independently of every other element and the sample is drawn by a random procedure from a sampling frame.
- To draw a simple sample, the researcher first compiles a sampling frame in which each element is assigned a unique identification number.

Probability of selection = sample size / Population Size

There are different methods in simple random sampling:

- → The **"blind Draw "method**: involves blindly choosing participants by their names of some other unique designation.
- → **The table of random numbers** method: a more sophisticated application of simple random sampling is to use a table of random numbers which is a listing of numbers whose random order is assured. If you look at a table of random numbers, you will not be able to see any systematic sequence of numbers regardless of where in the table you begin and whether you go up, down, left right, or diagonally across the entries.

Advantages of SRS

- → It embodies the requirements necessary to obtain a probability sample and there for to derive unbiased estimates of the population's characteristics.

- → It guarantees that every member of the population has a known and equal chance of being selected in to the sample; the resulting sample, no matter what the size, will be a valid representation of the population.

Disadvantages of SRS

- → To use either the blind draw or the table of random numbers approach, it is necessary to pre designate each population number.
- → In the blind draw sample, each student's name was written on a 3-by-5 card,
- → In essence, simple random sampling necessarily begins with a complete listing of the population, a current and complete listings are often difficult to obtain.
- → It is also cumbersome to provide unique designation s for each population member.
- → Numbering from 1 through an unknown total population size (N) is tedious and invites administrative errors.
- → Using names is unsatisfactory due to duplicates.

b) **Systematic Sampling (SS):** is a probabilistic sampling technique in which the sample is chosen by selecting a random starting point and then picking every point and then picking every i^{th} elements in succession from the sampling frame. A SS involves selecting every n^{th} ^{unit} after a random start. To use systematic sampling the researcher decides on a "skip interval", which is calculated by dividing the number of names on the list by sample size.

$$\textbf{Skip interval (I)} = \frac{\textbf{Population list size}}{\textbf{Sample size}}$$

For example, there are 100,000 elements in the population and a sample of 1000 is desired. In this case, the sampling interval, I, is 100. Random number between 1 and 100 is selected. If, for example, this number is 23, the sample consists of elements 23,123, 223, 423, 523, and so on.

Prerequisites of Systematic Sampling

A prerequisite for applying systematic sampling is that the units in the population can be ordered in some way. Some examples are presented below:

- → Records that are ordered in a file.
- → Names that are ordered alphabetically in a telephone directory.
- → Houses that are ordered along a road.
- → Customers who walk one by one through an entrance, and so on.

Advantages

- → It has **"economic efficiency" (ca**n be applied with less difficulty.)
- → It can be accomplished in a shorter time period than can simple random sampling.

Disadvantages

- → The most important potential drawback is the danger of hidden periodicities, for example, that a deficiency in producing a specific product occurs at specific intervals.
- → If one happens to get an unfortunate starting point the whole sample could consist of defective products.

c) **Stratified Sampling:** is a probability sampling technique that uses a two-step process to partition the population into sub populations, or strata. Elements are selected from each stratum by random procedures. The strata should be mutually exclusive and collectively exhaustive in that every population elements should be omitted. Next, elements are selected from each stratum by random procedures, usually SRS. Technically, only SRS should be employed in selecting the elements from each stratum.

In practice, sometimes systematic sampling and other probability sampling procedures are employed. Stratified sampling differs from quota sampling in that sample elements are selected probabilistically rather than based on convenience or judgment. A major objective of stratified sampling is to increase precisions without increasing cost.

Advantages

- → Stratified random sampling can give higher precision with the same sample size, alternatively, the same precision with a smaller sample.
- → Stratified sampling can also give separate results for each stratum.
- → Stratified sampling can also simplifies data collection.

Disadvantages

- → A complete frame is needed.
- → Depending on the allocation principle applied, additional information, such as knowledge of standard deviations and costs, may be needed for each stratum.

d) **Cluster Sampling:** Is a probability sampling in which the population is divided into sub-groups, each of which represents the entire population.

In cluster sampling,

- → First, the target population is divided into mutually exclusive and collectively exhaustive subpopulations called clusters.
- → Then, a random sample of clusters is selected based on a probability sampling technique such as simple random sampling.
- → For each selected cluster, either all the elements are included in the sample or a sample of elements is drawn probabilistically.

A common form of cluster sampling is area sampling.

- → **Area sampling** is a common form of cluster sampling in which the clusters consist of geographic area such as **counties, housing tracts, blocks, or other area descriptions.**

Advantages

- → The major advantage of cluster sampling is that we do not need a complete frame of the secondary sampling units. (We do not need a frame of the clusters, however.)
- → Another important advantage in many kinds of cluster sampling such as area sampling is the geographical concentration of the units to be interviewed.

Disadvantages

- → If there is large variation between clusters in the variables to be examined the method may yield poor precision.

2) Non-Probability Sampling Techniques

Non-probability sampling is any sampling method where some elements of the population have *no* chance of selection (these are sometimes referred to as 'out of coverage'/'undercovered'), or where the probability of selection can't be accurately determined. It involves the selection of elements based on assumptions regarding the population of interest, which forms the criteria for selection. Hence, because the selection of elements is nonrandom, nonprobability sampling does not allow the estimation of sampling errors.

- The critical difference between probability and non-probability sampling methods is the mechanics used in the sample design.
- With non-probability sampling method, selection is not based on probability.
- In other words you can’t calculate the probability of any one person in the population being selected into the sample.

Non-Probability Sampling Methods

The non-probability sampling methods include the following:

1) Convenience Sampling: A non-probability sampling technique that attempts to obtain a sample of convenient elements. The selection of sampling units is left primarily to the interviewer. Examples of convenience sampling includes:
    - → Use of students, church groups, and members of social organizations.
    - → Mall-intercept interviews without qualifying the respondents
    - → "People on the street" interviews.

Advantages

- → Convenience sampling is the least expensive and the least time consuming of all sampling techniques.
- → The sampling units are accessible, easy to measure, and cooperate.

Disadvantages

- → Many potential sources of selection bias are present, including respondent self-selection.
- → Convenience samples are not representative of any definable population.
- → Hence , it is not theoretically meaningful to generalize to any population from a convenience sample, and convenience samples are not appropriate for research projects involving population inferences.

2) Judgment Sampling: A form of convenience sampling in which the population elements are purposely selected based on the judgment of the researcher. The researcher uses his or her judgment or that of some other knowledgeable person to identify who will be in the sample. Subjectivity enters in here, and certain members of the population will have a smaller chance of selection than will others. The researcher exercising common examples of judgment sampling include :judgment or expertise , chooses the elements to be included in the sample , because he or she believes that they are representative of the population of interest or are otherwise appropriate.

3) Referral Samples/Snowball Samples: Respondents are asked for the names or identities of others like themselves who might qualify to take part in the survey. A non-probability sampling technique in which an initial group of respondents is selected randomly. Subsequent respondents are selected based on the referrals or information provided by the

initial respondents. This process may be carried out in waves by obtaining referrals from referrals. A major objective of snowball sampling is to estimate characteristics that are rare in the population.

Examples include:

- → Users of particular government or social services, such as food stamps, whose names can't be revealed; special census groups, such widowed males under 35; and members of a scattered minority population.
- → Snowball sampling is used in industrial buyer –seller research to identify buyer-seller pairs.

Advantages

- → It substantially increases the likelihood of locating the desired characteristics in the population.
- → It also results in relatively low sampling variance and costs.

4) Quota Samples: A non-probability sampling technique that is a two-stage restricted judgmental sampling. The size of the quotas is determined by the researcher's belief for the relative size of each class of respondent.

- → The first stage consists of developing control categories or quotas of population elements.
- → In the second stage, sample elements are selected based on convenience sampling. To develop these quotas, the researcher lists relevant **control characteristics which** may include **sex, age and race, are** identified on the basis of judgment. A field worker is provided with screening criteria that will classify the potential respondent into a particular quota cell.
- → For example, a large bank, might stipulate that the final sample be one-half adult males and one-half adult females because in their understanding of their market, the customer profile is about 50-50, male and female.
- → Often the quotas are assigned so that the proportion of the sample elements possessing the control characteristics is the same as the proportion of population elements with these characteristics is the same as the proportion of population elements with these characteristics.

In other words, the quotas ensure that the composition of the sample is the same as the composition of the population with respect to the characteristics of interest. **In the second – stage,** sample elements are selected based on convenience or judgment. Once the quotas have been assigned, there is considerable freedom in selecting the elements to be included in the sample. The only requirement is that the elements selected fit the control characteristics. In certain situations, it is desirable either to under –or oversample heavy users of a product so that their behaviour can be examined in detail. Although this type of sample is not representative, it may nevertheless be very relevant.

Advantages

- → QS Attempts to obtain representative samples at a relatively low cost.
- → It may guarantee that the researcher has sufficient sub-sample sizes for meaningful subgroup analysis.

6.4. Procedures for Drawing Probability Sampling

I) Simple Random Sampling

1) Select a suitable sampling frame
2) Assign each element a number 1 to N (population size)
3) Generate n (sample size) different random numbers between 1 and N. This can be done using a microcomputer or mainframe software package or using a table of simple random numbers. Arbitrarily select a beginning numbers. Select the appropriate number of digits (For Example: if N=900, select three digits).Then proceed either up or down until n different numbers between 1 and N have been selected. Note: discard 0, duplicate numbers, and numbers greater than N.
4) The numbers generated denote the elements that should be included in the sample.

II) Systematic Sampling

- → Select a suitable sampling frame.
- → Assign each element a number 1 to N(population size)
- → Determine the sampling interval, I, i= N/n, if I is a fraction, round to the nearest integer.
- → Select a random number, r, between 1 and I, as explained in simple random sampling.

→ The elements with the following numbers will comprise the systematic random sample: r, r+i, r+2i, r+3i, +4i...r+ (n-1)i.

III) Stratified Sampling

→ Select a suitable sampling frame.

→ Select the stratification variable (s) and the number of strata (H).

→ Divide the entire population into H strata. Based on the classification variable, assign each element of the population to one of the H strata.

→ In each stratum, the number the elements from 1 to N_h (the population size of stratum $_h$).

→ Determine the sample size of each stratum, n_h,

→ In each stratum, select a sample random sample of size $n_{h.}$

IV) Cluster Sampling

We describe the procedure for selecting a simple two-stage sample, because this represents the simpler case.

→ Assign a number, from 1 to N, to each element in the population.

→ Divide the population into C clusters, of which c will be included in the sample.

→ Calculate the sampling interval, I, i= N/c. If it is a fraction, round to the nearest integer.

→ Select a random number, r, between 1 and I, as explained in simple random sampling.

→ Identify elements with the following numbers: r, r+1, r+2i, r+3i, ….., r+(c-1) i.

→ Select the cluster that contains the identified elements.

→ Select sampling units within each selected cluster based on SRS or systematic sampling. The number of sampling units selected from each sample cluster is approximately that same and equal to n/c.

6.5. Chapter Summery

In research it is also refers to choosing a smaller, more tangible number of people to take part in the research. The usual goal of sampling is to produce a representative sample (i.e. a sample that is similar to the population on all characteristics, except that it includes fewer people because it is a sample rather than a complete population).

The foremost purpose of sampling is gathering maximum information about the population under consideration at a minimum cost, time and human power. This is best achieved when the sample contains all the properties of the population.

Sampling is an inevitable in the following situations: complete enumeration are practically impossible when the population is infinite, when the results are required in short time- it would be too time consuming to study the whole population, when the area of survey is wide- it would too expensive and time consuming as will to study the whole units in a population, when resources (money, time and trained persons) are limited, when the items or units are destroyed under investigation for example a company to demonstrate that their car can survive certain crash tests. Obliviously, the company cannot expect to crash every car, to see if it survives, the company crash only the sample of cars. A probability sampling is on where the selection of the units from the population is made according to known probability. Non-probability sampling id the one where discretion is used to select representative of the population. This method is also called non-random/judgment/ purposive sampling. It mainly used for opinion survey.

6.6. Self-Check Exercises

7. What are multivariate techniques of analysis? What is the difference in purpose between bivariate and multivariate analyses?

8. What is a multiple regression?

9. What is moderated/interaction regression analysis: the ‘when’ test?

10. What is mediated regression analysis: the ‘how’ test?

11. What is logistic regression, and when is it used?

12. What is discriminate analysis, and when is it used?

13. What is multivariate analysis of variance (MANOVA)?

14. Under what conditions is MANOVA used?

15. How does MANOVA differ from ANOVA?

16. What is factor analysis, and when is it used?

17. What is structural equation modeling, and when is it used? Structural equation modeling combines some of the features of multiple regression and factor analysis. Discuss this

statement. How does SEM go beyond the combination of multiple regression and factor analysis?

18. What is meta-analysis?

19. Why meta-analysis is called a ‘quantitative’ literature review?

20. What does meta-analysis end up providing?

CHAPTER SEVEN

DATA ANALYSIS & INTERPRETATION

Introduction

Dear Learner! In this unit you are going to see about data analysis and presentation. Analysis is the application of reasoning to understand and interpreted the data been collected about a subject. A simple description, analysis may involve determining consistent patterns and summarizing the appropriate details revealed in the investigation. The appropriate analytical technique for data analysis will be determined by management, information requirements, the characteristics of research design, and the nature of data collected. Statistical analysis may range from portraying a simple frequency distribution to very complex multivariate analysis, such as multivariate regression. There are three general categories of statistical analysis: Univariate analysis, bi-variate analysis and cultivate analysis

Objectives

Dear Learner! At the end of this unit, students will be able to:

- ✓ Describe the concept of data presentation
- ✓ Explain data analysis and its elements
- ✓ Discuss the type of data analysis

7.1. Data Analysis:

Analysis of data refers to seeing the data in the light of hypothesis of research questions and the prevailing theories and drawing conclusion that are as amenable to theory formation as possible.

Analysis of the data is a task that calls for the researcher's own judgment and skill. Proper analysis requires a familiarity with the background of the survey and with all its stages. The steps envisaged in the analysis of data vary depending on the types of study. The more specific the hypothesis, the more specific the action.

The task of analysis is reduced just to getting the appropriate combinations of data and reading them off against the instructions for verification and falsification of hypothesis. Part of analysis is a matter of working out statistical distribution, constructing diagrams and calculating simple measure like averages, measures of dispersion, percentages, correlation etc.

Analysis means verification of hypothesis under ideal conditions of precision and simplicity. Analysis presents very few problems since the statement of the hypothesis and the elaboration of the experimental design will automatically provide for the analysis of the data. The problems raised by the analysis of data are directly related to the complexity of the hypothesis.

7.2. Characteristics of Data Analysis

Following are the main characteristics of Analysis of data:-

- Analysis of data is one of the most important aspects of research and it is highly skilled and technical job, it would be carried out by the researcher himself or under his close supervision. The researcher should also possess judgment skill, ability of generalization and should be familiar with the background objects and hypothesis study.
- Data, fact and figures are silent and they never speak for themselves but they have complexities. It is only by organizing analyzing and interpreting the research data that we can know their important features, inter-relationship and cause effect relationship. The trends and sequences inherent in the phenomena elaborated by means of generalization.
- The data to be analyzed and interpreted should (I) be reproducible (II) be readily disposed to quantitative treatment, and (III) have significance for some systematic theory, and can serve as a basis for broader generalization.
- If the data are collected according to vague clues rather than according to the specific hypothesis, in such cases the data are analyzed inductively or invested during the process and not by means of any prescribed set by rules.
- The task of analysis in incomplete without interpretation. All fact, analysis of data and interpretation data are complementary to each other. The end product of analysis is the setting up of certain general conclusions while the interpretation deals with what these conclusions really mean.
- Since analysis and interpretation of data are interwoven the interpretation should more properly be conceived of as a special aspect of analysis rather than a distinct operation. Interpretation is the process of establish relationship between variables, which are expressed in the findings and why such relationship exists.
- For any successful study the task of analysis and interpretation should be designed before the data are actually collected with the exception of formularize studies where the

researcher had no idea as to what kind of answer he wants. Otherwise there is always a danger of being too late and the chances of missing important relevant data.

7.2. Basic Objectives of Data Analysis

There are three objectives in data analysis:-

1. **Getting a Feel for the Data:** The feel for the data will give preliminary ideas of how good the scale are , how well the coding and entering of data have been done , and so on.
    - Suppose an item tapped on a 7-point scale has been improperly coded and /or entered as 8; this will be highlighted by the maximum values on the descriptive statistics and the error can be rectified.
- The mean, the range, the standard deviation, and the variance in the data will give the researcher a good idea of how the respondents have reacted to the items in the questionnaires and how good the items and measures are.
    - If the response to each individual item can in a scale does not have a good spread or range and shows very little variability, then the researcher would suspect that the particular question was probably not properly worded and respondents did not quite understand the intent of the question.
    - Biases, if any, could also be detected if the respondents have tended to respond similarly to all items-that is, stuck to only certain points on the scale.
    - The maximum and minimum scores, mean, standard deviation, variance, and other statistics can be easily obtained, and these will indicate whether the responses range satisfactorily over the scale.
- Remember that if there is no variability in the data, then no variance can be explained.
    - Researchers go to great lengths obtaining the central tendency, the range, the dispersion, and other statistics for every single item measuring the dependent and independent variables, especially when the measures for a concept are newly developed.

It is always prudent to obtain:-

- The frequency distributions for the demographic variables,

- The mean, standard deviation, range, and variance on the other dependent & independent variables, and
- An inter correlation matrix of the variables, irrespective of whether or not the hypotheses are directly related to these analyses.
- These statistics give a feel for the data.
- In other words, examination of the measure of central tendency, and how clustered or dispersed the variables are, gives a good idea of how well the questions were framed for tapping the concept.
- The correlation matrix will give an indication of closely related or unrelated the variables under investigation are.
- If the correlation between two variables happens to be high –say, over .75 –we would start to wonder whether they are really two different concepts, whether they are measuring the same concept.

2. Testing the Goodness of the Data: Testing the goodness of data can be accomplished by submitting the data for factor analysis, obtaining the Cronbach's alpha or the split-half reliability of the measures, and so on. Establishing the goodness of data lends credibility to all subsequent analysis and findings. Hence, getting a feel for the data becomes the necessary first step in all data analysis. Based on this initial feel further detailed analysis may be done to test the goodness of the data.

The reliability and validity of the measures can now be tested.

Reliability: the reliability of a measure is established by testing for both consistency and stability. **Consistency indicates how well the items measuring a concept hang together as a set.**

Validity: factorial validity can be established by submitting the data for factor analysis**.**

3. Testing the Hypothesis Developed for The Research: Hypothesis testing is achieved by choosing the appropriate menus of the software programs, to test each of the hypotheses using the relevant statistical test.

- The results of these tests will determine whether or not the hypothesis is substantiated.
- Once the data are ready for analysis that is, out- of -range /missing responses, etc, are cleared up, and the goodness of the measures is established, the researcher is ready to test the hypothesis already developed for the study.

7.3. Descriptive Statistics: Measures of Central Tendencies and Dispersion

Descriptive statistics such as frequencies, the mean, and the standard deviation, which provide descriptive information of a set of data. Descriptive statistics involve transformation of raw data into a form that would provide information to describe a set of factors in a situation.

This is done through ordering and manipulation of the raw data collected.

Analysis of Qualitative Data

As we know, qualitative data can be obtained through many sources, prime among them being in- depth interviews, participant or non-participant observations, films and videotapes, projective tests, case studies, and documents and archival data.

Description of the matter under study is the main essence of qualitative research and a range of interpretive techniques can be used to decode, translate, decipher patterns, and discover the meaning of phenomena that occur. The data culled can be categorized and coded according to some meaningful classification scheme. Frequency counts can thereafter be taken, and X^2 or other appropriate non parametric tests done.

As an example, a manager might be concerned about the productivity at the workplace, especially since a diverse group of individuals work together. The researcher who assists the manager might want to know how people of different ethnic origins might perceive their White bosses. Would these individuals feel they are respected and treated well at the workplace, that they are not being stereotyped in different ways, and that the differences in ethnicity are valued rather than devalued? In addition, the researcher might want to know if they express any special needs based on their parenting status. For instance, women with infants and young children might like flextime or flexible workplace or part time jobs, which might improve their productivity.

The researcher might talk to several employees about these issues, and make a note of the ethnic origin, parenthood status, and responses to a number of open ended questions. These interview data may be later tabulated and coded, and then entered in the computer for non-parametric analysis. For example, if a Hispanic woman feels that communication with the boss is a problem for her, this could be coded as a communication concern.

If an African American says that he is being discriminated against in the nature of the tasks assigned to him then it could be coded under "discrimination/task," and so on, can then be submitted for cross tabulation and a X^2 test.

Illustrative Example: Let us suppose that five open ended questions are asked to understand how members feel about the organizational climate and we want to set up a numerical scale for the responses received for this variable. We may adopt the following categorization and coding scheme for the purpose.

1. if only one response is favorable, or if all responses are unfavorable, the variable might be categorized as the "organizational climate is experienced to be very unsatisfactory," and assigned code1;
2. if two of the five responses are favorable, the answer might be categorized as "the organizational climate is experienced as unsatisfactory" and assigned code 2;
3. if three responses are favorable, the response might be categorized as "the organizational climate is experienced as neither satisfactory nor unsatisfactory," and assigned code 3;
4. if four responses are favorable, the variable can be categorized as "the organizational climate is experienced as satisfactory" and coded as 4; and
5. If all five responses are favorable, the response can be categorized as "the experienced organizational climate is very satisfactory" and the response coded as 5.

These intervals like data can then be submitted for different kinds of parametric statistical analysis, as warranted, finding answers to the issues relating to the research. In sum, while analyzing qualitative data, the notes transcribed are integrated and categorized under appropriate themes, the response categories then transformed into numbers, and subjected to appropriate data analysis.

By using multiple methods such **as interviewing, observing, and referring to information available with company**, the researcher establishes convergent validity and a sense of reliability for the data.

- The Pearson correlation coefficients are appropriate for interval –and –ratio scaled variables, and the spearman rank or the Kendall's Tau coefficients are appropriate when variables are measured on an ordinal scale.
- Any Bivariate correlation can be obtained by clicking the relevant menu, identifying the variables, and seeking the appropriate parametric or nonparametric statistics.

7.4. Managerial Relevance

Managers make decisions every day, some of which are routine and some very critical for the organization. The ability to understand the different types of analysis as well as the probabilities associated with each projected outcome helps managers to take calculated risks (or avoid them), based on their own natural inclinations as well as the gravity of the problem situation. If, for instance, the manager decides that significance level of 90 (or even .80) in the data analytic results is acceptable, then he or she is aware that the probability of making a wrong decision is 10% (or 20%). Such knowledge is extremely crucial for decision making on various matters of differing complexity and consequence.

Knowledge of analysis such as multiple regression reminds the manager that multiple factors influence outcomes and attention has to be paid to all the critical variables indicated by the results of the analysis. The manager also gains a new appreciation of a scientific; data based information system that would lend itself to different types of analyses to solve problems in a sophisticated and reliable manner. More advanced multivariate analyses, when comprehended, offer managers valuable insights into developing strategies for organizational growth.

7.5. Chapter Summery

Once the field work has been completed, the data must be converted a format that answers the decision maker's questions. Data processing generally begins with the editing and coding of the data. Editing involves check the data collection forms for omission legibility and consistency in classification. The process corrects problems like interviewer errors (E.g. an answers recorded on the wrong portion of a questionnaire)before the data are transferred to a computer or redid for tabulation.

Before data can be tabulated, meaningful categories and character and symbols must be established for groups of responses. The rules for interpreting, categorizing and recording the data are called codes. This coding process facilitates computer or hand tabulation of course, if computer analysis is to be utilized; the data are entered in to the computer and verified. Computer assisted (online) interviewing illustrates the impact of technological change on the research process. Telephone interviewers are settled at a computer terminal. Survey questions are

printed out on the screen. The interviewer asks the questions and then types the respondents answer on the keyboard. Thus, answers are collected and processed into the computer at the same time, eliminating intermediate steps where errors could creep in.

7.6. Self-Check Exercises

1. How does a researcher communicate to the reader the rationale for choices and literature throughout a research report?
2. How should a title be phrased?
3. What needs to be included in the abstract?
4. How do you write a quantitative research report?
5. How do you write the critical literature review/introduction?
6. How do you write the methodology/method section?
7. How do you write the results section?
8. How do you write the discussion?
9. How do you set out your reference list?
10. What are issues for presentation in writing up a research report?
11. What are general principles that should be followed in writing up a qualitative thesis?
12. What are different models for writing up qualitative research?
13. How do you address reliability and validity in a qualitative thesis?

CHAPTER EIGHT

RESEARCH REPORT WRITING

Introduction

Dear Learner! The final product of the research process is present the findings in a report form. It is the means of making findings available to the readers with various interests. Some readers may be concerned with the conclusion arrived at by the researcher. If readers themselves are researchers, they may wish to study the techniques used in the study and the analysis made to arrive the conclusions. Some may be searching for suggestion, recommendations for solving the problems identified by the researchers. Still some others may be interested to know the library source (Bibliography) of information used in the study. Those processes of researcher may be scientific, but if it is not reported systematically, it gains no recognition. The researcher should be cautious since it is the one way of communicating the result of his research efforts. Hence, the researcher should follow the seven principles of communication scrupulously, viz., completeness, concise, correct, clarity, consideration, concrete, and courtesy.

Objectives:

Dear Learner! At the end of this unit, you will able to:

- ✓ Describe research report writing
- ✓ Discuss the guidelines for writing research report
- ✓ Elaborate different steps in report writing
- ✓ Discuss presentations of statistics in research report

8.1. Research Report

Activity:

Dear Learner! What do you think of the term writing the research report? (you can write your response on the space left below):

_____

_____

_____

_____

A research study terminates in the writing of a report, which is a tool for communicating the various aspects of the study, viz, the problem or topic investigated, the method employed to investigate, the objective, scope and limitations. However, prior to writing the report, its proper planning is essential.

Report planning should take into account such details as defining to problem, the purpose of the report, tracking of the material collected, identifying the utility of the report, etc. The ability to write effective reports is one of the most useful skills a researcher can acquire. In this connection we can say that it has simply as we possibly can, and this that is, that a report is a communication from someone to another who wants to use that information. The report may be elaborately formal, it may be a letter, in a great many organizations, it is simply memorandum: but it is always planned for use.

Report Writing is a basic task of the re-searcher, since no research can be completed without its report. In fact, a research without a report can be considered as house without a roof. Any amount of observation or data analysis would be in vain from the manager's point of view, if its report is not made available in aid of this decision making process. Hence, report writing has a pivotal position in research.

This chapter, therefore, examines report writing.

8.2. Elements of Research Report

Researchers differ in the ways they prepare a research report. The personality, background, expertise, and responsibility of the researcher, along with the decision maker (DM) to whom the report is addressed, interact to give each report a unique character. Yet there are guidelines for formatting and writing reports and designing tables and graphs.

The standardized reporting format has two major parts: Prefatory Parts /Preliminary Pages & Main Bodies / main text.

An outline of the major components a Research report are the following:-

VI) Cover Page

- ❖ Title (A Case Study of ……..)
- ❖ Purpose why the Research is conducted
- ❖ Name and Address of the investigator
- ❖ Month and Place where the report is written

VII) Acronyms (if any, abbreviations alphabetically arranged)) Prefatory Parts

VIII) Table of Contents

IV) List of Tables

V) List of Figures

CHAPTER ONE: INTRODUCTION

1.1 **Background and Justification of the study**–General to specific or Deductive order is recommended

- ❖ Definitions and Concepts Related to the topic
- ❖ Global issues and trends about the topic
- ❖ Situations in Less Developed Countries or in an industry
- ❖ National level
- ❖ Regional level
- ❖ Background of the organization (not more than one page)

1.2 **Statement of the Problem** (we can consider it as Justification of the study)-

- ❖ Facts that motivated the investigator to conduct the research
- ❖ Exactly specifying and measuring the gap
- ❖ Hard facts or quantitative data about the topic for some previous years, for example three years

1.3. **Research Objectives** – Ends to be met in conducting the research

- ❖ This shows what the investigator analyzed and how;
- ❖ what comparisons were made and at what level

1.3.1. General objective- often one statement directly related to the topic

1.3.2. Specific Objectives- often 4-8;

I. What the researcher tried to achieve

II. About s/he wanted in collecting the data;

III. What the researcher analyzed and compared

1.4. **Research Questions** - Questions to be answered to meet the research objectives or produce implications for the hypothesis

1.4. **Research Hypothesis** (Optional) - tentative propositions to be tested in the research

1.5. **Research Methods and Data Collection**

1.5.1. **Data Type and Source** (Decide one of them or both by giving justifications)

- Qualitative V/s Quantitative (Give reasons)
- Primary Sources (which methods were used by stating justifiable reasons: Questionnaires, Interviews, Observations, Focus group discussions, etc.
- Secondary Sources (Which method used by stating justifiable reasons) and exactly state the sources from which s/he gathered the data: Reports, manuals, Internal publications, data base systems, Journals and Publications for assessing existing findings and internet, Books for assessing theories and principles related to the topic etc.

1.5.2. **Study Design**

- Census Vs Survey(Which one was used and why)
- Survey design (the survey designs be used by investigator clearly stating the reasons for your decision
- Sample Size(Use the sample size determination formula as a base and make adjustments with due regard to the target population and the homogeneity or heterogeneity of the population characteristics
- Sampling Design(Show how and why used the different techniques of probability and/or non-probability sampling techniques
- Sampling Procedure (clearly state the steps in sampling- refer to the first module for Research Methods for help.

1.5.3. **Data Collection**

- State the data collection tool or tools used with necessary Justifications written in the proposal: Interview, Questionnaire, Observation, Focus group discussion
- Questionnaire design
- Questionnaire testing or pretesting if applied
- Data collection Procedures (show in detail)

How the Questionnaire was administered

I. Who was involved?
II. How many people were involved?
III. When will data was collected?
IV. Where was data collected?
V. How Data collection was administered?
VI. How other methods were applied in combination (Triangulation): Focus Group discussions, Interviews, Observation

1.5.4. **Data processing and Analysis**

- Manual Vs Mechanical
- Editing: Field Vs in-house editing (include reasons)
- Recording /Data entry/ or keyboarding
- Methods of Analysis: Qualitative V/s Quantitative, Descriptive (tools to be used), Explanatory

1.6. **Significance of the study**- Benefit of the study (Who may use the findings)

- User Organizations
- Other Researchers
- The Society or the Community

1.7. **Definition of key Terminologies and Concepts**

- Conceptual definitions – general and related to dictionary meaning
- Operational – in the context of the research paper and in measurable terms

1.8. **Scope/Delimitation of the Study**

- Scope provides the boundary or framework

1.9. Limitation of the Study

- Limitation is the implication or effect of the scope- Does not mean weakness or problems to be faced

1.10. **Organization of the Study**

- Shows inclusive and exhaustive list of every aspect/dealing of the study structure

CHAPTER II: REVIEW OF RELATED LITERATURE

- Deductive Order (General to specific)

- Concepts and definitions of terminologies directly related to the topic.
- Global issue and trends
- Regional or continental or industrial facts
- Best experiences, if relevant
- Problems and challenges related to the topic
- Important points in the literature
- **Adequacy**- Sufficient to address the statement of the problem and the specific objectives in detail
- **Logical flow and organization of the contents**
- **Adequate citations**
- The **variety of issues and ideas** gathered from many authors

CHPTER III: DATA PROCESSTNG/PRESENTATION, ANALYSIS AND INTERPRETATION

3.1. **Data Processing**

- Coding
- Data entry
- Editing

3.2. **Data Analysis**

- Methods used
- Inferential statistics
- Descriptive analysis
- SPSS/ SAS/STATA

3.3. **Findings and Discussion**

3.4. **Data interpretation /summary of major findings**

CHAPTER IV: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

4.1. Summary

4.2. Conclusion

4.3. Interpretation based Recommendation

References/Bibliography

- Last name, first name, 2nd name (year: page), Title of the book, edition, Publisher details, city, state, Country.

Annex/Appendix

- Questionnaire
- Structured Interview
- Photos
- Different Evidences

8.3. Guidelines in Research Report writing

A few steps may be suggested which would enable the researcher to complete his task of writing a report clearly and convincingly, these step are:-

1. Plan the project well in advance; fix the target and the final date of completing the report.
2. The time for completing data collection and data processing should be well planned, and implemented (ensure that adequate data are kept ready).
3. The time for report writing should be planned, and the task of report writing should not be put off till the last minute. At least one –third of the total project time should be earmarked of this purpose.
4. Select a structure for the report, arrange in group the data, documents, bibliography, etc in conformity with the structure of the research report,
5. Prepare an outline based on the structure, which should cover the main points and sub-points in detail.
6. Prepare a rough point-by – point skeleton for each chapter theme, and crystallize the report in a mental exercise, Do not hesitate to discuss the skeleton with somebody who is well – versed in research and writhing, and who can be taken into confidence.
7. In the event of any doubt, get it cleared by reading, thinking, recollecting and discussing, before going farther, put everything in a logical sequence.
8. It is always good to the benefit of the guidance of a good guide at all stages.
9. Avoid easy-going and short cut methods and don't hesitate to write an entire first draft.
10. Put the complete rough draft away for several days unit you can be a fresh mind to bear up on it. The researcher is then in a position to view it a fresh and make substantial changes.
11. Revise the draft thoroughly before the report is typed. Do n not hesitate to eliminate any irrelevant and inappropriate portion.

8.4. Chapter Summery

The culmination of a research project is the dissemination of the output to the wider scientific community. The communication of the research outcome can be in the form of a written report, an oral presentation and/or a hybrid of the two (poster). Aside of the factualness of the report, there are also other points to consider to ensure that the 'idea' you are trying to convey is

effectively communicated. Always remember that scientific findings are reported for the benefit of the reader/audience. And keep in mind the purpose behind a scientific report is to convey an 'idea'. Hence, your report must be clear, well organized, thoroughly edited, informative and interesting. If you cannot attract and then capture the attention of the reader/audience your scientific report will not garner any interest from your colleagues and peers. Common errors in written a report, such as misspelled words, in accurately cited reference *will* diminish what may otherwise be a well written report. Be meticulous in your writing to maintain the credibility of your report. Also with oral presentations, stylistic mishaps of slides and peculiar mannerisms of the presenter lessen the audience's reception of your presentation. Particularly with written reports, there are variations in terms of the organization, format and style of writing from one field of specialization to the other. You must familiarize yourself with the accepted norm within your area of study.

5.5. Self-Check Exercises

1. Why do you need to effectively communicate your research findings?

   ---

2. Where, within a written scientific report, is it most appropriate to include your opinions as regards your findings?

   ---

4. You find, in a published paper, a very well written sentence that captures exactly what you have been trying to compose yourself. You decide to use the sentence within your thesis without citing it. You justify this to yourself by saying that you had the idea but just did not have the words for it until you came across this sentence. Would this be an acceptable practice? Why?

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5. What do you believe is your biggest drawback in delivering a public oral presentation? How do you propose to overcome it?

---

6. As a graduate student you will have ample opportunity to attend various seminars, conferences, workshops, thesis/dissertation defenses, presentation by guest speakers, *etc.* What would be the benefit of attending as much of these as possible?

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7. Clarity in writing is essential in any scientific report. At times, a novice scientist may try to impress the reader with an overtly complex wording and turn of phrase. For example, can you re-write the following saying in everyday language that most anyone can understand: "Positioning the non-motorized mobility contraption anterior to the equine?"

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8. By now, you would have completed, or nearly completed your mini-proposal. Summarize your mini-proposal in 60 words of less.

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REFERENCES

Aeker, Kumar, Day, **Marketing Research**: 6th ed, John Wiley and Sons, Inc., 1999.

Alley, Michael (2008) ***The Craft of Scientific Presentations:*** Critical steps to succeed and critical errors to avoid. New York, Springer Verlag,LLC.

Alley, Michael (2008) ***The craft of scientific writing***, 3rd Ed. New York, Springer-Verlag, LLC.

Bell J. (1993) ***Doing Your Research Project***. ***A Guide for First-Time Researchers in Education and Social Science,*** Buckingham: Open University Press. See Part two: Selecting methods of data collection pp. 61-122

Berg, Bruce L. (1995). ***Qualitative Research Methods for the Social Sciences***. 2nd ed. Boston: Allyn & Bacon.

Boyd, Westfall, Stasch, **Marketing researc**h: 7th ed, Richard D. Irwin, Inc., Homewood, Illinois, 1999.

Burns & Bush, **Marketing research:** 2nd ed., Prentice Hall Inc., New Jersey, 1998.

De Marrais, K & Lapan, S.D. (eds.) (2004). ***Foundations for Research: Methods of Inquiry in Education & the Social Sciences.*** Mahwah: Lawrence Erlbaum Associates.

Fisher R A (1959). ***Statistical Methods & Scientific Inference***. New York: Hafner Publishing.

Gates, Nandan, Barringer **Marketing research essentials**: 2nd ed, 1998.colin fisher and Etal (2007), ***Researching & Writing A Dissertation: A Guide Book For Business Students,*** Prentice Hall, 2nd ed.

Gay, L.R.; Mills, G.E.; & Airasian, P. (2009). ***Educational Research: Competencies for Analysis and Applications*** (9th ed.). New Jersey: Pearson.

Jackson, Sherri (2007) **Research Methods: A Modular Approach Cengage Learning.**

Krueger R (1994) ***Focus Groups. A* Practical Guide for Applied Research**, 2nd edition, Sage: London.

Marczyk, G.; DeMatteo, D.; and Festinger, D. (2005). ***Essentials of Research Design and Methodology.*** New Jersey John Wiley & Sons, Inc.

Mitchell, M.L. & Jolley, J.M. (2004). ***Research Design (5th ed.).*** Wadsworth: Thomson.

Naresh K. Malhotra, **Marketing Research**: 2nd ed, 1999.

Pervez G & Kjell G. (2005 ***), Research Methods In Business Studies : A Practical Guide ,*** prentice Hall , 3rd ed.

Stewart, D. and Shamdasani, P. (1990) ***Focus Groups: Theory and Practice***, Newbury Park: Sage

Sudman, S. (1982) ***Asking Questions: A Practical Guide to Questionnaire Design***, San Fransisco: Jossey-Bass.

Tull Donald S. & Hawkins Del I., **Marketing research – Measurement and Method**: 6th ed., McMillan Publishing Co, 1999.

Tull, Albaum, Green, **Research for Marketing Decision**: 5th ed.

9. Assignment

1. **Prepare a research proposal by selecting a title in your discipline for the partial fulfillment of this course**