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DIRECTORATE OF DISTANCE EDUCATION

M.A. JOURNALISM AND MASS COMMUNICATION

30932

COMMUNICATION RESEARCH METHODS

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Syllabus **Page NO**

UNIT - I

STRUCTURE 1-18

UNIT IV

STRUCTURE

UNIT IX

STURCTURE

UNIT XI

132-145

STRUCTURE

UNIT XII

146-158

STRUCTURE

14.5.Components of a research proposal
- 14.5.1. Title
- 14.5.2. Abstract
- 14.5.3. Proposed research problem
- 14.5.4. Research objectives and questions
- 14.5.5. Literature review
- 14.5.6. Proposed research methods
- 14.5.7. Tentative time frame
- 14.5.8. Expected budget
- 14.5.9. Expected outcomes of the research
- 14.5.10. Expected used of research

14.6.Writing a research report
- 14.6.1. Nature of a research report
- 14.6.2. Purpose of a research report
- 14.6.3. Characteristics of a research report
  - 14.6.3.1. Follow prescribed standards
  - 14.6.3.2. Communicative
  - 14.6.3.3. Definition of terms
  - 14.6.3.4. Follow research ethics
  - 14.6.3.5. Understand target population
  - 14.6.3.6. Grammatically correct
  - 14.6.3.7. Discuss limitations
  - 14.6.3.8. Acknowledgements / Credit sources
- 14.6.4. Stages of writing a research report

14.7.Structure of a research report
- 14.7.1. Title
- 14.7.2. Abstract
- 14.7.3. Introduction
- 14.7.4. Literature survey
- 14.7.5. Research methods used
- 14.7.6. Data analysis
- 14.7.7. Results
- 14.7.8. Discussion
- 14.7.9. Conclusion
- 14.7.10. References
- 14.7.11. Appendices

14.8.Essentials of a good research report

14.9.Answer to check your progress questions

14.10. Self assessment questions and exercise, short answer questions and long answer questions

14.11. Further readings and references

UNIT - I

STRUCTURE

Notes

1.16. Self assessment questions and exercise, short answer questions and long answer questions
1.17. Further readings

1.1 INTRODUCTION

This unit will provide a basic understanding of research, its importance, components and types. It also provides an overview of the communication research and its contributions in terms of exploring the mass media from socio, cultural, political and economic contexts. Mass media has made its impact on societies over the world in various contexts mentioned above. It is essential to understand research and how mass communication through mass media has been a major area of research interest as well as concern in social sciences.

Notes

1.2 OBJECTIVES

After going through the course you will be able to:

1. Understand the basic meaning of research
2. Characteristics and types of research
3. The elements of research
4. The concept of scientific research and its characteristics
5. The steps in a research process
6. The linkage between theory and research
7. Mass communication research theories

1.3 MEANING OF

Research is the search towards understanding something or seeking new knowledge. Research is a systematic process to find answers for certain questions by applying scientific methods and procedures. Several definitions on research enlighten us towards understanding the real and broader meaning of research.

Definition of 'Research'

The new Oxford English Dictionary defines research as "the scientific investigation into and study of material, sources etc in order to establish facts and the reach new conclusions".

According to Redman and Mory (1923), research is a "systematized effort to gain new knowledge". It is an academic activity and therefore the term should be used in a technical sense.

According to Clifford Woody (Kothari, 1988), research comprises "defining and redefining problems, formulating hypotheses or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and finally, carefully testing the conclusions to determine whether they fit the formulated hypotheses" (as cited in Kothari, 1988).

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Best and Kahn, in their book Research in Education define research "as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalization, principles or theories, resulting in prediction and possibly ultimate control of events."

1.4 OBJECTIVES OF RESEARCH

Research explains a process or practice or behaviour of groups or individuals and seeks to find out answers to questions using scientific procedures. The objectives of research as stated by Kothari (2004) is as follows,

1. 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);
2. 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);
3. 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);
4. To test a hypothesis of a causal relationship between variables (such studies are known as *hypothesis-testing* research studies).

1.5 CHARACTERISTICS OF RESEARCH

The characteristics of research are as follows,

i. Research is an intellectual activity of a high order
ii. Research is a systematic and scientific process
iii. The basic nature of research makes it reliable and acceptable
iv. Paves way to arrive at conclusions to formulate or revise theories and laws
v. Aims to discover data and facts and their interpretations;
vi. To answer questions of curiosity or ignorance

vii. To substantiate or disprove assumptions
viii. To bring critical understanding of a process, procedure or change
ix. To fuel the search for new knowledge
x. To understand the influence or effectiveness of something new or old
xi. To solve the unsolved problem(s) for personal, professional or social benefit.
xii. To understand the characteristic and the nature of relationship or dependency of more than one things.

Notes

Check your Progress – 1
Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit
1. Define Research

1.6 TYPES OF RESEARCH

Based on the purpose and characteristics of the research process it is categorized as follows,

1.6.1 Basic Research

Basic research is also known as fundamental or pure research. It is mainly towards seeking knowledge and not application based. It helps us understand something and it mainly done for academic purposes. It is designed to add organized knowledge to the body of scientific knowledge. It does not necessarily produce results of immediate practical value. It is either concerned with the formulation of theory or contributes to the existing body of knowledge. Thus, pure research involves developing and testing theories and hypotheses that are intellectually challenging to the researcher but may or may not have practical application at the present time or in the future. This type of research is prominently concerned with the development, examination, verification and refinement of research methods, procedures, techniques and tools that form the body of research methodology. The knowledge produced through pure research is sought in order to add to the existing body of knowledge of research methods.

Generally this type of research demands a very high order of intellectual calibre; intuition also plays an important role in this type of research. Those who are involved in basic research devote their efforts to the formulation or reformulation of theories and may not be concerned at all with their practical application. The knowledge obtained thus expands the

theoretical base of a subject. Generally, basic research is conducted by intellectuals at academic institutions who are specially commissioned for this purpose.

1.6.2 Applied Research

Applied research aims at improving a theory, product or process. It is testing of theoretical concepts in specific problem situations. Its concern is generally with the solution for problems. Applied research on the other hand, is to acquire knowledge on the practical application of the theoretical base already built up which is expected to solve a critical problem. Applied Research is usually conducted for industries or governments by universities or by specialised research laboratories or institutions. Applied Research is always for development purposes. It is generally referred to as Research and Development (R& D)

1.6.3 Action Research

Action research is not much concerned with the development of theory or its general application. It concerns itself with an immediate problem in a specific setting. Action research aims at improving the social reality. Its finding can be carried into effect by the administrator and sometimes, even the layman. Its emphasis, therefore, is on experience in which the administrator and the layman can participate creatively in the research process.

1.7 TYPES OF RESEARCH APPROACHES

The research approach is the reason for undertaking a research, specifically, whether to understand a process, explore new knowledge, analyze something, make comparisons and so on. Several research approaches contribute towards better understanding of a process and to bring in further improvements wherever necessary.

1.7.1 Descriptive research

A descriptive research study attempts to describe systematically a situation, problem, phenomenon, service or programme, or provides information about, say, the living conditions of a community, or describes attitudes towards an issue. For example, it may be required to understand the implementation of a government scheme, its beneficiaries, extent of reach, etc. Here it describes the process of a scheme right from its planning, implementation, benefits, the end results along with the advantages and disadvantages of the scheme. This paves way towards bringing change in further implementation, changes, planning etc. Likewise descriptive research can identify the reasons behind the way of life of certain groups of people and their behaviours. For example, the lives of indigenous people, their socio economic cultural and political backgrounds and their influence in their development or backwardness

can be described. This enables policy makers to make plans or decisions towards addressing problems and building upon the existing strengths of a community. Descriptive research consists of surveys and fact-finding enquiries of different types. The main objective of descriptive research is describing the state of affairs as it prevails at the time of study. The methods of research adopted in conducting descriptive research are survey methods of all kinds, including correlation and comparative methods.

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1.7.2 Exploratory Research

Exploratory research aims to generate basic knowledge and clarifications of issues to uncover variables associated with a problem. It also uncovers information needs, and/or defines alternatives for addressing research objectives. It is very flexible and open-ended. It explores areas where little is known or to investigate the possibilities of undertaking a particular research study. A small-scale study is undertaken to decide if it is worth carrying out a detailed investigation. On the basis of the assessment made during the exploratory study, a full study may eventuate. Exploratory studies are also conducted to develop, refine and/or test measurement tools and procedures.

1.7.3 Analytical Research

It involves critical evaluation and thorough analysis of the available data. It can involve data obtained from both the primary and secondary sources. With prudency of data and for big data analysis, professional data scientists and data analysts are in demand. Analytical research, the researcher has to use the already available facts or information, and analyse them to make a critical evaluation of the subject.

1.7.4 Conceptual Research

Conceptual research is related to some abstract idea(s) or theory. It is generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones. It only talks about the possible relationship or interdependence between variables. However, this may not provide sufficient description or evidence of the same. It provides concepts or abstract ideas, those are to be tested and validated later.

1.7.5 Empirical Research

Empirical research relies on experience or observation through experiment. At times, such experiments can support or contradict the existing system, theory or belief. It is a data driven research. It aims at coming up with conclusive evidence that can be verified by observation or experiment. Empirical research provides evidence that certain variables affect other variables in some way. Because of this, empirical studies are the most powerful support possible to understand a

phenomenon or relationship. Empirical research is also known as experimental type of research, in which it is important to first collect the facts and their sources, and actively take steps to stimulate the production of desired information. In this type of research, the researcher first formulates a working hypothesis, and then gathers sufficient facts to prove or disprove the stated hypothesis. He/she formulates the experimental design, which according to him/her would manipulate the variables, so as to obtain the desired information. This type of research is thus characterized by the researcher's control over the variables under study.

1.7.6 Comparative Research

Comparative research attempts to make comparisons between two or more things to be studied pertaining to certain specific variables. For example in media research, a comparative study on two or more dailies pertaining to the news reporting standards on environmental issues. Here news reporting standards is the specific variable to be compared across two or three dailies. Comparative studies describe the entire characteristics, special features and importance of each of the cases taken for study. Comparison sets to find the similarities, variations and uniqueness of each of the daily.

1.7.7 Longitudinal research

The longitudinal study is an observational study used to repeatedly study the subjects over a period of time. This method is useful to study the changes over a time period. Based on the time required to accomplish the research or the time considered to observe the nature of change of the phenomenon under study; longitudinal research can be termed as one-time research limited to a single or specific time period. Longitudinal research is used in media studies to find out the influence of media over a period of time on the subjects under the study.

1.7.8 Other types of research

The other types of research include case study research, historical research, causal research, etc

Check your Progress – 2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Explain descriptive research

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1.8 ELEMENTS OF RESEARCH

1.8.1 Concepts and construct

A concept is an abstract idea found by generalizing and summarizing related observations over a period of time. he first step in the measurement process is to define the concepts we are studying. Researchers generate concepts by generalizing from particular facts. Concepts are based on our experiences. Concepts can be based on real phenomena and are a generalized idea of something of meaning. A construct on the other hand, is an abstract idea that usually is broken down into dimensions represented by lower level concepts. A construct can be a combination of several concepts. A construct cannot be observed directly. A construct is designed for a purpose or in the context of a study. (Wimmer and Domnick, 2004).

1.8.2 Variables

A variable is a quantity whose value changes. Variable is an element, feature or factor that is liable to vary or change. It can also be a characteristic, number or quantity that increases or decreases over time or takes different values in different situations. Variables can be classified into two categories namely independent and dependant variables.

1.8.2.1 Independent and dependent variables

An independent variable can take different values and can cause corresponding changes in other variables. An independent variable is defined as the variable that is changed or controlled in a scientific experiment. It represents the cause or reason for an outcome. Independent variables are the variables that the experimenter changes to test their dependent variable. A change in the independent variable directly causes a change in the dependent variable. The effect on the dependent variable is measured and recorded.

The dependent variable is also called the response variable. It is the output of a process or statistical analysis. Typically, the dependent variable is the result one wants to achieve. The dependent variable is what the researcher wishes to explain. The distinction between types of variables depends on the purposes of the research. An independent variable in one study may be a dependent variable in another. Also, a research task may involve examining the relationship of more than one independent variable to a single dependent variable.

1.8.2.2 Discrete or continuous variables

A discrete variable includes only a finite set of values and is a variable whose value can be obtained by counting. Example number of likes received for a post in social media. On the other hand a continuous

variable is whose value is obtained by measuring. For measuring of height and weight of a given sample.

1.8.3 LEVELS OF MEASUREMENT

Measurements are the method or the process of quantification (expression in numerical values). By the act of measurement, a researcher assigns numerals to objects, events or properties according to certain rules. Numerals have no implicit quantitative meaning. In mass media research, the researchers usually measure indicators of the properties of individuals or objects. The four different levels of measurement are: Nominal, Ordinal, Interval and Ratio.

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The first level of measurement is nominal level of measurement. In nominal measurement the numerical values just name the attribute uniquely. No ordering of the cases is implied. When measuring using a nominal scale, one simply names or categorizes responses. In this level of measurement, the numbers in the variable are used only to classify the data. In this level of measurement, words, letters, and alpha-numeric symbols can be used. For example, gender, your favourite news channel, favourite anchor etc.

The second level of measurement is the ordinal level of measurement. The items in this scale are ordered, ranging from least to most satisfied. This is what distinguishes ordinal from nominal scales. The ordinal level of measurement indicates an ordering of the measurements. For example, to measure the level of satisfaction of the audience on the performance of a news anchor or a host of a reality show. It can have options like, satisfied, neutral and not satisfied.

The third level of measurement is the interval level of measurement. Interval scales are numeric scales where we know the order and the exact differences between the values. The interval level of measurement not only classifies and orders the measurements, but it also specifies that the distances between each interval on the scale are equivalent along the scale from low interval to high interval. Here the distance is meaningful. For example, For example, the difference between 60 and 50 degrees is a measurable 10 degrees, as is the difference between 80 and 70 degrees.

The fourth level of measurement is the ratio level of measurement. The Ratio Scale is the highest level scale that allows the researcher to classify or identify the objects, rank-order the objects and compare the intervals or differences. In this level of measurement, the observations, in addition to having equal intervals, can have a value of zero as well. The zero in the scale makes this type of measurement unlike the other types of

measurement, although the properties are similar to that of the interval level of measurement. In the ratio level of measurement, the divisions between the points on the scale have an equivalent distance between them.

1.8.4 RELIABILITY AND VALIDITY

Reliability is the consistency of the scales used for measurement in a research. A scale used repeatedly and producing consistent results is a reliable scale. Reliability is related to precision.

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Validity is whether the research instrument is efficient to provide results to the intended objective of the research. Validity implies the extent to which the research instrument, measures what it is intended to measure. Validity is related to accuracy.

Check your Progress – 3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is an independent variable? Discuss

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1.9 SCIENTIFIC APPROACH IN RESEARCH

Science is a process by which one establishes knowledge or gets information in a systematic way. It is the knowledge established by various scientific methods critically tested, systematized and recognized as general principles. Scientific research is an organized, objective, controlled, qualitative or quantitative empirical analysis of one or more variables (Kothari, 2004). "The Scientific Method is a systematic step-by-step procedure following the logical process of reasoning". (Clover Vernon.T). Scientific method is a means for gaining knowledge of the universe. It involved hypothesis testing based on the underlying assumptions. This helps the researcher to draw logical consequences and conclusions. Research using an apt design, hypothesis testing, measurements with high reliability and validity, analysing and interpreting the data with the use of statistics and theory adhering to the research norms is considered more scientific.

The Scientific Method is based on certain postulates as stated Kothari (2004),

i. It relies on empirical evidence;

ii. It utilizes relevant concepts;
iii. It is committed to only objective considerations;
iv. It presupposes ethical neutrality, i.e., it aims at nothing but making only adequate and correct statements about population objects;
v. It results into probabilistic predictions;
vi. Its methodology is made known to all concerned for critical scrutiny are for use in testing the conclusions through replication;
vii. It aims at formulating most general axioms or what can be termed as scientific theories.

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Accordingly, scientific method implies an objective, logical and systematic method, i.e., a method free from personal bias or prejudice, a method to ascertain demonstrable qualities of a phenomenon capable of being verified, a method wherein the researcher is guided by the rules of logical reasoning, a method wherein the investigation proceeds in an orderly manner and a method that implies internal consistency.

1.10 CHARACTERISTICS OF SCIENTIFIC RESEARCH

The characteristics of scientific research as specified by several researchers of different disciplines are consolidated are as follows, Scientific research is

i. Evidence based
ii. Replicable
iii. Objective
iv. Economic, since uses only representative samples and not the entire population
v. True and adequate
vi. Results are provisional, open to questioning
vii. Systematic where it follows a procedure based on ethical norms and standards
viii. Utilizes relevant concepts
ix. Testable
x. Done for a purpose
xi. Generalizability

Check your Progress – 4

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Define scientific research

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1.11 STEPS IN RESEARCH PROCESS

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Conducting a successful research depends on its execution step by step and in a systematic manner. The research process requires identifying a research problem, formulating it, understanding the extent of work done in that area and the relevant gaps, need for addressing the gaps, feasible objectives and research design. Overall, C.R. Kothari in his book, "Research Methodology: Methods & Techniques" presents a brief overview of a research process. He has given the following order concerning the Research Process.

i. Formulation the Research problem
ii. Extensive Literature survey
iii. Developing the hypothesis
iv. Preparing the research design
v. Determining sample design
vi. Collection of Data
vii. Execution of the Project
viii. Analysis of Data
ix. Hypothesis testing
x. Generalisation & Interpretation
xi. Preparation of the report.

1.12 RESEARCH AND THEORY

Research is closely related to theory. Theory provides a conceptual model for research. Theories start out as ideas. Research, in turn contributes to theory.

1.12.1 Meaning of Theory

Theory is more properly defined as "a set of systematically interrelated concepts, definitions, and propositions that are advanced to explain and predict phenomena (facts)." Jack Gibbs defines theory as "a set of logically interrelated statements in the form of empirical assertions about properties of infinite classes of events or things." A theory may not only explain or predict phenomena, but also specify causal relationships among variables. In the latter sense, a theory may be defined as "a set of systematically related propositions specifying causal relationships among variables.

Theories start out as ideas. It is the extent to which ideas conform to basic demands of proposition formulation that determines whether or not they will assume the stature of theory. The criteria to be met by the set of ideas are:

1. They must be logically consistent. There must be no internal contradictions.
2. They must be interrelated.
3. The statements must be exhaustive as to cover the full range of variations concerning the nature of the phenomena in question.
4. The propositions should be mutually exclusive.

5. They must be capable of being tested through research. The set of ideas in social sciences generally fail to meet the above basic demands of theories. They are broadly grouped into general configurations referred to as "*frames of reference," "perspectives" or "approaches."*

1.12.2 Role of theory in research

Theory serves research in many useful ways.

i. ***Delimitation of Study:*** Theory narrows the range of facts to be studied. It helps to select a few relevant aspects of a phenomenon. Any phenomenon may be studied from different angles. A co-operative society, for example, can be studied as an economic enterprise, or as a social organisation or as an instrument for the promotion of the welfare of weaker sections, or as a democratic institution or a member-unit of a federal structure. Each science/ discipline deals with a specific aspect of a phenomenon. Only then can the work of a discipline be reduced to manageability. Thus theory relating to a discipline delimits/ narrows the range of things, which come within its purview.

ii. **Conceptual model**: Theory provides a conceptual framework for a study. Every science/ discipline is an organized body of facts — a structure of interrelated concepts with precise definitions. A researcher selects a *priori* a few facts from the theory and develops conceptual structure of their interrelationships — conceptual schemata — for the proper formulation of the selected problem.

iii. **Summarization:** Another function of theory is to summarize concisely what is already known about the object of study. Theorizing integrates the major empirical generalizations of an era. From time to time in any science there will be changes in the structure of relationships between propositions. In each era, scientists move from older systems of theory towards a more acceptable new system.

iv. **Uniformity:** Theory states a general uniformity beyond the immediate observations. A person sitting under a mango tree may observe ripe mangoes falling on the ground. But beyond this observation, there is the general law of gravitation

v. **Prediction:** Theoretical generalizations can be used to predict further facts. The most obvious is the extrapolation from the known to the unknown. For example, we may observe that in a modern civilized community there is a low birth rate. From this, we may predict that if modern way of life is introduced into a traditional rural or tribal community, its birth rate would decline.

vi. **Gaps in knowledge:** Theory also points to areas, which have not been explored. If a theory states that professionalisation of management contributes to enterprises success, we can see where further facts might be sought. What are the variables of professional management? How can we explain the success of family-managed undertakings? Such gaps in knowledge are brought to light through the questions arising out of theory.

1.13 MASS COMMUNICATION THEORIES

Mass Communication theories put forth the designs in mass communication and information processes. Mass communication theories are explanations and predictions o f social phenomena that attempt to relate mass communication to various aspects of our personal and cultural lives or social systems (Baran). Mass communication theories

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were grounded in other disciplines like political science, economics, cultural studies, sociology, psychology, anthropology and so on. These theories apply to verbal and written communication between people as well as mass and broadcast communications. Mass communication theory explains the production, reception and the content of information exchanged in a communication process. Some models of communication deal with mass communication concepts and explained as communication models and theories. Role of mass media in propaganda and persuasion were early studies in relation to political communication of mass media. Mass media effects and influence studies became the major focus as entertainment media grew with the advent of film and television. In the context of research communication and mass media related theories are taken in this lesson.

1.14 TYPES OF MASS COMMUNICATION THEORIES

Many number of mass communication theories exist and have their origin from different related disciplines. Following are the five major theories of mass communication which specifically deal with the effects and influence of mass media on the society.

1.14.1 Magic bullet theory

The effects of mass media on the people were considered to be immediate. Mass media are the reliable sources people depend for information. So whatever the media says was considered reliable or trustworthy. The "Magic Bullet graphically assumes that the media's message is a bullet fired from the "media gun" into the viewer's "head". This theory is also known as the hypodermic needle theory of communication for essentially capturing a similar dynamic: that the media injects messages into a mass audience. Hypodermic Needle Theory, also known as Magic Bullet Theory (hypodermic syringe model or transmission-belt model) was promulgated by Harold Lasswell in 1920s. It was written in the book “Propaganda Technique” in the World War. The theory is a linear model of communication and talks about media's power on audience

1.14.2 Two-step flow theory

The two-step flow of communication hypothesis was first introduced by Paul Lazarsfeld, Bernard Berelson, and Hazel Gaudet in The People's Choice, a 1944 study focused on the process of decision-making during a Presidential election campaign. n the course of his research, he

discovered that we're more likely to be influenced by other people than the mass media. Lazarsfeld called these people 'opinion leaders'. Along with Elihu Katz, he later published a book called 'Personal Influence' in which he provided further evidence for this theory. The Two Step Flow Theory suggests that opinion leaders pay close attention to the mass media and pass on their interpretation of media messages to others. The Two Step Flow Theory maintains that audiences are active participants in the communication process.

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1.14.3 Agenda Setting Theory

The term was coined by Maxwell McCombs and Donald L.Shaw (1972) in the context of election campaign where politicians seek to convince the voters about the party's most important issues. The agenda setting theory maintains that the media are more successful in telling people "what is to think about" than in telling them "what to think". This hypothesis is based on a whole series of studies showing a correspondence between the order of importance given in the media to 'issues' and the order of significance attached to the same issues by the public and the politicians. Over a period of time, according to this theory, the very priorities accorded by media to issues become the public priorities as well. But the critics (McQuail, 1983) argue that the evidence is insufficient to show a causal connection between the various issue 'agendas' of the media and the public. They suggested the need for a study that combined analysis of party programmes, evidence of opinion change over time in a given section of the public: a content analysis showing media attention to different issues in the relevant period: and some indication of relevant media use by the public concerned. In the absence of such evidence, the hypothesis of agenda setting remains unproved.

1.14.4 Uses and Gratification theory

The Uses and Gratifications Theory arose out of the studies which shifted their focus from what the media do to the people to what people do with the media (Katz 1959). The question asked is: How do people use the mass media and why ? The "uses" approach assumes that audiences are active and willingly expose themselves to media; and that the most potent of mass media content cannot influence an individual who has "no use" for it in .the environment in which he lives. The uses of mass media are dependent on the perception, selectivity, and previously held beliefs, values, and interests of the people. The term "gratification" refers to the rewards and satisfaction experienced by audiences after the use of media; it helps to explain motivations behind media use and habits of media use.

Davison (1959) has shown that many research findings make more sense if communications are interpreted as a link between man and his environment. He suggests that communication effects can be explained in terms of the role they play in enabling people to bring about moe satisfactory relations between themselves and the world around them. - Three distinct groups of uses and gratifications studies can be distinguished. The first of these groups conducts inquiries into the range of satisfaction derived from mass media material. The second group looks at the social and environmental circumstances that are responsible for people turning to the media in the first place. The third looks at the needs audience members are attempting to satisfy

1.14.5 Cultivation Theory

This theory, developed by George Gerbner (1967), is based on the assumption that mass media have subtle effects on audiences who, unknowingly, absorb the dominant symbols, images, and messages of media. He calls it "cultivation of dominant image pattern". According to this theory, a long, persistent exposure to TV is capable of cultivating common beliefs about the world. Gerbner and his associates are of the view that the messages of television do not portray reality in society; repeated exposure to such distortions leads to development of particular beliefs about the world; and these beliefs get reinforced once they are developed. For example, repeated viewing of glamorous locales, big houses, clothes, toys, chocolates, fast foods, electric and electronic gadgets may lead viewers to believe that they can expect such things in life but such messages are not beneficial for the poor and underprivileged majority. Gerbner also strongly suggests that the powerful effect of mass media act as moulders of society

Check your Progress – 5

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1.Explain the ‘magic bullet’ theory of mass media

2. What is agenda setting theory of mass media? Discuss

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1.15 ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. The new Oxford English Dictionary defines research as “the scientific investigation into and study of material, sources etc in

order to establish facts and the reach new conclusions". According to Redman and Mory (1923), research is a "systematized effort to gain new knowledge". It is an academic activity and therefore the term should be used in a technical sense.

2. A descriptive research study attempts to describe systematically a situation, problem, phenomenon, service or programme, or provides information about, say, the living conditions of a community, or describes attitudes towards an issue. For example, it may be required to understand the implementation of a government scheme, its beneficiaries, extent of reach, etc. Here it describes the process of a scheme right from its planning, implementation, benefits, the end results along with the advantages and disadvantages of the scheme. This paves way towards bringing change in further implementation, changes, planning etc.
3. An independent variable can take different values and can cause corresponding changes in other variables. An independent variable is defined as the variable that is changed or controlled in a scientific experiment. It represents the cause or reason for an outcome. Independent variables are the variables that the experimenter changes to test their dependent variable. A change in the independent variable directly causes a change in the dependent variable. The effect on the dependent variable is measured and recorded.
4. Scientific research is an organized, objective, controlled, qualitative or quantitative empirical analysis of one or more variables (Kothari, 2004)
5. The "Magic Bullet graphically assumes that the media's message is a bullet fired from the "media gun" into the viewer's "head". This theory is also known as the hypodermic needle theory of communication for essentially capturing a similar dynamic: that the media injects messages into a mass audience.
6. The agenda setting theory maintains that the media are more successful in telling people "what is to think about" than in telling them "what to think". This hypothesis is based on a whole series of studies showing a correspondence between the order of importance given in the media to 'issues' and the order of significance attached to the same issues by the public and the politicians. Over a period of time, according to this theory, the very priorities accorded by media to issues become the public priorities as well.

Notes

1.16 SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

Notes

1.16.1 Self assessment questions and exercises

i. Select an area you would like to undertake a research and give reasons for your choice
ii. Identify who would be the beneficiaries of your research

1.16.2 Short answer questions

i. Explain descriptive research
ii. Discuss the steps in a research process

1.16.3 Long answer questions

i. Elaborate on the different types of research
ii. Explain the elements of research
iii. Elaborate on the different theories of mass communication

1.17 FURTHER READINGS AND REFERENCES

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UNIT II

STRUCTURE

Notes

2.1. INTRODUCTION

In this unit a basic understanding of research, the role and functions of research in a society is outlined. Research is important in each and every step of human beings towards a holistic growth. This unit also identifies the link between mass communication research and its contributions towards the society. Mass media being one of the major influential factors of a society, the scope of mass communication research is explored in detail.

2.2. OBJECTIVES

After going through the course you will be able:

1. To understand the role and functions of research
2. To understand communication and mass media research
3. To know about the scope and importance of communication
4. To understand the studies on mass media influence

Notes

2.3. GENERAL ROLE AND FUNCTIONS OF RESEARCH

2.3.1. Expansion of knowledge: Research has helped the human being to understand the world around us. Research has enhanced the understanding of the science relating to human beings, animals, environment, nature and so on. This has helped us invent things required for us to adopt as per the requirements or changes as and then. Knowledge based on several researches has empowered human beings to a larger extent.

2.3.2. **Identifying the problems, reasons and solutions:** Several socio economic cultural and political issues in the society depend on research to improve, change, review, repeat or eradicate it. For example, research is required in understanding poverty and finding out suitable means of addressing it in an effective manner. Research can contribute scientific and authentic knowledge to such issues. An analysis of problems leads to an identification of appropriate remedial action.

2.3.3. Prediction: Research predicts changes, its reasons and relevant reactions in dealing with such changes. For example, research can predict the reception of certain genre of films and contribute towards the knowledge relating to newer developments required. Although prediction cannot be accurately done it can serve to hint to a greater extent.

2.3.4. Answers to Five W's and one H: Research seeks knowledge and answers to questions of What, Where, When, Why, Who and How by using a systematic and scientific procedure.

2.3.5. Planning and Development: Planning requires research assessment and stock taking of the present conditions for future developmental planning. Identifying gaps, problems and ways of rectifying the gaps can be done through research process. For example, the reception analysis of advertisements can throw more light on future changes to improve its effectiveness.

2.3.6. Control over social phenomena: Research in social science areas equips us with first-hand knowledge about the organizing and working of the society and its institutions. This knowledge gives us a greater power of control over the social phenomena.

2.3.7. **Social Welfare:** Research can contribute appropriate guidelines for relevant positive measures of reform and social welfare.

Check your Progress – 1

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Explain the role and functions of mass research

2.4. COMMUNICATION AND MASS MEDIA RESEARCH

Communication research generally refers to the attempt to discover trends or facts in the field of communication and mass media. Dennis Mcquail states that communication and mass media as a field of research gained momentum during the Second World War. In 1950s and 1960s the study of media was largely framed according to topics that lent themselves to enquiry within the frames of leisure-time use, effectiveness in political persuasion, protecting and meeting the needs of children and youth and the merits and demerits of 'mass culture'. Apart from this, a central and growing concern of media industry and others was the measurement of audiences for the various competing media (Mcquail, as ed. Bens, et.al, 2005). Development of mass media, right from print, radio, film and television, stimulated the rise of mass media audiences of different types. This created more scope and need for mass media related research in relation to the everyday lives of people and mass media influence. Thus, after 1960s media studies concentrated more on the effects of mass media on the society.

2.4.1. MASS MEDIA AND SOCIETY

Mass media is one of the major social institutions of a society. The advent of mass media expanded the understanding of the world around human beings. Print media connected the world at major levels through newspapers and books. It paved way to understand the world better and the need for literacy became compulsive. Documentation and dissemination of facts, creative works, services and records were easier with print media interventions. Print media, radio, film and television being the prominent forms of traditional mass media platforms are integral part of human beings over the past decades.

Notes

2.4.2. OBJECTIVES OF MASS MEDIA RESEARCH

The objectives of mass media research are broadly based on the following,

- To explores the power of mass media
- To identify the levels of influence of mass media on different sections of the society
- To analyze the role of mass media in development context

2.5. SCOPE AND IMPORTANCE OF COMMUNICATION RESEARCH

Mass communication is the important form of communication that impacts masses. Thus, mass media research is based on mass communication process and influences on the society. Mass media includes traditional media forms, like newspaper, film and radio but now, more encompasses television and the Internet, and even more recently, social media. Media research is the study of the social, psychological and physical aspects and effects of the different mass media. Mass media is a very powerful social institution that can exert much influence on a society socially, politically, culturally and economically. Media research includes a whole range of study about the development of media, their achievements and effects. It includes the methods used in collecting and analyzing information with regard to newspapers, magazines, radio, TV, cinema or other mass media. It also concerns with an expanded discussion of the scientific methods of research. Moreover, mass media platforms are expanding on par with technological developments. Mass media uses major technological inventions and are changing over time and space. Mass media influences the everyday lives of many people and shapes beliefs and attitudes on the society.

2.5.1. CONTRIBUTIONS OF MASS MEDIA RESEARCH

Mass media has become part and parcel of everyday lives of people of different backgrounds and different nations around the world. Mass media over the years has found to influence people's way of life, knowledge, beliefs, social systems and attitudes. Mass media research over the years has contributed towards understanding and identifying the effects and influence of mass media. The mass media effects as opined by Beryant (2008) are often classified into five categories: Behavioral, Attitudinal, Cognitive, Emotional and Physiological effects. The author argues that different media messages leads to different media effects on masses such as behavioral effects could result in some kind of action, attitudinal effect might change the beliefs

and attitude of audience, cognitive effects brings change in their thinking process and physiological or emotional effects may cause some kind of feeling or physical body reactions.

i. **Behavioral Effects -** results when masses do some action after receiving the messages from media

ii. **Attitudinal Effects -** take place when messages from media change the opinions, beliefs of the mass audience.

iii. **Cognitive Effects -** are those effects when media messages changes the thinking process of the audience.

iv. **Emotional Effects** - take place when media messages create

v. **Physiological Effects -** results when media consumption leads to changes in stimulation or other physical bodily reactions.

vi. **Several other typologies of media effects -** various other effects such as immediate vs. long- term, beneficial vs. detrimental, intentional vs. accidental are also considered by investigators who tend investigate media effects.

(Source: Beryant, 2008)

Notes

Check your Progress – 2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Discuss the importance of communication research

_____

_____

2.5.2. Major mass media researches

Mass communication or mass media related research has been instrumental in establishing major mass communication theories discussed in the earlier chapter of this study material. The following are few of the major studies in mass media around the world.

i. Payne fund studies

The Payne Fund Studies, eight volumes published between 1933 and 1935, were the most comprehensive early investigation of the social effects of the mass media on American youth. The Payne Fund studies were conducted by a team led by Herbert Blumer to examine their effects of movies and children. The project which ran between 1929-1932 included more than 18 social scientists who produced eleven published reports.

Each study focused on three main areas: what was watched, who watched, and what was the effect on children. The researchers found there were influenced in a number of ways ranging from learning and attitude change to emotion stimulation and behavior influence. For example in Blumer's fascinating study, Movies and Conduct (1933), more than fifteen hundred college and high school students wrote autobiographies of their movie-going experiences. He uncovered that movies teach kids things about life—attitudes, hairstyles, how to kiss, even how to pickpocket. This research laid the foundations for many subsequent studies involving the effects of movies, television and video games on children.

Overall, researchers found that movies influenced both children's attitudes and behaviors. These effects were cumulative and persistent over time. Evidence suggested that children acquired and retained information they received in the movies. Attitudes concerning ethnic, racial and social issues were changed by movie viewing. Emotions were stimulated while viewing fear and tension. Some movies disturbed subsequent healthy sleep. Children regularly attending movies were found to behave poorly in school compared to those who attended less frequently. Children imitated favorable behavior they saw in movies, but movies also appeared to play a direct role in delinquent careers.

ii. **Direct effects of mass media**

Early media studies focused on the use of mass media in propaganda and persuasion. Yet, widespread fear that mass-media messages could outweigh other stabilizing cultural influences, such as family and community, led to what is known as the direct effects model of media studies. This model assumed that audiences passively accepted media messages and would exhibit predictable reactions in response to those messages. For example, following the radio broadcast of *War of the Worlds* in 1938 (which was a fictional news report of an alien invasion), some people panicked and believed the story to be true. The results of the *People's Choice Study* challenged this model. Conducted in 1940, the study attempted to gauge the effects of political campaigns on voter choice. Researchers found that voters who consumed the most media had generally already decided for which candidate to vote, while undecided voters generally turned to family and community members to help them decide. The study thus discredited the direct effects model and influenced a host of other media theories (Hanson, 2009). These theories do not necessarily give an all-encompassing picture of media effects but rather work to illuminate a particular aspect of media influence.

iii. Limited effects studies of mass media

Landmark research in the late 1950s and 1960s refuted many claimed effects of the media and showed media power was

overestimated. Key studies were those of Katz and Lazarsfeld (1955) and Joseph Klapper (1960). Klapper concluded that "mass communications ordinarily do not serve as a necessary and sufficient cause of audience effects". He concluded instead that mass media were more likely to reinforce existing attitudes than change them or create new attitudes. His findings became known as Klapper's 'law of minimal consequences' and triggered a 'limited effects' view of mass media. Another strain of media research which also rejected the direct effects thinking of earlier research and first introduced the notion of audience interpretation became known as the 'uses and gratifications' perspective. "Instead of asking what the media do to people, uses and gratifications research turned the question around: what do people do with the media" Katz says (as cited in Lull, 2000, p. 101). 'Uses and gratifications' thinking about mass media continues today, although it has lost some favour as it is linked to functionalist media theory advanced by influential American political scientist Harold Lasswell which assumes people willingly engage with mass media and benefit from the experience.

Notes

Check your Progress –3

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Explain the direct effects of mass media

_____

_____

2.6. BASIC RESEARCH:

It is designed to add organized knowledge to the body of scientific knowledge. It does not necessarily produce results of immediate practical value. It results in general knowledge and understanding of nature and its laws. The general knowledge provides the means of answering a large number of important practical problems, though it may not give a complete specific answer to any one of them. It is either concerned with the formulation of theory or contributes to the existing body of knowledge. It is also termed as fundamental or pure research. Its chief concern is to discover knowledge for the sake of knowledge and not for the sake of application of the findings or even for their social usefulness.

2.7. APPLIED RESEARCH:

Applied research aims at improving a theory, product or process. It is testing of theoretical concepts in specific problem situations. Its

concern is generally with the solution for problems. The function of applied research is to provide such complete answers. The scientist doing basic research may not be at all interested in the practical applications of his work, yet the further progress of industrial development would eventually stagnate if basic research were long neglected. Simply put, basic research is generally done for academic purposes.

Notes

2.8. ANSWER TO CHECK YOUR PROGRESS QUESTIONS

1. The major role and functions of research is expansion of knowledge, identification of problems, reasons or solutions on important areas, to predict something, to answer several questions, to contribute towards planning and development, control over social phenomena and contribute towards social wellbeing

2. Mass media research is based on mass communication process and influences on the society. Media research includes a whole range of study about the development of media, their achievements and effects. It includes the methods used in collecting and analyzing information with regard to newspapers, magazines, radio, TV, cinema or other mass media. It also concerns with an expanded discussion of the scientific methods of research. Moreover, mass media platforms are expanding on par with technological developments. Mass media uses major technological inventions and are changing over time and space. Mass media influences the everyday lives of many people and shapes beliefs and attitudes on the society.

3. Early media studies focused on the use of mass media in propaganda and persuasion. Yet, widespread fear that mass-media messages could outweigh other stabilizing cultural influences, such as family and community, led to what is known as the direct effects model of media studies. This model assumed that audiences passively accepted media messages and would exhibit predictable reactions in response to those messages. For example, following the radio broadcast of *War of the Worlds* in 1938 (which was a fictional news report of an alien invasion), some people panicked and believed the story to be true.

2.9. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

2.9.1. Self assessment questions and exercises

i. Identify the linkage between communication and mass media

ii. Explain the characteristics of mass media

2.9.2. Short answer questions

i. Discuss the objectives of mass communication research

ii. Explain the scope and importance of mass communication research

2.9.3. Long answer questions

i. Elaborate the contributions of mass communication research towards the society

2.10. FURTHER READINGS AND REFERENCES

Notes

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Notes

UNIT III

STRUCTURE

3.1. INTRODUCTION

This unit outlines the different research designs used based on the objectives of the research. It also helps in understanding the basic components required in a research design. Unless the research design is chosen carefully incorporating all the necessary mechanisms the research would not meet the requirements.

Notes

3.2. OBJECTIVES

After going through the course you will be able:

5. To understand the meaning of a research design
6. To know about the different types of research designs
7. To understand the important components of a research design

3.3. RESEARCH DESIGN COMPONENTS

Research design is the framework of the research which outlines the formal procedures of the research. "A Research Design is the logical and systematic planning in directing the research. But in practices in most of the basis it is just a plan of study. The research design can either be formal or informal. From what has been stated above, we can state the important features of a research design as under:

(i) It is a plan that specifies the sources and types of information relevant to the research problem.

(ii) It is a strategy specifying which approach will be used for gathering and analysing the data.

(iii) It also includes the time and cost budgets since most studies are done under these two constraints.

3.3.1. **Meaning of a research design**

Research design is the skeleton for the research project. Decisions regarding what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design. It is a process of anticipating what has to be done in what manner where, when, how and by whom with what type of resource towards what expected outcome. Claire Selltiz, Jahoda, Deutsch and Cook define research design as, "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." In fact, it is the structure within which research is conducted.

The design constitutes the blue prints for the collection, measurement and analysis of data. So, the agenda from writing hypothesis to the final analysis of data is research design.

Definition

1. "It constitutes the blue print for the collection, measurement and analysis of data" - Philips Bernard S
2. It "provides a systematic plan of procedure for the researcher to follow" -Best John N
3. "The design research from controlling general scientific model into varied research procedure"- P.V. Young
4. "A research design is "the programme that guides the investigator in the process of collecting, analysis and interpreting observations". – David and Shava

Notes

3.3.2. **Need and importance of a research design**

Research design is based on the nature of the outcomes expected from the study. A research design should be able to address the following contexts,

i. The research problem
ii. Aim of the research
iii. Research questions
iv. Expected outcomes
v. Nature of the problem
vi. Nature of research place
vii. Type of data required
viii. Method of data collection
ix. Previous researches/literature
x. Duration /Time of study
xi. Required sample
xii. Methods of data analysis
xiii. Required resources
xiv. Required results
xv. Reporting of results / outcomes of the research

According to Kothari (1988), a 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. Thus in any task planning and designing the execution of the plan is important for successful accomplishment of the plan. 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. Research design, in fact, has a great bearing on the reliability of the results arrived at and as such constitutes the firm foundation of the entire edifice of the research work.

A good research design should be a vision document which foresees the desired outcomes of the research. Based on this requirement the research is designed. The components of a good research are as follows,

i. The design should be objective
ii. Reliability and validity is high
iii. Minimize research errors
iv. Be able to find deal with multiple dimensions of the research
v. Throw more insights related to the research
vi. Have clarity on the aims, objectives, procedures, methods and techniques used

Notes

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain the meaning of research design
2. Discuss the need and importance of a research design

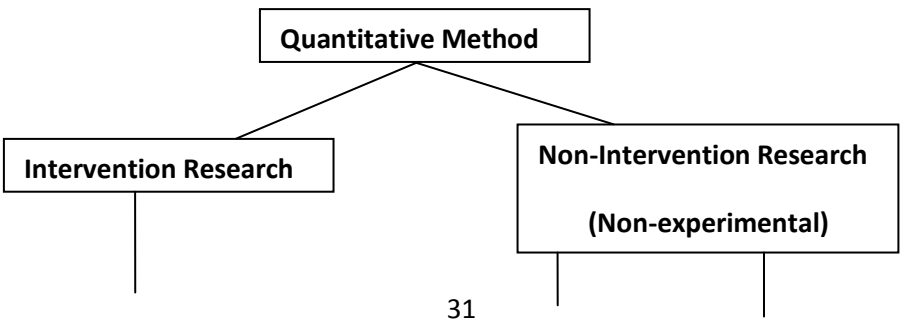
_____

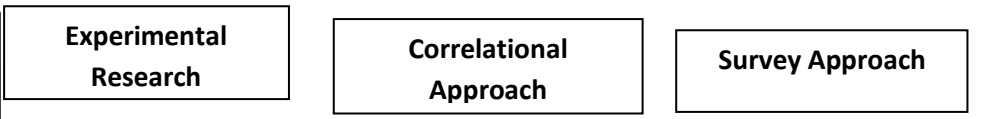
_____

3.4. TYPES OF RESEARCH DESIGNS

3.4.1. **Quantitative research design**

Quantitative research design deals with numbers and used in finding out the relationship between variables, establishing facts and theories. It explains a phenomena using numerical data that are analysed scientifically. Here quantifiable data is collected from a large number of participants. Data are analysed using statistics in an unbiased and objective manner. Quantitative data is referred to as 'hard' data. Emphasis is laid on collecting scores that measure distinct attributes of individuals and organizations. Quantitative research can be described as follows,





Quantitative research as given in the above figure is of intervention and non-intervention type. Out of the above methods, the popularly used methods experimental and survey approach are explained below in detail.

Notes

3.4.1.1. Intervention Research - Experimental Research

https://esrpc.com/en/post/experimental-research
https://www.questionpro.com/blog/experimental-research/

Experimental research design is an intervention research. The basis of the experimental method is the experiment, which can be defined as: a test under controlled conditions that is made to demonstrate a known truth or examine the validity of a hypothesis. An experiment is a study in which the researcher manipulates the level of some independent variable and then measures the outcome. Experiments are powerful techniques for evaluating cause-and-effect relationships. Many researchers consider experiments the "gold standard" against which all other research designs should be judged. Experiments are conducted both in the laboratory and in real life situations.

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3.4.1.1.1. Key terminologies in experimental research

i. **Independent variable**
   This variable will be manipulated, that can be called the "cause" or treatment variable.
ii. **Dependent variable**
   This variable is the "effect" or outcome of manipulating the independent variable. The crucial point here is that the outcome must be measurable.
iii. **Experimental group**
   It is the group that receives the treatment.
iv. **Control group**
   This is the group that remains fixed, and at the end, it is compared to the experimental group.

3.4.1.2. Types of Experimental Research Designs

There are many experimental research designs, but prominent few designs are discussed below,

3.4.1.2.1. True experimental research

True experimental research is the most accurate form of experimental research design as it relies on statistical analysis to prove or disprove a hypothesis. It is the only type of Experimental Design that can establish a cause-effect relationship within a group/s. In a true experiment, there are

three factors which need to be satisfied. There are different types of true experimental designs

i. **Post-test Only Design**: In this type of design, there are two randomly assigned groups, namely as an experimental group and a control group. None of these groups are pretested before the implementation of the treatment. The treatment is applied just to the experimental group, and the post-test is carried out on both groups to measure the effect of the treatment. When it is not possible to pretest the subjects, this type of design is commonly used

ii. **Pretest, Post-Test Only Design**: First, the experimental and the control group are formed, then both groups are pretested for the independent variable. After that, just the experimental group receives the treatment, and finally, both groups are post-tested to investigate the effects of the independent variable on the dependent one

Notes

iii. **Solomon Four-Group Design**: In this kind of design, four groups are randomly formed including two experimental groups and two control groups. Only two groups are pretested. Then, one pretested group and one un-pretested group get the treatment. All four groups receive the post-test. And, at the end, the post-test results demonstrate the effects of the dependent variable comparing to the effects of the independent variable on the dependent variable. This method is a combination of the previous two methods and potential sources of error are eliminated by using this design

iv. **Factorial Design**: Two or more independent variables (factors) are simultaneously manipulated to observe their effects on the dependent variable. This design allows the researcher to test two or more hypotheses in a single project

v. **Randomized Block Design**: When there are intrinsic differences between subjects and possible differences in experimental conditions, this design is used. When there are a large number of experimental groups, the randomized block design makes the groups homogenous

vi. **Crossover Design (also known as Repeat Measures Design)**: Different orders of the treatment are randomly manipulated to the subjects in this design, and they are assigned to more than one treatment. The compared groups should have an equal distribution of features and there should be a high level of similarity among the subjects. In this type of design, the subjects serve as their own control groups. Crossover designs are very good tools for doing research, but, there is something to be worried about and it is the point that the subjects' experience with the first treatment may affect their responding to the second treatment or condition

3.4.1.2.2. **Pre-experimental design**

It is the design in which the basic experimental steps are followed, but there is no control group. By using this design, the researcher studies a single group and does not make any comparisons between this group and an equivalent non-treatment group. It is usually conducted to understand whether further investigation needs to be carried out on the target group/s, due to which it is considered to be cost-effective.

Notes

3.4.1.2.3. **Quasi experimental research**

The researcher does not randomly assign subjects to treatment and control groups. In other words, the treatment is not distributed among participants randomly. In some cases, a researcher may randomly assign one whole group to treatment and one whole group to control. In this case, quasi-experimental research involves using intact groups in an experiment, rather than assigning individuals at random to research conditions.

Advantages of Experimental Research

- Researchers have a stronger hold over variables to obtain desired results.
- Subject or industry is not a criterion for experimental research due to which any industry can implement it for research purposes.
- Results are extremely specific.
- Once the results are analyzed, they can be applied to various other similar aspects.
- Cause and effect of a hypothesis can be derived so that researchers can analyze greater details.
- Experimental research can be used in association with other research methods

Check your Progress –2

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain quasi experimental design

_____

_____

3.4.1.3. **Survey research**

Survey research is one of the most prominent and popular type of research in social sciences. In quantitative communication research, a survey is an empirical study that uses questionnaires or interviews to

discover descriptive characteristics of communication phenomena. Often people think that surveys are means of studying large number of people. However, relatively smaller groups - like the employees of an office - can also be surveyed. Surveys can be used for all kinds of communication studies. It is a method of research involving collection of data directly from a population or sample thereof at particular time. It must not be confused with mere clerical routine of gathering and tabulating figures. It requires expert and imaginative planning careful analysis and rational interpretation of the findings.

3.4.2. **Qualitative research design**

Qualitative research is a type of educational research in which the researcher relies on the views of participants; asks broad, general questions; collects data consisting largely of words (or text) from participants; describes and analyzes these words for themes; and conducts the inquiry in a subjective, biased manner.

3.4.3. **Mixed methods research design**

Mixed methods design is a using both qualitative and quantitative research designs in a study. Sometimes it may not be sufficient for a single method, namely, quantitative or qualitative research design to address the objectives of a research. Moreover, certain objectives may require different methods to give the results. During such instances combining both at appropriate places can yield better results. In such cases mixed method plays an effective role. Here both the methods give better analysis and balance each other.

Use of mixed methods research design has been well received by many social science researchers since both complement each other and strengthen the research. Sale, Lohfeld and Brazil (2002:46) comment as follows with regard to the combination of the two methods:

"Both approaches can be combined because they share the goal of understanding the world in which we live. They share a unified logic, and the same rules of inference apply to both. A combination of both approaches provides a variety of perspectives from which a particular phenomenon can be studied and they share a common commitment to understanding and improving the human condition, a common goal of disseminating knowledge for practical use. Both approaches provide for cross-validation or triangulation – combining two or more theories or sources of data to study the same phenomena in order to gain a more complete understanding of that phenomenon (interdependence of research methods) and they also provide for the achievement of complementary results by using the strengths of one method to enhance the other (independence of research methods)."

Check your Progress –3

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is qualitative research design? Explain

3.5. LONGITUDINAL STUDIES

Notes

In longitudinal studies participants are observed and measurements are taken for a long period of time. Longitudinal studies either go forward in time or backward in time.

3.6. CO-RELATIONAL DESIGN

A correlational study is a type of research design where a researcher seeks to understand what kind of relationships naturally occurring variables have with one another. In simple terms, correlational research seeks to figure out if two or more variables are related and, if so, in what way. For example, the correlation between the time spent on watching television advertisements and purchase habits of a person.

3.7. COMPONENTS RELATING TO RESEARCH DESIGN

3.7.1. **Dependent and independent variables**

A concept which can take on different quantitative values is called a variable. Phenomena which can take on quantitatively different values even in decimal points are called 'continuous variables'. But all variables are not continuous. If they can only be expressed in integer values, they are non-continuous variables or in statistical language 'discrete variables'. Age is an example of continuous variable, but the number of children. is an example of non-continuous variable. 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 behavioural changes, occurring as a result of the environmental manipulations, are examples of dependent variables.

3.7.2. Extraneous Variables

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. Whatever effect is noticed on dependent variable as a result of extraneous variable(s) is technically described as an 'experimental error'. A study must always be so designed that *the effect upon the dependent variable is attributed entirely to the independent variable(s), and not to some extraneous variable or variables*.

3.7.3. Control

One important characteristic of a good research design is to minimise the influence or effect of extraneous variable(s). The technical term 'control' is used when we design the study minimising the effects of extraneous independent variables. In experimental researches, the term 'control' is used to refer to restrain experimental conditions.

3.7.4. 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).

3.7.5. Research Hypothesis

When a prediction or a hypothesised relationship is to be tested by scientific methods, it is termed as research hypothesis. The research hypothesis is a predictive statement thatrelates 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.

3.7.6. Experimental Design and Non-experimental hypotheses 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'.

Notes

3.7.7. **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.

3.7.8. **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. Similarly, if we want to determine through an experiment the comparative impact of three varieties of fertilizers on the yield of wheat, in that case the three varieties of fertilizers will be treated as three treatments.

3.7.9. **Experiment**

The process of examining the truth of a statistical hypothesis, relating to some research problem, is known as an experiment. For example, we can conduct an experiment to examine the usefulness of a certain newly developed drug. Experiments can be of two types viz., absolute experiment and comparative experiment. If we want to determine the impact of a fertilizer on the yield of a crop, it is a case of absolute experiment; but if we want to determine the impact of one fertilizer as compared to the impact of some other fertilizer, our experiment then will be termed as a comparative experiment. Often, we undertake comparative experiments when we talk of designs of experiments.

3.7.10. **Experimental units**

The pre-determined plots or the blocks, where different treatments are used, are known as experimental units. Such experimental units must be selected (defined) very carefully.

3.8. ANSWER TO CHECK YOUR PROGRESS QUESTIONS

4. Research design is the skeleton for the research project. Decisions regarding what, where, when, how much, by what means

concerning an inquiry or a research study constitute a research design. It is a process of anticipating what has to be done in what manner where, when, how and by whom with what type of resource towards what expected outcome.

5. According to Kothari (1988), a 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. Thus in any task planning and designing the execution of the plan is important for successful accomplishment of the plan. 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. Research design, in fact, has a great bearing on the reliability of the results arrived at and as such constitutes the firm foundation of the entire edifice of the research work
6. The researcher does not randomly assign subjects to treatment and control groups. In other words, the treatment is not distributed among participants randomly. In some cases, a researcher may randomly assign one whole group to treatment and one whole group to control. In this case, quasi-experimental research involves using intact groups in an experiment, rather than assigning individuals at random to research conditions.
7. Qualitative research is a type of educational research in which the researcher relies on the views of participants; asks broad, general questions; collects data consisting largely of words (or text) from participants; describes and analyzes these words for themes; and conducts the inquiry in a subjective, biased manner.

3.9. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

3.9.1. **Self assessment questions and exercises**

i. Explain how a research design can contribute towards a successful research study

3.9.2. **Short answer questions**

i. Discuss intervention design

ii. What do you mean by mixed methods research? Discuss

3.9.3. **Long answer questions**

i. Explain the different types of research designs

3.10. FURTHER READINGS AND REFERENCES

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UNIT IV

STRUCTURE

Notes

4.1. INTRODUCTION

This unit outlines the different methods in research, especially, how these methods are applied in communication and media studies. The methods are given in detail with the essential steps required in each of the research process. In each of the method its characteristics, advantages, disadvantages and applications are provided.

Notes

4.2. OBJECTIVES

After going through the course you will be able:

8. To understand the different methods in communication research
9. To understand the steps in each of the methods of research

4.3. METHODS OF COMMUNICATION RESEARCH

4.3.1. Census method

This method involves studying the entire population or universe of research. This is a quantitative method. Every single element of the universe is covered in this method. Thus the results are always good. Also there is no danger of biases or prejudices being introduced. The major drawbacks of the census method are, it is highly expensive, and involves large manpower and a lot of efforts. For these reasons, the census method is rarely used for media research.

4.3.2. Survey method

The term survey comes from two words 'sur' and 'vor', which mean to see a particular thing from a high place. But this term is used differently in different sciences. In natural sciences, survey means measuring things. In social sciences, survey means an investigation of social problems by collecting data through interviews, questionnaire, etc. In communication research it means looking at something in its entirety.

4.3.2.1. The Characteristics of Survey

1. It is a field study
2. It is always conducted in a natural setting.
3. It seeks responses directly from the respondents.
4. It can cover a very large population.
5. A survey involves an extensive and intensive study.
6. A survey covers a definite geographical area, city, a district or a state

4.3.2.2. The Purpose of the Survey

1. The purpose of survey is to provide information's do government or planners or business enterprises.
2. Many enquiries aim to explain phenomenon

3. Surveys may be designed to make comparison of demographic groups.
4. Surveys are useful for making predictions

4.3.2.3. Steps in a survey research

i. Framing the questionnaire: Developing or framing questions is often a difficult task. It requires extensive reading on the subject, composing a rough draft, putting them into a proper format. Questions can be direct or indirect, specific or general. Also there could be pure questions or statements to which reactions are sought. Again questions can be closed or open ended. The researcher is free to adopt one type of questions or a variety of question types. Open-ended questions often result in a broad variety of responses.

ii. Formatting: The basic format of questionnaires includes a brief statement about the study at the beginning, request for participation, assurance of confidentiality (if required). Then come the demographic questions (about gender, age, academics, income, etc.) Next come the questions on the topic. Usually questions of same response modes (like the *yes* and *no* questions) are grouped together. Some researchers put questions on the same issue together. Researchers usually try to have less number of questions. However, some studies require long questionnaires of 30 to 40 questions. Putting large number of questions in a proper format is a big problem.

iii. Determining Reliability and Validity: After framing questions and formatting the questions, researchers must test the validity (relevance) and reliability (consistency) of the questions. For this, researchers often put *check questions* in the questionnaire. This involves putting the same question in different ways at different places. Many methods of testing validity and reliability are available. These include *test scales, polarity rotation* etc

iv. Sampling Subjects (Respondents): One cannot always study the entire population or the universe. A representative sample is thus selected. Many methods are used for this purpose. Whatever the method is, the researcher should justify the size and method of sampling.

v. Administering the Questionnaire: Questionnaires can be delivered by mail, through fax or personally. However, it is always good to get the questionnaire filled up personally.

vi. Analyzing and Interpreting Results: Mostly researchers' use statistical means for analyzing data collected through the questionnaires. They try to show averages or the spread of data. Whatever means used, this form of research tries to reveal answers to the problems posed in the study.

4.3.2.4. Advantages of survey method

i. It is flexible
ii. Possible to study a wide range of questions
iii. Can describe a situation
iv. Study relationships between variable
v. Generalize findings
vi. Large amount of data can be collected
vii. Comparatively low cost
viii. Can ensure respondent's anonymity

Notes

4.3.2.5. Disadvantages of survey method

i. The research environment cannot be controlled
ii. Non response and non cooperation by respondents
iii. Lack of in-depth understanding of an issue
iv. Reliability on self reports by respondents is still a major concern in survey research
v. Some researches give contradicting findings between survey and observation research of the same process

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain census method of research
2. What are the characteristics of a survey research?

_____

_____

4.3.3. OBSERVATION METHOD

Generally, observation is the process of *acquiring knowledge through the use of the sense organs*. Observation involves three components - *sensation* or experiencing through the sense organs, *attention* or the ability to concentrate on the subject matter, and *perception* or the ability to recognize facts and putting them in proper perspective. In simple terms, observation means *seeing things with a purpose*. In research terms, observation is *perception with a purpose*. The observation methods usually look into an occurrence, event or phenomenon as it is taking place. It is basically a qualitative method. The two basic types of observation are participatory and non-participatory. In participatory observation, the researcher observes from within the group under observation while being part of the group. This provides first hand

information. In case of non-participatory observation, the researcher observes from a distance. This is a kind of a detached observation. It does not provide any first hand experience. The accuracy of observations depends on the precise and clear formulation of the problem, studying items and issues individually, objectivity of inquiry, and the five W's and one H (what, where, who, when, why and how). The reliability of the observation depends on the techniques and tools used, the situation, setting or environment being observed and of course the quality of the observer. It also depends on the quality of sampling. A lot of cross checking is required to make sure that relevant and valid information is being collected. Along with objectivity, the observer should have relevant experience, knowledge, maturity, unbiased, and alertness. Observations should be noted down immediately and all observations should be properly categorized. Categorization helps in proper understanding and analysis. Observation is distorted by prejudice, bias, haste, inexperience and lack of relevant knowledge. Observation also has two major problems or fallacies: non- observation and mal observation.

Notes

Non-observation involves overlooking or neglecting relevant facts. Mal-observation involves misinterpretation or misperception. This means perceiving things differently from what they actually are.

4.3.3.1. Participatory Observation

Participatory Observation: This is also called naturalistic study as such studies are conducted in natural environments or settings. These are non-experimental studies or inquiries conducted as the subjects (people) are engaged in the natural course of their lives. Participatory observation is an important form of fieldwork. Here researchers study groups by becoming a part of the group. Researchers try to establish close relationships with the group members and observe and record their behaviour. Such studies produce both qualitative and quantitative data.

Researchers try to use non-intrusive methods to gather information-regardless of the fact that whether it is qualitative or quantitative. Researchers try to get close and personal with the group members. They do not ask questions as in case of surveys. They join the group and 'observe'.

4.3.3.2. Non-participatory Observation

Sometimes researchers do not become part of the group they are studying. They observe the group's behaviour from the outside and not as a part of the group. Here the chances of getting personal details of behaviours are less. In case of participatory observation, the interpretations become more subjective. But in case of outside

observation, which involves no close relationship between the group and the researcher, the interpretations are more or less objective. In participative observations, the researcher's sympathy and concerns are reflected in the interpretations

4.3.4. Clinical studies (laboratory or clinical or diagnostic

Clinical research uses scientific investigation to study the health and illness of people and answer questions about medicine and behaviour. In mass media studies, clinical research is used to identify the effects of media on the behavioural or mental wellbeing of a person. Prolonged use of mass media has shown to influence individuals in many ways. Researches relating to 'mean world syndrome', 'body image disturbance' etc can be clinically measured to see the relationship between media usage and mental or physical health.

Notes

Check your Progress –2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by non-participatory observation?

_____

_____

4.3.5. CASE STUDIES

A case study is an in-depth comprehensive study of a person, a social group, an episode, a process, a situation, a programme, a community an institution or any other social unit. These are intensive inquiries about single events, individuals, social units, or institutions. Case studies throw light on individual events or processes. The results are not generalizable in the statistical sense. Case studies help the researcher know precisely the factors and causes of a particular phenomenon. It is a kind of qualitative analysis. Whether an individual, an institution, a social unit or an entire community is studied, the subject is considered as a whole or a unit. The case study method covers every aspect of the unit very intensively. In the case study method, information is collected through personal interviews, interviews with people close to the subject (or unit being studied), documents (personal and official as in case of individuals and institutions respectively), etc. Unlike most other methods where only general aspects are covered, the case study method covers emotional and psychological aspects also. Unlike in other statistical methods where the emphasis is on numbers, the case-study method involves subjective treatment. While case studies generate adequate and comprehensive information, which help solve many problems, this method has some

disadvantages also. These include a false sense of confidence. Researchers often become over confident as they cover all the aspects. However, some aspects are overlooked some times. Collecting all kinds of information about great many aspects of the subject becomes difficult. It is also time consuming and expensive. Also it could lead to false generalizations. Being qualitative and subjective in nature, case studies are not quantifiable. Often case studies are unorganized and unsystematic as no standardized methodology is developed as yet. However, case studies are used as a highly effective method of research both in the social sciences and communication fields.

4.3.5.1. Functions of case study research

The case study method describes a case in terms of its peculiarities. It gives us an insight into the typical or extreme cases whose unique features are not reflected by the usual statistical method. A case study helps to secure a wealth of information about the unit of study, which may provide clues and ideas for further research. It provides an opportunity for the intensive analysis of many specific details that are overlooked in other methods. It examines complex factors involved in a given situation so as to identify casual factors operating in it. A case study aims at studying everything about something rather than something about everything as in the case of statistical method. While in a statistical approach the 'individual' disappears from the analysis, in a case study the individual' representing the 'wholeness' is preserved as it is an approach which views any social unit as a whole. Thus, a case study gives us a total view of a unit or a clear insight into a situation or process in its total setting.

Thus, the perspective of a case study is both qualitative and organic. It gives an overall generic picture of a problem. The case study, as a research method, often employs more techniques than one. Thus, for tracing a development process, it uses historical method, it employs descriptive method a factual picture is needed, it employs interviewing, mail questionnaire, check lists, rating scales, etc. to gather data, it looks to statistics for testing hypotheses. The aim of a case study is to ascertain the generic development of a social unit under study, revealing the factors that moulded its life within its cultural setting. Because of its aid in studying behaviour in specific, precise detail, Burgess termed the case study methods as "the social microscope." It is most valuable for diagnostic, administrative and therapeutic purpose. It develops ideas, sometimes leading to conclusion and sometimes to hypotheses to be tested. It may also be useful for developing new concepts or testing existing concepts.

Notes

4.3.6. Content analysis

Barnard Berelson describes content analysis as scientific description of the content of communication. In this regard, the often-referred formula is Harold Lasswell's formula: Who says What to Whom in What channel with What effect? Accordingly, content analysis answers the question about WHAT i.e. the content of the channel. In other words, content Analysis can be called message analysis. But content analysis does not confine itself to the content of the media. It also deals with the other questions of Lasswell's formula namely "Who (source),Whom audience), channels, and effects".

Berelson (1952) suggested five main purposes of content analysis as follows:

i. To describe substance characteristics of message content;
ii. To describe form characteristics of message content;
iii. To make inferences to producers of content;
iv. To make inferences to audiences of content;
v. To predict the effects of content on audiences.

Content analysis also encompasses other communicative circumstances and contexts such as psychological conditions institutional and cultural variables. In order to understand the clear meaning of content analysis let us illustrate with some examples. Content analysis is a means of trying to learn something about people by examining what they write, produce on television, or make movies about. Content analysts assume that behavioral patterns, values, and attitudes found in this material reflect and affect the behaviors, attitudes, and values of the people who create the material. (Berger, 1998)

4.3.6.1. Qualitative content analysis

Qualitative content analysis deals with the qualitative content, namely, words, patterns, loaded language etc in the content of a text. A text here is from any form of media print or audio visual. The textual analysis can range from micro to macro level analysis. The qualitative content analysis looks for explicit and implicit meaning in content. Explicit meanings are direct meanings expressed or understood from the text. Implicit content are the text that gives a hidden meaning or denote something else. The linkage of the explicit and implicit content to the socio economic political and cultural context of the society in creation of the text forms the basis of qualitative content analysis. The narrative analysis of a text includes qualitative content analysis and focuses on the text that may produce implicit or explicit meanings by the choice and structure of words. Also, the study of sign and symbols is semiotic analysis which is also part of qualitative content analysis.

4.3.6.2. Quantitative content analysis

Quantitative content analysis involves analysis of a content to see the number of occurrences of a particular text, sign, symbol or visual. These are coded based on their presence in terms of number of occurrences in a text. Quantitative content analysis uses a coding sheet to find out the variables and their number of presence. For example the number of times the word 'deforestation' occurs in the headlines of a newspaper during a specific period of time. Here the number of times denotes the level of importance given to the word in its larger context. Quantitative content analysis can be the basis for qualitative interpretations on the content.

4.3.6.3. Steps in content analysis

Wimmer and Dominick (2006), state that content analysis is conducted in several discrete stages.

i. Formulate the research question or hypothesis
ii. Define the population in question
iii. Select an appropriate sample from the population
iv. Select and define a unit of analysis
v. Construct the categories of content to be analyzed
vi. Establish a quantification system
vii. Train coders and conduct a pilot study
viii. Code the content according to established definitions
ix. Analyze the collected data
x. Draw conclusions and search for indications

4.3.6.4. Limitations of content analysis

Content analysis can also have certain limitations,

i. Time consuming
ii. Interpretative and requires indept discussions and justifications
iii. Coder's bias
iv. Coder's understanding of the variables

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is content analysis method used for? Discuss

_____

_____

4.3.7. Interview method

According to Neuman (1991) "the interview is a short term, secondary social interaction between two strangers with the explicit purpose of one person's obtaining specific information from the other…. Information is obtained in a structured conversation in which the interviewer asks pre arranged questions and records answers, and respondent answers." Like in the participative observation method, the researcher collects information in the interview method personally. Many people use questionnaire to collect information. But using questionnaires is an impersonal method as these are often distributed through mail. Also many people ignore the questionnaire and do not respond. But interviews are not generally ignored. Also the researchers can observe and record such information about the manner, behaviour and nonverbal actions of the respondents. These things are usually lost if questionnaires are being sent through mail.

4.3.7.1. Types of interviews

i. Structured or direct interview

The method of collecting information through personal interviews is usually carried out in a structured way. As such we call the interviews as *structured interviews.* Such interviews involve the use of a set of predetermined questions and of highly standardised techniques of recording. Thus, the interviewer in a structured interview follows a rigid procedure laid down, asking questions in a form and order prescribed. In case of descriptive studies, we quite often use the technique of structured interview because of its being more economical, providing a safe basis for generalisation and requiring relatively lesser skill on the part of the interviewer. This is an Interview made with a detailed standard schedule. The same questions are put to all the respondents and the same order. Each question is asked in the same way in each interview. This type of Interview is used for large scale formulated surveys.

It has certain advantages

1. Data from one Interview to the next can be easily compared
2. Recording and coding of data do not cause any problem.

It has some limitations

1. It tends to loss spontaneity of conversation
2. The respondents view is minimized.

ii. Unstructured interview

Unstructured interviews do not follow a system of pre-determined questions and standardised techniques of recording information. In a non-structured interview, the interviewer is allowed much greater freedom to ask, in case of need, supplementary questions or at times he may omit certain questions if the situation so requires. He may even change the

sequence of questions. He has relatively greater freedom while recording the responses to include some aspects and exclude others. But this sort of flexibility results in lack of comparability of one interview with another and the analysis of unstructured responses becomes much more difficult and time-consuming than that of the structured responses obtained in case of structured interviews. Unstructured interviews also demand deep knowledge and greater skill on the part of the interviewer. Unstructured interview, however, happens to be the central technique of collecting information in case of exploratory or formulative research studies.

Notes

Respondent to talk freely about a given topic and a pre-planned schedule is not used. It has some advantages

1. It is similar to natural conversation
2. It provides great opportunity to explore a problem.

It has some limitations

1. The data is not comparable
2. Time is wasted for unproductive conversation

iii. Focused interview

Focussed interview is meant to focus attention on the given experience of the respondent and its effects. Under it the interviewer has the freedom to decide the manner and sequence in which the questions would be asked and has also the freedom to explore reasons and motives. The main task of the interviewer in case of a focussed interview is to confine the respondent to a discussion of issues with which he seeks conversance. Such interviews are used generally in the development of hypotheses and constitute a major type of unstructured interviews. This is a semi-structural interview the investigator attempts to focus the discussion on the actual effect of a given experience to which the respondents opinion, emotions or conditions on the basis of an interview guide. This required training and skilled.

iv. Non-directive interview

In case of *non-directive interview*, the interviewer's function is simply to encourage the respondent to talk about the given topic with a bare minimum of direct questioning. The interviewer often acts as a catalyst to a comprehensive expression of the respondents' feelings and beliefs and of the frame of reference within which such feelings and beliefs take on personal significance.

v. Clinical interview

The *clinical interview* is concerned with broad underlying feelings or motivations or with the course of individual's life experience. The method of eliciting information under it is generally left to the interviewer's discretion

Notes

vi. Group interview

A Group Interview may be defined as a method of collecting primary data in which a No. of individuals with a common interest interact with each other a group may consist of six to eight individuals. The interviewer acts as the discussion leader. Information is obtained self administered questions. It is a popular method and has the following advantages.

1. The respondents comment freely and detailed.
2. This method is highly flexible.
3. They didn't have watch the interview as observed.

It has some limitations also

5. It is difficult to representative samples.
6. There is the possibility of one individual dominating others.

4.3.7.2. Process of interview

The Interviewing process consist of the following stages

1. Preparation
2. Introduction
3. Developing rapport
4. Carrying the interview forward
5. Recording the Interview
6. Closing the Interview

4.3.7.3. Limitations of interview method

In a personal Interview there are certain problems

a) Non-Response: Non-response refers to failure to obtain response from respondents here respondent remains silent or refuse to answer

b) Partial response: In partial response the respondent give an incomplete answer

c) Irrelevant response: In irrelevant response respondent gives totally irrelevant answers.

II. Interviewers bias: The Interviewer may resort to cheat by taking up data without actually interviewing him may use manipulations by rephrasing the question etc.

III. Non availability: Another major problem of Interviews is the non-availability of respondent. A respondent may be a too busy or out of stations.

Check your Progress –4

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Explain focussed and clinical interview

_____

_____

4.4. ANSWER TO CHECK YOUR PROGRESS QUESTIONS

8. Census method involves studying the entire population or universe of research. This is a quantitative method. Every single element of the universe is covered in this method. Thus the results are always good. Also there is no danger of biases or prejudices being introduced. The major drawbacks of the census method are, it is highly expensive, and involves large manpower and a lot of efforts. For these reasons, the census method is rarely used for media research.
9. It is a field study, tt is always conducted in a natural setting, seeks responses directly from the respondents, can cover a very large population, involves an extensive and intensive study and it covers a definite geographical area, city, a district or a state
10. Sometimes researchers do not become part of the group they are studying. They observe the group's behaviour from the outside and not as a part of the group. Here the chances of getting personal details of behaviours are less. In case of participatory observation, the interpretations become more subjective. But in case of outside observation, which involves no close relationship between the group and the researcher, the interpretations are more or less objective. In participative observations, the researcher's sympathy and concerns are reflected in the interpretations
11. Berelson (1952) suggested five main purposes of content analysis as follows:
    a. To describe substance characteristics of message content;
    b. To describe form characteristics of message content;
    c. To make inferences to producers of content;
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    e. To predict the effects of content on audiences.
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Notes

13. The *clinical interview* is concerned with broad underlying feelings or motivations or with the course of individual's life experience. The method of eliciting information under it is generally left to the interviewer's discretion

4.5. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

4.5.1. Self assessment questions and exercises

i. Identify the major studies undertaken by the Government and find out the methods used in each of the study.

4.5.2. Short answer questions

i. Explain the steps involved in survey design
ii. Discuss the different types of observation methods
iii. What is case study method? Explain its functions
iv. Explain quantitative and qualitative content analysis
v. Discuss the limitations of interview method

4.5.3. Long answer questions

i. Explain survey and case study method of research
ii. Elaborate on the different types of interview method

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Notes

UNIT V

Notes

STRUCTURE

5.1. INTRODUCTION

This unit outlines the meaning and characteristics of a research tool and the basic types of data. It elaborates on the different types of research tools. Each of the tools are explained separately explaining its purpose, significance, advantages and disadvantages. On reading this unit one would be able to identify and design the right tool for a relevant research.

5.2. OBJECTIVES

Notes

After going through the course you will be able:

10. To know the meaning and characteristics of a research tool
11. To know the different types of data
12. To identify the relevant tool required for data collection
13. To know the purpose, significance and disadvantages of the tools

5.3. MEADNING OF DATA

Data are seen as bits of information and are facts, figures and other relevant materials of past and present serving as bases for study and analysis". The search for answers to research questions calls collection of Data. "Data are facts, figures and other relevant materials, past and present, serving as bases for study and analysis".

5.4. PURPOSE OF DATA COLLECTION

Data serves to be the required evidence to make decisions on several things. Data collection serves to be the main component of any research activity. For example, to carry out improvements in an educational program in television data has to be collected. The basic information required here are the number of beneficiaries, nature of beneficiaries, nature of use and it effects would help in a better understanding. Data is required for the following purposes,

i. Monitoring
ii. Planning
iii. Making assessments
iv. Describing
v. Evaluation
vi. Implementation
vii. Evidence based decision making / conclusions
viii. Make interventions / changes / improvements/ policy decisions

5.5. NATURE OF DATA

Any research data is highly appreciated when it is of the following nature

i. High-quality data
ii. Unbiased
iii. Representative
iv. True
v. Up-to date
vi. Ethical

Notes

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What do you mean by data? Explain

_____

_____

5.6. TYPES OF DATA

The sources of Data may be classified into a) primary sources b) and Secondary sources.

5.6.1. Primary data

Primary data are the data that have been observed, experienced or recorded and not been previously collected. Primary data allows for a more in-depth and comprehensive analysis. Primary Data are first –hand information collected through various methods such as observation, interview, participation, and measurement. These are explained further as,

i. Observation – records of events, situations or things experienced with your own senses and perhaps with the help of an instrument, e.g. camera, tape recorder, microscope, etc.
ii. Measurement – collections of numbers indicating amounts, e.g. voting polls, exam results, car mileages, oven temperatures etc
iii. Interrogation – data gained by asking and probing, e.g. information about people's convictions, likes and dislikes etc
iv. Participation – data gained by experiences of doing things e.g. the experience of learning to ride a bike tells you different things about balance, dealing with traffic etc., rather than just observing.

5.6.2. Secondary data

Secondary data are the data which have been collected and compiled for another purpose. The secondary sources consist of readily available and

compiled statistical statements and reports. Secondary data is the data over which a researcher has no original control. Published data like government orders, notifications, census, reports of different government bodies like the National Crime Records Bureau (NCRB), reports of Advertising Standard Council of India (ASCI), etc are published sources of information. Secondary data are in the form of news bulletins, magazines, newspapers, documentaries, advertising, the Internet etc. The data are wrapped, packed and spun into pithy articles or digestible sound bites. The quality of the data depends on the source and the methods of presentation. Refereed journals containing papers vetted by leading experts, serious journals, such as some professional and trade journals will have authoritative articles by leading figures

5.6.3. Quantitative Data

Quantitative data, is numerical and measurable, allows for an objective assessment of a situation in order to compare one situation with another and to track conditions within the same situation over time. It is produced by observing and measuring things that can be counted or calculated Numbers are used to record much information about science and society, for example pressures, bending forces, population densities, cost indices etc. Quantitative data can be measured, more or less accurately because it contains some form of magnitude, usually expressed in numbers. You can use mathematical procedures to analyse the numerical data. These can be extremely simple, such as counts or percentages, or more sophisticated, such as statistical tests or mathematical models. Although some forms of data are obviously expressed as numbers, e.g. population counts, economic data, scientific measurements etc. Others that seem remote from quantitative measures can also be converted to numbers

5.6.4. Qualitative Data

Qualitative data is data that is non-measurable. It can be useful in understanding cultural context or establishing baseline information. Respondent's feelings, emotions, ideas, beliefs, opinion, experiences, struggles, strategies etc can only be described in words better. It captures feelings, personal experience, attitudes and intentions. It can be obtained from sources such as focus groups, interviews, narrative texts and reports These record qualities rather than quantities, hence they are called qualitative data. Words cannot be manipulated mathematically, so require quite different analytical techniques.

Check your Progress –2

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is qualitative research?

5.7. TOOLS OF DATA COLLECTION

Research includes employment of different methods, designs, procedures and so on. Tools of data collection differ based on the research methodology chosen for the study. Quantitative and qualitative designs require different data collection tools. For this understanding research tools is essential.

Notes

5.8. MEANING – RESEARCH TOOL

A research tool is a data collection instrument which is based on the characteristics of the respondents and nature of the research design.

5.9. CHARACTERISTICS OF A GOOD RESEARCH TOOL

A good research tool should have the following characteristics

i. Clarity
ii. Brevity
iii. Simple
iv. One idea in one question
v. Logical sequencing
vi. Checks and balances in questions
vii. Avoid jargons
viii. Unambiguity
ix. Reliability
x. Communicability

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is a research tool? Mention its types

_____

_____

5.10. TYPES OF RESEARCH TOOLS

5.10.1. Questionnaire

A Questionnaire contains a number of questions printed or typed in a definite order. Then it is mailed to the respondents who are expected to read and answer to questions and return by writing down the answer. The

respondents have to answer the questions on their own. It has the following merits.

5.10.1.1. Questionnaire – Meaning

A questionnaire is a performa containing a sequence of questions to elicit information from the interviewees. Questionnaires are designed to collect data from a group of people coming under the purview of the study. It is an instrument of data collection. A questionnaire consists of a number of questions printed in a definite order of a form. The questionnaire is designed to collect data from large diverse and widely scattered groups of people. The form(s) are usually mailed to the respondents who are expected to read and understand the questions and reply to them in writing in the relevant spaces provided for the purpose on the said form(s). John Galtung has summarized the characteristics of the questionnaire as 'written-verbal stimulus' and 'written-verbal response'. It is used in gathering objective, quantitative data as well as for securing information of a quantitative nature.

5.10.1.2. Questionnaire and Schedule

Questionnaires and schedules are the most common instruments of data collection. These two types of tools have much in common. Both of them contain a set of questions logically related to a problem under study; both aim at collecting responses from the respondents. But both are different. A schedule is used as a tool for interviewing; a questionnaire is used for mailing. The schedule is filled by the interviewer in a face-to-face interview; whereas a questionnaire is filled by the respondent himself. In research survey both questionnaire and schedule methods are applied to collect data. There is much resemblance in the nature of these two methods but in the practical point of view there is difference between the two. Questionnaire methods can be used only when respondents are literate and cooperative, but in case of schedules the information can be gathered even when the respondents happen to be illiterate. The research worker or the enumerator, who can interpret the questions when necessary, generally fills out the schedule. Wider and more representative distribution of sample is possible under questionnaire method but in case of schedule there are some difficulties to send enumerators over a wider area.

Advantages of a questionnaire

i. The questionnaire is generally sent through mail to informants to be answered as specified in a covering letter, but otherwise without further assistance from the sender.
ii. Questionnaire method is relatively cheap, as it doesn't need field staff as schedule while collecting data.

Disadvantages of a questionnaire

i. Non-response is usually high in case of questionnaire.

ii. Personal contact can't be possible in case of questionnaire while in case of schedule it is possible.

iii. Risk of collecting incomplete and wrong information is relatively more under the questionnaire method when people are unable to understand questions properly.

5.10.1.3. Preparation of questionnaire

Notes

The following facts should be considered while designing a questionnaire. The entire process of construction of questionnaire can be divided into the following steps:

(a) Deciding what information is to be got
(b) Make a draft
(c) Rewrite the questions
(d) Logical sequencing
(e) Re-examining and revising
(f) Pre-test the questions
(g) Carry out changes wherever required
(h) Finalize the layout and content of the questionnaire

5.10.1.4. Format of a questionnaire

The general format of a questionnaire is that the introduction, instructions, information and classification of the data.

(a) **An introduction** – this is the interviewer's request for help. It is normally scripted and lays out the credentials of the market research company, the purpose of the study and any aspects of confidentiality.

(b) **Instructions** – the interviewer and the respondent need to know how to move through the questionnaire such as which questions to skip and where to move to if certain answers are given.

(c) **Information** – this is the main body of the document and is made up of the many questions and response codes.

(d) **The respondent's identification data** – such as their name, address, date of the interview, name of the interviewer. The questionnaire would also have a unique number for purposes of entering the data into the computer.

(e) **Classification data** – these questions, sometimes at the front of the questionnaire, sometimes at the end, establish the important characteristics of the respondent, particularly related to their demographics.

5.10.1.5. Types of questionnaire

The types of questionnaire vary based on the nature of the research. Questionnaires may be classified on a number of different bases. The classification of questionnaires used below is based on the variable of structure:

i. **Structured questionnaires** are those in which there are definite, concrete and pre-ordained questions with additional questions limited to those necessary to clarify inadequate answers or to elicit more detailed responses. The questions are presented with exactly the same wording, and in the same order to all the respondents. Fixed alternative questions are given here.

ii. **Unstructured questionnaires** are not the same to all the respondents. The characteristics of structured questionnaire are absent here

iii. **Mixed questionnaires** consist of closed as well as open-ended questions. These are normally used in the field of social research

iv. **Pictorial questionnaire** on the other hand is used in promotion of interest to answer questions. These are mostly used as study material for children

Notes

Type of study	Questionnaire Types	Method of Administration
Quantitative and Large Studies	Structured	Telephone / Face – to – face/ Self completion
Business to business studies, investigative consumer studies	Semi-structured	Telephone
Qualitative studies	Unstructured	Depth Telephone /Face – to – face/ Focus Groups

Check your Progress –4

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is the difference between questionnaire and schedule?

_____

_____

Notes

5.10.1.6. Types of questions

The type of questions to be included in the research depends on the nature of the objectives of the research. The questions should be framed to get the required data. There are different types of questions which can be used as required by the research. The following are few important types of questions used in questionnaire designing.

i. Open ended questions

Questions that allow the target audience to voice their feelings and notions freely are called open-format questions or open-ended questions. They give tremendous freedom to the respondents to answer according to their interpretation. These questions are not based on pre-determined responses, giving respondents an opportunity to express what they feel is right, and often provide real, perceptional, and at times, startling proposals. Open-ended questions placed at the end of a questionnaire tend to draw accurate feedback and suggestions from respondents as well.

ii. Closed ended questions

Close-ended questions are best suited for large-scale surveys. They are easier and quicker for the respondents to answer as well as for the researcher to interpret. All the close-ended questions in the questionnaire may bring distorted results. This problem can be overcome by taking interviews, which can supplement the information on the close-ended questions. This type of questionnaire is especially useful when conducting preliminary analysis. As a fixed answer set is provided, these are ideal for calculation of statistical information and percentages of various types. Closed-ended questions which are aimed at collecting accurate statistical data can be classified as follows,

iii. Multiple choice questions

Questions that make respondents choose any one answer only from a given range of choices is multiple choice questions. These can limit the answers to the given choices alone. In multiple choice questions the choices can include ‘any other’ to give scope for answers not provided in the options.

iv. Likert Questions

The degree to which respondents agree to a specific statement can be ascertained using Likert questions. Audience satisfaction on a particular television program or channel can be easily gauged by asking them these questions.

v. Dichotomous Questions

Questions that make respondents answer with a simple "yes" or "no" are called dichotomous questions. These questions carry one disadvantage-there is no other way of analyzing the answer between a "yes" and "no". A middle perspective is not possible.

Notes

vi. Bipolar Questions

Questions that have two answers with different levels of extremities, written at opposite ends of a scale, are called bipolar questions. Respondents have to mark their response anywhere between these two extremities, showing their opinion.

vii. Rating Scale Questions

Questions that ask respondents to provide a rating on a specific matter on a scale of 1 to 10 or on a scale of "poor" to "good" are called rating scale questions. Normally, these questions have an even number of choices, so as to prevent respondents to choose a middle way out.

5.10.2. People's meter

A people meter is an audience measurement tool used to measure the viewing habits of TV and cable audiences. The People Meter is a 'box', about the size of a paperback book. The box is hooked up to each television set and is accompanied by a remote control unit. The Portable People Meter (PPM), also known as Nielsen Meter, is a system developed by Arbitron (now Nielsen Audio) to measure how many people are exposed or listening to individual radio stations and television stations, including cable television.

5.10.3. Diary method

Diary studies is a research method that collects qualitative information by having participants record entries about their everyday lives in a log, diary or journal about the activity or experience being studied. ... The method is a way to trigger the participant's memory. The diary has always been among the options in the qualitative methodological repertoire and actually predates other more common contemporary methods for data collection. Diary studies involve the standard tasks of

any research project: reviewing the literature and identifying research questions; designing and carrying out a data collection protocol; and analyzing and discussing the data. In terms of broadcast media diary method involves demographic viewing data which are collected from separate samples of households which each maintain a paper viewing diary for one week. Household members are asked to write down what programs they and their guest watch in their home over the course of that week. This method by Nielsen Media Research is done once in four months in television markets in the US.

Notes

5.10.4. Field studies

Field studies are academic or other investigative studies undertaken in a natural setting, rather than in laboratories, classrooms, or other structured environments. Field studies are scientific enquiries aimed at discovering the relations and interactions among sociological, psychological and educational variables in social institutions and actual life situations like communities, schools, factories, organizations and institutions. A social or institutional situation is selected and the relations among the attitudes, values, perceptions and behaviours of individuals and groups in the selected situations are studied. **Field studies** involve collecting data outside of an experimental or lab setting. This type of data collection is most often done in natural settings or environments and can be done in a variety of ways for various disciplines. Field studies can be done by observation or participation or both.

5.10.4.1. Ethnographic field work:

The study of native cultures by learning the native language, observing and taking part in native life is ethnographic field work. The researcher lives in the selected community, observes its people, talks with them at great length, and thus gains a thorough insight into the social structure of the community and the people's life culture and ideologies. Ethnographic research offers an orientation to understand the process and structure of a social setting and employs research techniques consistent with this orientation. It is the study of both explicit and tacit cultural knowledge. Observing user in the field is always the best way to determine their usability requirement.

5.10.4.2. Stages of field research

The different stages of a field research involves,

i. Selecting a research setting
ii. Gaining Access
iii. Presenting Oneself
iv. Gathering Information
v. Analyzing Data and Formulating Theory.

5.10.4.3. Guidelines for field work

i. Information regarding the research to be given to the concerned people and consent should be got

ii. Honesty and trust
iii. Privacy, confidentiality and anonymity is important
iv. Further follow up of the research is important
v. Never give false promises
vi. Respect the local culture, tradition and lifestyle of people

Check your Progress –5
Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit
1. Explain ethnographic field work

_____

_____

5.10.5. Focus groups

A focus group is a group interview of approximately six to twelve people who share similar characteristics or common interests. A facilitator guides the group based on a predetermined set of topics. The facilitator creates an environment that encourages participants to share their perceptions and points of view. Focus groups are a qualitative data collection method, meaning that the data is descriptive and cannot be measured numerically.

5.10.5.1. Advantages:

- Quick and relatively easy to set up.
- Ensures participation of people
- Group dynamics ensures the revelation of the true status
- The group dynamics can provide useful information that individual data collection does not provide.

5.10.5.2. Disadvantages:

- Susceptible to facilitator bias.
- The discussion can be dominated or sidetracked by a few individuals.
- Data analysis is time consuming and needs to be well planned in advance.
- Does not provide valid information at the individual level.
- The information is not representative of other groups.

5.10.5.3. Planning a focus group discussion

Focus groups discussions can provide insights into issues that cannot b covered by using surveys or interviews. The involvement of people is

ensured in a focus group discussion. The important aspects to be considered while planning a focus group discussion is as follows,

i. Participants
ii. Number of participants
iii. Composition of the group in terms of gender, age, community etc
iv. Lead questions
v. Place of discussion
vi. Facilitator of the discussion
vii. To have a discussion guide

Notes

5.10.5.4. Facilitating a focus group discussion

The facilitator should be experienced in conducting such focus group discussions. Individual bias relating to the topic should not exist. Facilitating a discussion is difficult, and effective leadership is essential if the group is to accomplish its purpose. The facilitator is the moderator of the group and must not only be in tune with the purpose of the group but also have the necessary skills to effectively guide the group process. Few guidelines to take forth the focus group discussion are given below,

1. Time management of the session is important. Maximum 90 minutes is ideal. Do not prolong the session
2. Being neutral will enable to get the viewpoints from two sides of an issue
3. The facilitator should ensure that the conversation is flowing and everyone participate in the discussion. Also dominance by one or two persons in the group should be avoided.

5.10.6. Telephone surveys

Calling the respondents over telephone and collecting data is known as telephone survey. It is not a very widely used method, but plays important part in industrial surveys, particularly in developed regions.

5.10.6.1. Advantages of Telephone surveys

i. Flexible
ii. Fast
iii. Less expensive
iv. Recall is easy – simple and economical
v. High rate of response
vi. Can be fully automated
vii. Option of recording
viii. Interviewer can explain requirements more easily.
ix. No field staff is required.
x. Representative and wider distribution of sample is possible.

5.10.6.2. Disadvantages of Telephone surveys

i. Respondents can hang up calls

ii. Technical errors may occur
iii. Only people who own telephone can be involved
iv. Expensive if calls are far off
v. Time bounded since more time may not be allotted for calls equally
vi. Interviewer bias is possible
vii. Communication problems can exist in terms of understanding, language, tone, etc
viii. Cannot read the non-verbal communication clues.

5.10.7. Online polls

Notes

Opinion polls are a way of estimating public opinion on a certain matter. Beloved by governments and politicians, they can also be a useful way for companies to assess probable public reaction to a planned action or product. But this method represents only a small proportion of digitally literate sample. So it is not inclusive because of this nature. It can only project the opinion of the digitally literate persons. The advantages are that it is fast, accurate, documentation is easy, processing and interpretation of data is easy.

5.11. ANSWER TO CHECK YOUR PROGRESS QUESTIONS

1. Data are seen as bits of information and are facts, figures and other relevant materials of past and present serving as bases for study and analysis". The search for answers to research questions calls collection of Data. "Data are facts, figures and other relevant materials, past and present, serving as bases for study and analysis".
2. Qualitative data is data that is non-measurable. It can be useful in understanding cultural context or establishing baseline information. Respondent's feelings, emotions, ideas, beliefs, opinion, experiences, struggles, strategies etc can only be described in words better. It captures feelings, personal experience, attitudes and intentions. It can be obtained from sources such as focus groups, interviews, narrative texts and reports These record qualities rather than quantities, hence they are called qualitative data. Words cannot be manipulated mathematically, so require quite different analytical techniques.
3. A research tool is a data collection instrument which is based on the characteristics of the respondents and nature of the research design.
4. Questionnaires and schedules are the most common instruments of data collection. These two types of tools have much in

common. Both of them contain a set of questions logically related to a problem under study; both aim at collecting responses from the respondents. But both are different. A schedule is used as a tool for interviewing; a questionnaire is used for mailing. The schedule is filled by the interviewer in a face-to-face interview; whereas a questionnaire is filled by the respondent himself. In research survey both questionnaire and schedule methods are applied to collect data. There is much resemblance in the nature of these two methods but in the practical point of view there is difference between the two. Questionnaire methods can be used only when respondents are literate and cooperative, but in case of schedules the information can be gathered even when the respondents happen to be illiterate. The research worker or the enumerator, who can interpret the questions when necessary, generally fills out the schedule. Wider and more representative distribution of sample is possible under questionnaire method but in case of schedule there are some difficulties to send enumerators over a wider area.

5. The study of native cultures by learning the native language, observing and taking part in native life is ethnographic field work. The researcher lives in the selected community, observes its people, talks with them at great length, and thus gains a thorough insight into the social structure of the community and the people's life culture and ideologies. Ethnographic research offers an orientation to understand the process and structure of a social setting and employs research techniques consistent with this orientation. It is the study of both explicit and tacit cultural knowledge. Observing user in the field is always the best way to determine their usability requirement.

5.12. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

5.12.1. Self assessment questions and exercises

ii. Find out the nature of data collecting tools used in national level surveys like national health survey, population census etc

5.12.2. Short answer questions

vi. Explain the difference types of data

vii. What are the characteristics of a good research tool

viii. Explain the various types of questions

ix. Discuss the stages in field research

x. Discuss the advantages of telephone surveys

5.12.3. Long answer questions

iii. Elaborate on questionnaires as a research tool

iv. Discuss any two types of research tools

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Notes

Notes

UNIT VI

STRUCTURE

6.1. INTRODUCTION

This unit provides a basic understanding of sampling. The different types of sampling, the need and methods are explained. The sampling errors, its types and the reasons it occurs are explained. At the end of the unit you would be able to understand the basics of sampling and its application in mass communication research.

6.2. OBJECTIVES

Notes

After going through the course you will be able:

14. To understand the meaning, and need for sampling
15. To know the different types of probability sampling
16. To know the different types of non-probability sampling
17. To understand the sampling errors and its types

6.3. SAMPLING - MEANING

Sampling is a process used in statistical analysis in which a predetermined number of observations are taken from a larger population. The methodology used to sample from a larger population depends on the type of analysis being performed, but it may include simple random sampling or systematic sampling A Sample is composed of some fractions or part of the total number of elements or units in a defined population. A set of individuals selected from a wider population is called as a sample. The small group of students, families or electors from whom you collect the required information to estimate the average age of the class, average income or the election outcome is called the sample

6.4. NEED FOR SAMPLING

Sometimes it is not feasible to study a whole group or an extremely large group. For example social work researcher may be interested in learning about the mentally challenged children, mentally ill, prison inmates, street children or some other large group of people. It would be difficult or rather impossible to study all members of the groups. Here comes the process called sampling, which allows to study a manageable number of people from the large group to device inferences that are likely to be applicable to all the people of the large group. Another reason why we would study a sample is that the results of obtained from the sample are more precise and correct than the results obtained from the study of the

whole group. Cost involved in studying all units of a large group is yet another factor which suggest to study a small group of people.

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6.5. POPULATION

Notes

Population or universe is the aggregate of all units possessing certain specified characteristics on which the sample seeks to draw inferences. Wimmer and Domnick (2006), describe the nature of population as a group or class of subjects, variables, concepts, or phenomena. The process of study the entire population is called as census. In many cases it is not possible to study the entire population for an investigation owing to several reasons. The usual procedure in such cases is to take a sample from the population. A sample is a sub-set of the population that is representative of the entire population. Here representation is important because only then the results can be generalized to the population from which the sample is drawn.

6.6. SAMPLING UNIT

Any population or universe should contain some specifications in terms of content units, extent and time. Sampling units are the units selected for study. A single member of any given population is referred to as an element. When only some elements are selected from a population, we refer to that as a sample; when all elements are included, we call it a census

6.7. SAMPLING FRAME

The sampling frame is the master list from which a sample is selected. The frame describes the population interims of sampling units. It may be a geographical area. In essence a frame lists or maps elements of the universe. Sampling frames for the general population can be electoral rolls, street directories, telephone directories and customer lists from utilities which are used by almost all households, such as water, electricity, sewerage, and so on. It is preferable to use a list that is the most accurate, complete and up to date. The nature of this list is expected to differ from country to country. Some countries use a list of households, while other countries use a list of people.

6.8. SAMPLE SIZE

This question of sample size is crucial for the research students. Generally researchers collect the sample large enough to make reasonable interpretations. Yet, large sample size is not enough to prove that a sample is representative of the population. The size of the sample depends

on various considerations, including population variability, statistical issues, economic factors, availability of participants, and the importance of the problem. The larger the sample, the more confident we can be that it accurately reflects what exists in the population, but large samples can be extremely expensive and time consuming. A small sample is less expensive and time consuming, but it is not as accurate. Therefore, in situations requiring minimal error and maximum accuracy of prediction of population values, large samples will be required. In cases where more error can be tolerated, small samples will do. It is not unusual to use relatively small samples to generalize to millions of individuals.

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is sampling? Explain
2. Explain sampling frame

_____

_____

6.9. PROBABILITY OR RANDOM SAMPLING

Probability samples are sometimes known as random samples. They are the most accurate of the sample selection methods. Any survey aimed at generalizing results drawn from a sample to the whole population of interest must be based on probability sampling. When using a probability sample, each element in the population has a known and non-zero chance of being selected into the sample. Usually, each member of the population has the same chance of being included in the probability sample. With a probability sample, the first step is usually to try to find a sampling frame. Using this frame, individuals or households are numbered, and some numbers are chosen at random to determine who is surveyed. If no frame is available, other methods are used to ensure that every population member has an equal, or known, chance of inclusion in the survey.

6.9.1. Simple random sampling

In this type of random sampling the selection of data is done in such a way that each event (individuals) gets an equal chance for selection. It may be done by way of pulling names out of a container. Number are assigned to each individual events and a lot can be drawn randomly or using a random number table the numbers to be included in the final selection can be drawn. This increases the representativeness and sampling error can be easily computed.

6.9.2. Stratified sampling

Population is divided into different strata based on the known proportions or properties and random sampling is completed within each group in the population. A more representative sample can be selected using the stratification procedure. The basic idea here is to divide the target population into strata (groups) based on characteristics that you think are important. Stratification leads to reduced sampling error because it can ensure that all relevant portions of the population are included in the sample. As in simple random sampling this method is also time consuming but allows analysis by sub division of strata and the disproportionate representation of the sub divisions of the population is also prevented.

6.9.3. Systematic sampling

This is a commonly used method in which cluster sampling and stratified sampling are combined. Every n-th event or cluster in the population is taken for study and a systematic sampling is done among the events or clusters thus selected. This type of sampling ensures that no sampling unit will come up twice. In this sampling
procedure, no matter how many households or individual you will interview, you need only one random number to draw a systematic sample. In systematic sampling the sampling frame is first divided into a number of segments called intervals. Then, from the first interval, using the SRS technique, one element is selected. The selection of subsequent elements from other intervals is dependent upon the order of the element selected in the first interval. If in the first interval it is the fifth element, the fifth element of each subsequent interval will be chosen. Notice that from the first interval the choice of an element is on a random basis, but the choice of the elements from subsequent intervals is dependent upon the choice from the first, and hence cannot be classified as a random sample

6.9.4. Cluster sampling

In cluster sampling groups of events or areas (clusters) are taken as a unit (rather than taking single individual events as units) and an actual sample is drawn from them. This method is considered as a practical solution to the problems of gaining access to many settings and the cost of sampling is minimized in large-scale surveys. However, this sampling is disadvantaged by the requirement of larger samples and weights for each strata or each individual event may be difficult to know in many settings. Results cannot be taken as representative for the entire population.

6.9.5. Area sampling

Area sampling is quite close to cluster sampling and is often talked about when the total geographical area of interest happens to be big one. Under area sampling we first divide the total area into a number of smaller non-overlapping areas, generally called geographical clusters, then a number of these smaller areas are randomly selected, and all units in these small

areas are included in the sample. Area sampling is specially helpful where we do not have the list of the population concerned. It also makes the field interviewing more efficient since interviewer can do many interviews at each location.

6.9.6. Multistage sampling

This is a further development of the idea of cluster sampling. This technique is meant for big inquiries extending to a considerably large geographical area like an entire country. Under multi-stage sampling the first stage may be to select large primary sampling units such as states, then districts, then towns and finally certain families within towns. If the technique of random-sampling is applied at all stages, the sampling procedure is described as multi-stage random sampling.

Check your Progress –2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is simple random sampling?
2. Explain cluster sampling

_____

_____

6.10. NON PROBAILITY SAMPLING

6.10.1. Convenient sampling

Convenience sampling is used because it is quick, inexpensive, and convenient. Convenience samples are useful for certain purposes, and they require very little planning. Researchers simply use participants who are available at the moment. In convenience sampling no attempt at randomization is made. Here selection of respondents/events depends upon the availability. Although economical in nature the computation of bias is not possible in this case and the generalisation to the population is out of question. Convenience samples are non-probability samples. Therefore, it is not possible to specify the probability of any population element's being selected for the sample. Indeed, it is not possible to specify the population from which the sample was drawn.

6.10.2. Purposive sampling

A purposive sample refers to selection of units based on personal judgement rather than randomization. This judgemental sampling is in some way "representative" of the population of interest without sampling at random. One of the commonest uses of purposive sampling is in studies based on very small numbers of areas or sites. This is a convenient and economical sampling method when key population

characteristics are identified. Here the selection of respondents is from groups that are known to possess particular characteristics under investigation. However, in this case also the generalization to the population is also not possible.

6.10.3. Quota sampling

Quota sampling refers to selection with controls, ensuring that specified numbers (quotas) are obtained from each specified population subgroup (e.g. households or persons classified by relevant characteristics), but with essentially no randomization of unit selection within the subgroups. No population list is used, but a quota, usually based on census data, is drawn up. This method of sampling attempts that important parts of the population are not omitted and samples are defined based on the known proportions within the population and non-random sampling is completed within each group.

Notes

6.10.4. Snow-ball sampling

Snowball sampling is highly useful in studies where population units are not well defined and thus cannot be listed. The selection of respondents is based on referrals from initial informants. In this case the respondent is requested to refer the researcher to other individuals in the group. The first step in this procedure is to find a few members of the population using any method. This step is denoted as the first round. Then you ask each of these first-round members if they know of any others. The names given will form the second round. Then you go to each of those second-round people, and ask them for more names. This process is repeated for several more rounds. The process is stopped when you start hearing about the same people over and over again. Examples of not so well defined population are members of underworld organization, commercial sex workers, criminals, AIDS patients, users of a particular brand, etc. However, studies depending on snowball sampling provide broad features of the population and cannot be considered as actual research.

6.10.5. Volunteer Sampling

A volunteer sampling procedure might be used when the above procedures are not possible. In general, samples of volunteers should be treated with caution. However, since all survey research involves some degree of volunteering, there is no fixed line between a volunteer sample and a probability sample. The main difference between a pure volunteer sample and a probability sample of volunteers is that, in the former case, volunteers make all the effort; no sampling frame is used.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is purposive sampling?

6.11. SAMPLING ERRORS

Sampling Error: Sampling error may be defined as the degree to which sample attributes differ from population characteristics on certain measures. Error can occur during the sampling process. **Sampling error** can include both systematic sampling error and random sampling error. **Systematic sampling error** is the fault of the investigation, but **random sampling error** is not. When errors are systematic, they bias the sample in one direction. If we study the entire population then there is no sampling error at all. But we also know that it is impossible to study the entire population over a fixed period of time and we are bound to resort to sampling. Larger the size of the sample lesser will be the sampling error. We know that some errors are bound to occur whatever method we use for sampling.

Notes

6.11.1. Systematic sampling error

Systematic sampling error occurs when the sample is not drawn properly. It can also occur if names are dropped from the sample list because some individuals were difficult to locate or uncooperative. Individuals dropped from the sample could be different from those retained. Those remaining could quite possibly produce a biased sample. Political polls often have special problems that make prediction difficult.

6.11.2. Random sampling error

Random sampling error, as contrasted to systematic sampling error, is often referred to as *chance error*. Purely by chance, samples drawn from the same population will rarely provide identical estimates of the population parameter of interest. These estimates will vary from sample to sample.

6.11.3. Non-sampling errors

Errors due to sampling factors (Sampling error) usually get the most attention. However, there are a lot of factors, which affect a study. These factors (or the sources of error) are critical as there are so many of them. The following are some of the non sampling errors,

i. Options in research tool
ii. Non-response
iii. Data availability
iv. Refusal by respondents
v. Intentional lying
vi. Miscommunication
vii. Recording error
viii. Misunderstanding of questions being asked.

6.11.4. Confidence interval

Before selecting a sample, researchers usually decide the amount of error they are willing to tolerate and the level of confidence they want to have. This margin of error is expressed in terms of a confidence interval—for example,

95% of the time the sample will correctly reflect the population values with a margin of error of plus or minus 4 percentage points.

Check your Progress –4

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is systematic sampling error?

_____

_____

Notes

6.12. DISTRIBUTIONS IN THE FINDINGS

6.13. ANSWER TO CHECK YOUR PROGRESS QUESTIONS

1. Sampling is a process used in statistical analysis in which a predetermined number of observations are taken from a larger population. The methodology used to sample from a larger population depends on the type of analysis being performed, but it may include simple random sampling or systematic sampling A Sample is composed of some fractions or part of the total number of elements or units in a defined population.
2. The sampling frame is the master list from which a sample is selected. The frame describes the population interims of sampling units. It may be a geographical area. In essence a frame lists or maps elements of the universe. Sampling frames for the general population can be electoral rolls, street directories, telephone directories and customer lists from utilities which are used by almost all households, such as water, electricity, sewerage, and so on. It is preferable to use a list that is the most accurate, complete and up to date. The nature of this list is expected to differ from country to country. Some countries use a list of households, while other countries use a list of people.
3. In this type of random sampling the selection of data is done in such a way that each event (individuals) gets an equal chance for selection. It may be done by way of pulling names out of a container. Number are assigned to each individual events and a lot can be drawn randomly or using a random number table the

numbers to be included in the final selection can be drawn. This increases the representativeness and sampling error can be easily computed.

4. In cluster sampling groups of events or areas (clusters) are taken as a unit (rather than taking single individual events as units) and an actual sample is drawn from them. This method is considered as a practical solution to the problems of gaining access to many settings and the cost of sampling is minimized in large-scale surveys. However, this sampling is disadvantaged by the requirement of larger samples and weights for each strata or each individual event may be difficult to know in many settings. Results cannot be taken as representative for the entire population.
5. A purposive sample refers to selection of units based on personal judgement rather than randomization. This judgemental sampling is in some way "representative" of the population of interest without sampling at random. One of the commonest uses of purposive sampling is in studies based on very small numbers of areas or sites. This is a convenient and economical sampling method when key population characteristics are identified. Here the selection of respondents is from groups that are known to possess particular characteristics under investigation. However, in this case also the generalization to the population is also not possible.
6. Systematic sampling error occurs when the sample is not drawn properly. It can also occur if names are dropped from the sample list because some individuals were difficult to locate or uncooperative. Individuals dropped from the sample could be different from those retained. Those remaining could quite possibly produce a biased sample. Political polls often have special problems that make prediction difficult.

Notes

6.14. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

6.14.1. Self assessment questions and exercises

iii. Find out the different sampling frames from secondary data sources

6.14.2. Short answer questions

xi. Explain simple random sampling

xii. Discuss the difference between purposive and convenient sampling

xiii. Explain non-probability sampling

xiv. What is a sampling error? Explain its types

6.14.3. Long answer questions

v. Elaborate on probability sampling and its types
vi. Explain non-probability sampling and its types

6.15. FURTHER READING AND REFERENCES

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UNIT VII

Notes

STRUCTURE

7.1. INTRODUCTION

This unit enables us to understand the importance of analyzing the data. The unit describes the different techniques used in analyzing data, especially quantitative and qualitative analysis and the types within each of the category. Further, on going through this unit you would be able to understand descriptive and historical methods of research.

Notes

7.2. OBJECTIVES

After going through the course you will be able:

18. To understand the importance of data analysis
19. To know the different techniques in data analysis
20. To know about coding and tabulation in data analysis

7.3. UNDERSTANDING DATA ANALYSIS

Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Marshall and Rossman (1990:111) data analysis is a process of bringing order, structure and meaning to the mass of collected data. It is described as messy, ambiguous and time-consuming, but also as a creative and fascinating process. Data analysis is done to obtain usable and useful information.

7.4. IMPORTANCE OF DATA ANALYSIS

Data analysis is required to describe the data and summarize it. Identification of relationships between variables, the nature of relationships and levels of influence are determined by data analysis. Not only relationships even comparisons are done using data analysis. The purpose of analyzing data is to obtain usable and useful information. The analysis, irrespective of whether the data is qualitative or quantitative, may:

i. describe and summarize the data
ii. identify relationships between variables
iii. compare variables
iv. identify the difference between variables
v. forecast outcomes

7.5. DATA ANALYSIS TECHNIQUES IN MASS COMMUNICATION RESEARCH

The purpose of data analysis is to prepare data as a model where relationships between the variables can be studied. Analysis of data is made with reference to the objectives of the study and research questions if any. It is designed to test the hypothesis. It also involves re-classification of variables, tabulation, explanation and casual inferences. Data Analysis involves estimating the values of unknown parameters of the population and testing hypothesis for drawing inferences. The data collected may or may not in numerical form. Even if data is not in numerical form still we can carry out qualitative analysis based on the experiences of individual participants. When data is collected in numerical form than through descriptive statistics findings can be summarised. This includes measure of central tendency like mean range etc. Another way to summarised finding is by means of graphs and charts. In any of the research study there is experimental hypothesis or null hypothesis. The first step in data analysis is a critical examination of the processed data in the form of frequency distribution and cross tabulation. This analysis is made with a view to draw meaningful inferences and generalisation

Notes

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain data analysis

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7.5.1. Qualitative data analysis

Qualitative data analysis is non-statistical; its methodological approach is primarily guided by the concrete material at hand. It is a process that seeks to reduce and make sense of vast amounts of information, often from different sources, so that impressions that shed light on a research question can emerge. It is a process where you take descriptive information and offer an explanation or interpretation. The information can consist of interview transcripts, documents, blogs, surveys, pictures, videos etc. It is less influenced by theoretical assumption. The limitation of this type of analysis is that the findings tend to be unrealisable. The information categories and interpreted after, differ considerable from one investigator to another one. In this system researcher to go through, research cycle, to increase reliability, repeating the research cycle is of value in some ways, but it does not ensure that the findings will have high reliability. Qualitative analyses are carried out in several different

kinds of study like interview, case studies and observational studies. Qualitative data analysis ought to pay attention to the 'spoken word', context, consistency and contradictions of views, frequency and intensity of comments, their specificity as well as emerging themes and trend.

7.5.1.1.1. Content analysis

This is one of the most common methods to analyze qualitative data. It is used to analyze documented information in the form of texts, media, or even physical items. When to use this method depends on the research questions. Content analysis is usually used to analyze responses from interviewees. Content analysis consists of reading and re-reading the transcripts looking for similarities and differences in order to find themes and to develop categories. Having the full transcript is essential to make sure that you do not leave out anything of importance by only selecting material that fits your own ideas.

Notes

7.5.1.1.2. Narrative analysis

This method is used to analyze content from various sources, such as interviews of respondents, observations from the field, or surveys. It focuses on using the stories and experiences shared by people to answer the research questions.

7.5.1.1.3. Discourse analysis

Like narrative analysis, discourse analysis is used to analyze interactions with people. However, it focuses on analyzing the social context in which the communication between the researcher and the respondent occurred. Discourse analysis also looks at the respondent's day-to-day environment and uses that information during analysis

7.5.1.1.4. Grounded theory

This refers to using qualitative data to explain why a certain phenomenon happened. It does this by studying a variety of similar cases in different settings and using the data to derive causal explanations. Researchers may alter the explanations or create new ones as they study more cases until they arrive at an explanation that fits all cases.

7.5.1.1.5. Steps in qualitative data analysis

Any qualitative data analysis requires to be analyzed using the following states,

- **i.** Organizing the data
- **ii.** Coding
- **iii.** Identifying patterns
- **iv.** Identifying relationships / generalizations
- **v.** Linking generalizations to formalized body of knowledge

Check your Progress –2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is qualitative data analysis? Explain

_____

_____

Notes

7.5.2. Quantitative data analysis

Quantitative data means data, or evidence based on numbers. Statistics help us turn quantitative data into useful information to help with decision making. We can use statistics to summarise our data, describing patterns, relationships and connections. Quantitative analysis deals with data in the form of numbers and uses mathematical operations to investigate their properties. The levels of measurement used in the collection of the data i.e. nominal, ordinal, interval and ratio, are an important factor in choosing the type of analysis that is applicable, as is the numbers of cases involved. The two most commonly used quantitative data analysis methods are descriptive and inferential statistical analysis

7.5.2.1. Descriptive analysis

This analysis of one variable is called one dimensional analysis. This analysis measures condition at particular time. Typically descriptive statistics (also known as descriptive analysis) is the first level of analysis. This design relies on observation as a means of collecting data. It attempts to examine situations in order to establish what is the norm, i.e. what can be predicted to happen again under the same circumstances. 'Observation' can take many forms. Depending on the type of information sought, people can be interviewed, questionnaires distributed, visual records made, even sounds and smells recorded. Important is that the observations are written down or recorded in some way, in order that they can be subsequently analysed. The scale of the research is influenced by two major factors: the level of complexity of the survey and the scope or extent of the survey. It helps researchers summarize the data and find patterns. A few commonly used descriptive statistics are:

i. **Mean**: numerical average of a set of values.
ii. **Median**: midpoint of a set of numerical values.
iii. **Mode**: most common value among a set of values.
iv. **Percentage**: used to express how a value or group of respondents within the data relates to a larger group of respondents.

v. **Frequency**: the number of times a value is found.
vi. **Range**: the highest and lowest value in a set of values.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Describe descriptive data analysis

_____

_____

Notes

7.5.2.2. **Inferential analysis**

In order to decide the validity of data to indicate conclusion this analysis is concerned with tests for significance of hypothesis. One the basis of inferential analysis the task of interpretation is performed by estimating the population values.

7.6. HISTORICAL METHODS

A procedure supplementary to observation in which the researcher seeks to test the authenticity of the reports or observations made by others. The historical method is employed by researchers who are interested in reporting events and/or conditions that occurred in the past. An attempt is made to establish facts in order to arrive at conclusions concerning past events or predict future events. This aims at a systematic and objective evaluation and synthesis of evidence in order to establish facts and draw conclusions about past events. It uses primary historical data, such as archaeological remains as well as documentary sources of the past. It is usually necessary to carry out tests in order to check the authenticity of these sources. Apart from informing us about what happened in previous times and re-evaluating beliefs about the past, historical research can be used to find contemporary solutions based on the past and to inform present and future trends. It stresses the importance of interactions and their effects. Historical research entails drawing conclusions and presenting new explanations about past communication events or communicators. Historical researchers work with primary documents, records, and artifacts, such as original speeches, letters, and recordings found in archives and libraries like a presidential library, broadcast museum, or archives. Researchers prefer original works to secondary sources, which provide another person's summary or explanation of original sources. It's always best to go to the original source. Historical researchers also seek to collect testimony from authorities or others who can support or disconfirm written and media materials. Interviews and

oral histories are useful for gathering such testimony. Historical researchers need to be as thorough as possible, examining all relevant and available records and artifacts. They seek to record accurately what transpired and to clarify relationships among societal institutions, conditions, people, and events.

7.7. CODING AND TABULATION OF DATA

Notes

Data coding and tabulation is data processing by operations such as editing, coding, computing of the scores, preparation of master charts, etc. A researcher has to make his plan for each and every stage of the research process. As such, a good researcher makes a perfect plan of processing and analysis of data.

7.7.1. Data Coding

Coding refers to the process of assigning numerals or other symbols to answers so that responses can be put into limited number of categories or classes. Coding is the process of organizing and sorting your data. Codes serve as a way to label, compile and organize your data. They also allow you to summarize and synthesize what is happening in your data. In linking data collection and interpreting the data, coding becomes the basis for developing the analysis. It is generally understood, then, that "coding is analysis."

Data coding is the process of driving codes from the observed data. In qualitative research the data is either obtained from observations, interviews or from questionnaires. The purpose of data coding is to bring out the essence and meaning of the data that respondents have provided. The data coder extract preliminary codes from the observed data, the preliminary codes are further filtered and refined to obtain more accurate precise and concise codes. Later, in the evaluation of data the researcher assigns values, percentages or other numerical quantities to these codes to draw inferences. It should be kept in mind that the purpose of data coding is not to just to eliminate excessive data but to summarize it meaningfully. The data coder should ascertain that none of the important points of the data have been lost in data coding. There are two types of coding methods, deductive and inductive coding.

7.7.1.1. Deductive coding:

Deductive coding is the coding method wherein you have developed a codebook as a reference to guide you through the coding process. The codebook will be developed before your data collection starts, usually in the process of researching the existing field

7.7.1.2. Inductive coding:

The process of inductive coding begins with close readings of text and consideration of the multiple meanings that are inherent in the text. The

researcher then identifies text segments that contain meaning units, and creates a label for a new category into which the text segment is assigned.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What do you mean by descriptive analysis? Discuss

_____

_____

7.7.2. Data Tabulation

Tabulation is the process of summarizing raw data and displaying the same in compact form (i.e., in the form of statistical tables) for further analysis. Tabulation is an orderly arrangement of data in columns and rows.

7.7.2.1. Importance of tabulation

Tabulation is essential because of the following reasons.

i. It conserves space and reduces explanatory and descriptive statement to a minimum.
ii. It facilitates the process of comparison.
iii. It facilitates the summation of items and the detection of errors and omissions.
iv. It provides a basis for various statistical computations.

7.7.2.2. General criteria for good tabulation

Tabulation can be done by hand or by mechanical or electronic devices. The choice depends on the size and type of study, cost considerations, time pressures and the availability of tabulating machines or computers. In relatively large inquiries, we may use mechanical or computer tabulation if other factors are favourable and necessary facilities are available. Hand tabulation is usually preferred in case of small inquiries where the number of questionnaires is small and they are of relatively short length. Hand tabulation may be done using the direct tally, the list and tally or the card sort and count methods. When there are simple codes, it is feasible to tally directly from the questionnaire. The general criteria for tables are given as follows,

i. Table should be clear and concise
ii. Numbered
iii. Relevant title
iv. Clear headings for the data in rows and columns
v. Units of measurements to be indicated

vi. Explanations to be given below the table
vii. Have a logical order for the arrangement of data
viii. Too many results in one table should be avoided
ix. Tables to be more explanatory in nature
x. Tables to suit the needs and requirements of the study
xi. Source or sources from where the data in the table have been obtained must be indicated just below the table.
xii. Usually the columns are separated from one another by lines which make the table more readable and attractive.
xiii. Lines are always drawn at the top and bottom of the table and the captions.
xiv. There should be thick lines to separate the data under one class from the data under another class and the lines separating the sub-divisions of the classes should be comparatively thin lines.
xv. Those columns whose data are to be compared should be kept side by side. Similarly, percentages and/or averages must also be kept close to the data.

Notes

7.7.2.3. **Parts of a table**

A table should essentially contain the following parts in the process of tabulation.

i. Table number
ii. Title
iii. Captions
iv. Row Headings
v. Body of the table
vi. Unit of measurement
vii. Source
viii. Note

7.7.2.4. **Types of data tabulation**

i. **Simple tabulation:** Rows are horizontal arrangements whereas columns are vertical arrangements. Simple tables consist of data that are classified based on only one characteristic.
ii. **Cross tabulation:** is usually used to examine the relationship within the data that is not evident. It is quite useful in market research studies and in surveys. A cross table report shows the connection between two or more question asked in the survey. Cross Tabulation gives you the ability to compare two questions to each other and evaluate relationships between the responses of those questions
iii. **Complex table:** When the data are tabulated according to many characteristics, it is said to be a complex tabulation. For example: Tabulation of data on the population of the world

classified by three or more characteristics like religion, sex and literacy, etc. is an example of a complex tabulation

Check your Progress –4

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain Data coding

_____

_____

Notes

7.8. ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. Data Analysis is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data. According to Marshall and Rossman (1990:111) data analysis is a process of bringing order, structure and meaning to the mass of collected data. It is described as messy, ambiguous and time-consuming, but also as a creative and fascinating process. Data analysis is done to obtain usable and useful information.
2. Qualitative data analysis is non-statistical; its methodological approach is primarily guided by the concrete material at hand. It is a process that seeks to reduce and make sense of vast amounts of information, often from different sources, so that impressions that shed light on a research question can emerge. It is a process where you take descriptive information and offer an explanation or interpretation. The information can consist of interview transcripts, documents, blogs, surveys, pictures, videos etc. It is less influenced by theoretical assumption.
3. Typically descriptive statistics (also known as descriptive analysis) is the first level of analysis. This design relies on observation as a means of collecting data. It attempts to examine situations in order to establish what is the norm, i.e. what can be predicted to happen again under the same circumstances. 'Observation' can take many forms. Depending on the type of information sought, people can be interviewed, questionnaires distributed, visual records made, even sounds and smells recorded. Important is that the observations are written down or recorded in some way, in order that they can be subsequently analysed

4. Data coding is the process of driving codes from the observed data. In qualitative research the data is either obtained from observations, interviews or from questionnaires. The purpose of data coding is to bring out the essence and meaning of the data that respondents have provided. The data coder extract preliminary codes from the observed data, the preliminary codes are further filtered and refined to obtain more accurate precise and concise codes. Later, in the evaluation of data the researcher assigns values, percentages or other numerical quantities to these codes to draw inferences.
5. Tabulation is the process of summarizing raw data and displaying the same in compact form (i.e., in the form of statistical tables) for further analysis. Tabulation is an orderly arrangement of data in columns and rows.

7.9. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

7.9.1. Self assessment questions and exercises

iv. Analyse the importance of data coding, tabulation and analysis in the process of research

7.9.2. Short answer questions

xv. Explain the meaning of qualitative data analysis
xvi. Describe the types of quantitative data analysis
xvii. Explain deductive coding
xviii. Discuss the types of data tabulation

7.9.3. Long answer questions

vii. Elaborate on different types of data analysis techniques
viii. Describe the process of data coding and tabulation

7.10. FURTHER READINGS AND REFERENCES

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UNIT VIII

STRUCTURE

Notes

8.1. INTRODUCTION

This unit explains the basics of statistical analysis in research. The parametric and non parametric statistics, its types, the different tests used in it are described. The univariate, bivariate and multivariate statistics and clarity on their use are given in this unit. At the end of this unit an understanding on statistically analysis is got.

8.2. OBJECTIVES

After going through the course you will be able:

21. To understand the meaning of statistical analysis
22. To know the different types of parametric statistics
23. To know about the types of non-parametric statistics

24. To know about univariate, bivariate and multivariate analysis

8.3. STATISTICAL ANALYSIS

Statistical analysis is the mathematical process of gathering, organizing, analyzing and interpreting numerical data and is one of the basic phases of the research process. (Best and Kahn, 2006, pg-396). The role of statistics in research is to function as a tool in designing research, analysing its data and drawing conclusions there from. Most research studies result in a large volume of raw data which must be suitably reduced so that the same can be read easily and can be used for further analysis. Clearly the science of statistics cannot be ignored by any research worker, even though he may not have occasion to use statistical methods in all their details and ramifications. In fact, there are two major areas of statistics viz., descriptive statistics and inferential statistics.

8.4. PARAMETRIC STATISTICAL TESTS

A parametric statistical test is one that makes assumptions about the parameters (defining properties) of the population distribution(s) from which one's data are drawn. The parametric test is more powerful, but they depend on the parameters or characteristics of the population. They are based on the following assumptions

i. The observations or values must be independent.
ii. The population from which the sample is drawn on a random basis should be normally distributed.
iii. The population should have equal variances.
iv. The data should be measured at least at interval level so that arithmetic operations can be used.

Descriptive statistics concern the development of certain indices from the raw data, whereas inferential statistics concern with the process of generalisation. Inferential statistics are also known as sampling statistics and are mainly concerned with two major type of problems: (i) the estimation of population parameters, and (ii) the testing of statistical hypotheses.

8.4.1. Descriptive Statistics

Descriptive statistics describe numerical data. Descriptive statistics are summary indicators of larger groups of data. They are a general type of some statistics used by researchers to describe the basic patterns in the data. They can be categorized by the number of variables involved. Descriptive statistics can be used to summarize the data, either numerically or graphically, to describe the sample. Examples of numerical descriptors include the mean and standard deviation for continuous data, such as height, and frequency and percentage for

categorical data, such as race. Two important summary methods for data are measures of central tendency (typical or average scores) and measures of dispersion (variability or spread of scores). The descriptive analysis of data provides the following:

i. The first estimates and summaries, arranged in tables and graphs, to meet the objectives.
ii. Information about the variability or uncertainty in the data
iii. Indications of unexpected patterns and observations that need to be considered when doing formal analysis

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is parametric statistics?

_____

_____

8.4.1.1.1. Measures of central tendency

Measures of central tendency (or statistical averages) tell us the point about which items have a tendency to cluster. Such a measure is considered as the most representative figure for the entire mass of data. Measure of central tendency is also known as statistical average. Central tendency is one number that denotes various 'averages' of the values for a variable. There are several measures that can be used, such as the arithmetic mean (average), the median (the mathematical middle between the highest and lowest value) and the mode (the most frequently occurring value). Normal distribution is when the mean, median and mode are located at the same value which produces a symmetrical curve.

i. Mean

Mean is also known as arithmetic average, is the most common measure of central tendency and may be defined as the value which we get by dividing the total of the values of various given items in a series by the total number of items. Mean is the simplest measurement of central tendency and is a widely used measure. Its chief use consists in summarising the essential features of a series and in enabling data to be compared. It is amenable to algebraic treatment and is used in further statistical calculations. It is a relatively stable measure of central tendency. But it suffers from some limitations viz., it is unduly affected by extreme items; it may not coincide with the actual value of an item in a series, and it may lead to wrong impressions, particularly when the item values are not given with the average. However, mean is better than other averages, especially in economic and social studies where direct quantitative measurements are possible.

ii. Median

Median is the value of the middle item of series when it is arranged in ascending or descending order of magnitude. It divides the series into two halves; in one half all items are less than median, whereas in the other half all items have values higher than median. If the values of the items arranged in the ascending order are: 60, 74, 80, 90, 95, 100, then the value of the 4th item viz., 88 is the value of median. Median is a positional average and is used only in the context of qualitative phenomena, for example, in estimating intelligence, etc., which are often encountered in sociological fields. Median is not useful where items need to be assigned relative importance and weights. It is not frequently used in sampling statistics.

iii. Mode

Mode is the most commonly or frequently occurring value in a series. The mode in a distribution is that item around which there is maximum concentration. In general, mode is the size of the item which has the maximum frequency, but at items such an item may not be mode on account of the effect of the frequencies of the neighbouring items. Like median, mode is a positional average and is not affected by the values of extreme items. it is, therefore, useful in all situations where we want to eliminate the effect of extreme variations. Mode is particularly useful in the study of popular sizes. For example, a manufacturer of shoes is usually interested in finding out the size most in demand so that he may manufacture a larger quantity of that size. In other words, he wants a modal size to be determined for median or mean size would not serve his purpose. But there are certain limitations of mode as well. For example, it is not amenable to algebraic treatment and sometimes remains indeterminate when we have two or more model values in a series. It is considered unsuitable in cases where we want to give relative importance to items under consideration

8.4.1.2. Measures of variability

In addition to the measures of centrality, we require a measure of the spread of the actual scores. The extent of such spread may vary from one distribution to another. The extent of such variability is measured by the measures of variability. Variability describes the way the classes are distributed and how they are changing in relation to a variety. Measures of central tendency provide us with a summary figure for the data set. However, in many situations these measures do not represent the distribution of data. The word dispersion gives the degree of heterogeneity in the data. It is an important characteristic indicating the extent to which observations vary amongst themselves.

i. Range

Range is defined as the difference between the largest and the smallest observations.

ii. Variance

Variance is the most widely used measure of dispersion

iii. Standard Deviation

Standard deviation is most widely used measure of dispersion of a series and is commonly denoted by the symbol '(σ)' (pronounced as sigma). The standard deviation shows the relation that set of scores has with the mean of the sample. Standard deviation is expressed as the positive square root of the sum of the squared deviations from the mean divided by the number of scores minus one. Standard deviation is defined as the square-root of the average of squares of deviations, when such deviations for the values of individual items in a series are obtained from the arithmetic average.

Notes

Check your Progress –2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is mean?
2. Explain standard deviation

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8.4.1.3. Graphing data

Aid in analyzing numerical data may often be obtained from a graphic or pictorial treatment of the frequency distribution

i. Frequency distribution

Usually presented as a table, frequency distribution simply shows the values for each variable expressed as a number and as a percentage of the total of cases Example of univariate statistics is as follows,

Frequency distribution of gender

Gender	Frequency	Percentage

The frequency distribution can be represented in the form of histogram, bar chart and pie chart. Bar charts or graphs are used for discrete variables. They can have a vertical or horizontal orientation with a small space between the bars.

ii. Bar chart and histogram

iii. Time – series graph

8.4.2. Inferential Statistics

Inferential statistics is a branch of applied mathematics based on random sampling that allows researchers to make precise statements about the level of confidence they can have that measures in a sample are the same as a population parameter. Inferential statistics use probability theory to test hypotheses formally, permit inferences from a sample to a population and test whether descriptive results are likely to be due to random factors or to a real relationship. Inferential statistics rely on principles from probability sampling, whereby a researcher uses a random process to select cases from the entire population. Inferential statistics are a precise way to talk about how confident a researcher can be when inferring from the results in a sample to the population.

8.4.2.1. T-test

A t-test is used to compare the mean scores obtained by two groups on a single variable (Pandya, 2010). The critical ratio test or t-test is used for two sample difference of means. It is very useful when the population variance is not known and when the sample size is small.

8.4.2.2. Analysis of Variance – ANOVA

It is used for comparing more than two groups on a single variable. It is a collection of statistical models and their associated procedures, in which the observed variance is partitioned into components due to the explanatory variables. Analysis of variance or ANOVA is used for testing hypotheses about the difference among three or more means. This technique is used when multiple sample cases are involved. Through this technique the differences among the means of all the populations can be investigated simultaneously. If a variance within and between the groups are computed and compared it is known as one-way analysis of variance.

8.4.2.3. Correlation Coefficient

The correlation coefficient is a measure of the degree of linear association between two continuous variables i.e. when plotted together, how close to a straight line is the scatter of points. No assumptions are made about whether the relationship between the two variables is causal i.e. whether one variable is influencing the value of the other variable; correlation simply measures the degree to which the two vary together. A positive correlation indicates that as the values of one variable increase

the values of the other variable increase, whereas a negative correlation indicates that as the values of one variable increase the values of the other variable decrease. The standard method (often ascribed to Pearson) leads to a statistic called *r*, Pearson's correlation coefficient.

Many statistical analyses can be undertaken to examine the relationship between two continuous variables within a group of subjects. Two of the main purposes of such analyses are:

i. To assess whether the two variables are associated.
ii. To enable the value of one variable to be predicted from any known value of the other variable.

8.4.2.4. Regression analysis

To quantify the relationship between two continuous variables, and given the value of one variable for an individual, to predict the value of the other variable regression analysis is used. TOne variable is regarded as a *response* to the other *predictor (explanatory)* variable and the value of the predictor variable is used to *predict* what the response would be.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain inferential statistics

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8.5. NON-PARAMETRIC STATISTICS

The non-parametric tests are population free tests, as they are not based on the characteristics of population. If the data do not meet the criteria for a parametric test (normally distributed, equal variance, and continuous), it must be analyzed with a nonparametric test. They do not specify normally distributed population or equal variances. They are easy to understand and to use. If a nonparametric test is required, more data will be needed to make the same conclusion. For this reason, categorical data are often converted to continuous data before analysis. Many nonparametric tests and multiple variations of each of those specific tests exist. Discussion will be limited to the few that are most used and correspond to the previously discussed parametric tests.

8.5.1. The Mann-Whitney U test

This test sometimes referred to as Wilcoxon rank sum test. This is used when we want to compare two independent samples, and the assumptions

underlying the t-test are not met. This is the non-parametric counterpart of the independent samples t-test for equality of means. It is analogous to the t-test for continuous variable but can be used for ordinal data. This test compares 2 independent populations to determine whether they are different. The sample values from both sets of data are ranked together. From this the statistic *U* is calculated; it is the number of all possible pairs of observations comprising one from each sample for which the value in the first group precedes a value in the second group. This test statistic is then used to obtain a P value.

8.5.2. The Kruskal Wallis test

The Kruskal Wallis test is a non-parametric technique for comparing two or more populations, i.e. analogous to ANOVA. Just as in the case of two independent samples the ranks are computed for each observation according to the relative magnitude of the measurements when the data for all the samples are combined. The test statistic is computed which is a function of the rank sums for each sample, and the following hypothesis is tested. This test is a one-way analysis of variance by ranks. It tests the null hypothesis that multiple independent samples come from the same population.

8.5.3. Chi-square analysis

The Chi-Square test is the most popular non-parametric test of significance in social science research. It is used to make comparisons between two or more nominal variables. Unlike the other test of significance, the chi-square is used to make comparisons between frequencies rather than between mean scores. This test evaluated whether the difference between the observed frequencies and the expected frequencies under the null hypothesis can be attributed to chance or actual population differences. A chi-square (χ^2) test can be used when the data satisfies four conditions.

i. There must be two observed sets of data or one observed set of data and one expected set of data (generally, there are n-rows and c-columns of data)
ii. The two sets of data must be based on the same sample size.
iii. Each cell in the data contains the observed or expected count of five or large?
iv. The different cells in a row of column must have categorical variables

Check your Progress –4

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain non-parametric statistics
2. What is Mann Whitney U test used for? Discuss

_____

_____

8.6. UNIVARIATE STATISTICS

Univariate statistics describe one variable. The easiest way to describe the numerical data of one variable is with a frequency distribution. Univariate data is used for the simplest form of analysis. It is the type of data in which analysis are made only based on one variable. Frequency distribution is the table that shows the distribution of cases into the categories of one variable, that is, the number or percent of cases in each category. It can be used with nominal, ordinal, interval or ratio level data and takes many forms.

8.7. BIVARIATE STATISTICS

Bivariate statistics are much more valuable since they let the research consider two variables together and describe the relationship between variables. Bivariate statistical analysis shows a statistical relationship between variables – that is things that appear together. Expressing whether two or more variables affect one another based on the use of elementary applied mathematics that is whether there is an association between them or independence. Bivariate statistical techniques describe a relationship or the association between two variables. In case of bi-variate population, Correlation can be studied through (a) cross tabulation; (b) Charles Spearman's coefficient of correlation; (c) Karl Pearson's coefficient of correlation; whereas cause and effect relationship can be studied through simple regression equations.

8.8. MULTIVARIATE STATISTICS

Multivariate statistics describe the relationship among several variables or see how several independent variables have an effect on a dependent variable and include statistical techniques like elaboration paradigm and multiple regression. In case of multivariate population Correlation can be studied through

i. Coefficient of multiple correlation

ii. Coefficient of partial correlation
iii. Cause and effect relationship can be studied through multiple regression equations.

Check your Progress –5

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain univariate statistics

_____

_____

Notes

8.9. ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. A parametric statistical test is one that makes assumptions about the parameters (defining properties) of the population distribution(s) from which one's data are drawn. The parametric test is more powerful, but they depend on the parameters or characteristics of the population.

2. *Mean is* also known as arithmetic average, is the most common measure of central tendency and may be defined as the value which we get by dividing the total of the values of various given items in a series by the total number of items. Mean is the simplest measurement of central tendency and is a widely used measure. Its chief use consists in summarising the essential features of a series and in enabling data to be compared. It is amenable to algebraic treatment and is used in further statistical calculations. It is a relatively stable measure of central tendency. But it suffers from some limitations viz., it is unduly affected by extreme items; it may not coincide with the actual value of an item in a series, and it may lead to wrong impressions, particularly when the item values are not given with the average. However, mean is better than other averages, especially in economic and social studies where direct quantitative measurements are possible.
3. Standard deviation is most widely used measure of dispersion of a series and is commonly denoted by the symbol '(σ)' (pronounced as sigma). The standard deviation shows the relation that set of scores has with the mean of the sample. Standard deviation is expressed as the positive square root of the sum of the squared

deviations from the mean divided by the number of scores minus one. Standard deviation is defined as the square-root of the average of squares of deviations, when such deviations for the values of individual items in a series are obtained from the arithmetic average.

4. Inferential statistics is a branch of applied mathematics based on random sampling that allows researchers to make precise statements about the level of confidence they can have that measures in a sample are the same as a population parameter. Inferential statistics use probability theory to test hypotheses formally, permit inferences from a sample to a population and test whether descriptive results are likely to be due to random factors or to a real relationship. Inferential statistics rely on principles from probability sampling, whereby a researcher uses a random process to select cases from the entire population. Inferential statistics are a precise way to talk about how confident a researcher can be when inferring from the results in a sample to the population
5. The non-parametric tests are population free tests, as they are not based on the characteristics of population. If the data do not meet the criteria for a parametric test (normally distributed, equal variance, and continuous), it must be analyzed with a nonparametric test. They do not specify normally distributed population or equal variances. They are easy to understand and to use.
6. Mann Whitney U test is used when we want to compare two independent samples, and the assumptions underlying the t-test are not met. This is the non-parametric counterpart of the independent samples t-test for equality of means. It is analogous to the t-test for continuous variable but can be used for ordinal data. This test compares 2 independent populations to determine whether they are different. The sample values from both sets of data are ranked together. From this the statistic *U* is calculated; it is the number of all possible pairs of observations comprising one from each sample for which the value in the first group precedes a value in the second group. This test statistic is then used to obtain a P value.
7. Univariate statistics describe one variable. The easiest way to describe the numerical data of one variable is with a frequency distribution. Univariate data is used for the simplest form of analysis. It is the type of data in which analysis are made only based on one variable. Frequency distribution is the table that shows the distribution of cases into the categories of one variable, that is, the number or percent of cases in each category. It can be

Notes

used with nominal, ordinal, interval or ratio level data and takes many forms.

8.10. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

8.10.1. Self assessment questions and exercises

v. Identify the significance of non-parametric tests in communication studies

Notes

8.10.2. Short answer questions

xix. Explain the meaning of descriptive statistics
xx. What is mean? Discuss
xxi. Explain measures of variability and its uses
xxii. Discuss the role of chi-square test and its importance

8.10.3. Long answer questions

ix. Elaborate on Parametric statistics and its types
x. Discuss non-parametric statistics and its types

8.11. FURTHER READINGS AND REFERENCES

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UNIT IX

STURCTURE

Notes

9.1. INTRODUCTION

This unit describes the meaning of statistical significance, the levels of significance, testing of hypothesis, its types, etc. The levels of measurements, tests of reliability and validity, its types are described in this unit. The computer enabled software and their applications in statistical analysis are described. At the end of this unit you would be able to understand the relevance of statistical significance and related tests.

Notes

9.2. OBJECTIVES

After going through the course you will be able:

25. To understand the different tests of significance
26. To know the different levels of measurement
27. To identify the appropriate tests of reliability and validity
28. To understand the computer based statistical packages

9.3. STATISTICAL SIGNIFICANCE

Statistical inference is the act of generalizing from sample (the data) to a larger phenomenon (the population) with calculated degree of certainty.

9.4. LEVELS OF SIGNIFICANCE

The basic idea of a significance test is: "an outcome that would rarely happen if a claim were true is good evidence that the claim is not true." As a result, we will often make a claim (or "hypothesis"), take a sample, and find that the probability of the particular sample being drawn is small assuming the claim is true (this is a conditional probability).Thus, the test of significance is a formal procedure for comparing observed data with a claim (also called a hypothesis), the truth of which is being assessed.

•The claim is a statement about a parameter, like the population proportion p or the population mean μ.

•The results of a significance test are expressed in terms of a probability that measures how well the data and the claim agree.

9.4.1. Hypotheses

The statement being tested in a statistical test is called the null hypothesis. A hypothesis is the predictions about a population expressed in terms of parameters for certain variables. A hypothesis test is a rule that specifies whether to accept or reject a claim about a population depending on the evidence provided by a sample of data. The claim

tested by a statistical test is called the **null hypothesis (*H*0)**. The test is designed to assess the strength of the evidence against the null hypothesis. Usually the hypothesis is a statement of "no effect" or "no difference." The claim about the population that we are trying to find evidence for is the alternative hypothesis **(*H*a)**.

i. The term **null** is used because this hypothesis assumes that there is no difference between the two means or that the recorded difference is not significant. The notation that is typically used for the null hypothesis is H0.

Null hypothesis (H_0): $\mu_1 = \mu_2$

ii. The opposite of a null hypothesis is called the **alternative hypothesis**. The alternative hypothesis is the claim that researchers are actually trying to prove is true. However, they prove it is true by proving that the null hypothesis is false. If the null hypothesis is false, then its opposite, the alternative hypothesis, must be true. The notation that is typically used for the alternative hypothesis is Ha.

Alternative hypothesis (H1): $\mu 1 \neq \mu 2$

Notes

9.4.2. p-value in a statistical test

In order to determine if two numbers are *significantly different*, a statistical test must be conducted to provide evidence. Researchers cannot rely on subjective interpretations. Researchers must collect statistical evidence to make a claim, and this is done by conducting a test of statistical significance. The probability, computed assuming that H0 is true, that the test statistic would take a value as extreme or more extreme than that actually observed is called the P-value of the test. The smaller the P-value, the stronger the evidence against H0 provided by the data. The most widely accepted minimum level is 0.05, and the test is said to be significant at the .05 level if the P-value = 0.05. If the P-value is not sufficiently small, we fail to reject H0 (then, H0 is not necessarily true, but it is plausible).

9.4.3. Level of significance

"We can compare the P-value with a fixed value that we regard as decisive. This amounts to announcing in advance how much evidence against H0 we will insist on. The decisive value of P is called the significance level which is α. If the P-value is as small as or smaller than α, we say that the data are statistically significant at level α.

9.4.4. Acceptance or rejection of hypothesis

i. To assess a statistical significance, examine the test's p-value. If the p-value is less than a specified significance level (α) (usually 0.05, or 0.01), you can declare the difference to be statistically significant and reject the test's null hypothesis and accept the alternate hypothesis.

ii. But if the p-value equals 0.50, you cannot claim statistical significance.

9.4.5. Type I and Type II Errors

When we conduct a hypothesis test there a couple of things that could go wrong. No hypothesis test is 100% certain. Because the test is based on probabilities, there is always a chance of making an incorrect conclusion. There are two kinds of errors, which by design cannot be avoided, and we must be aware that these errors exist.

Notes

9.4.5.1. Type I error

When the null hypothesis is true and you reject it, you make a type I error. The probability of making a type I error is α, which is the level of significance you set for your hypothesis test. An α of 0.05 indicates that you are willing to accept a 5% chance that you are wrong when you reject the null hypothesis. To lower this risk, you must use a lower value for α. However, using a lower value for alpha means that you will be less likely to detect a true difference if one really exists.

9.4.5.2. Type II error

When the null hypothesis is false and you fail to reject it, you make a type II error. The probability of making a type II error is β, which depends on the power of the test. You can decrease your risk of committing a type II error by ensuring your test has enough power. You can do this by ensuring your sample size is large enough to detect a practical difference when one truly exists.

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain null and alternate hypotheses

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9.5. LEVELS OF MEASUREMENT

A variable has one of four different levels of measurement: Nominal, Ordinal, Interval, or Ratio. (Interval and Ratio levels of measurement are sometimes called Continuous or Scale). Measurements are the method or the process of quantification (expression in numerical values). By the act of measurement, a researcher assigns numerals to objects, events or

properties according to certain rules. Numerals have no implicit quantitative meaning. In mass media research, the researchers usually measure indicators of the properties of individuals or objects. The four different levels of measurement are: Nominal, Ordinal, Interval and Ratio.

9.5.1. Nominal level of measurement

The first level of measurement is nominal level of measurement. In nominal measurement the numerical values just name the attribute uniquely. No ordering of the cases is implied. When measuring using a nominal scale, one simply names or categorizes responses. In this level of measurement, the numbers in the variable are used only to classify the data. In this level of measurement, words, letters, and alpha-numeric symbols can be used. For example, gender, your favourite news channel, favourite anchor etc.

9.5.2. Ordinal level of measurement

The second level of measurement is the ordinal level of measurement. The items in this scale are ordered, ranging from least to most satisfied. This is what distinguishes ordinal from nominal scales. The ordinal level of measurement indicates an ordering of the measurements. For example, to measure the level of satisfaction of the audience on the performance of a news anchor or a host of a reality show. It can have options like, satisfied, neutral and not satisfied.

9.5.3. Interval level of measurement

The third level of measurement is the interval level of measurement. Interval scales are numeric scales where we know the order and the exact differences between the values. The interval level of measurement not only classifies and orders the measurements, but it also specifies that the distances between each interval on the scale are equivalent along the scale from low interval to high interval. Here the distance is meaningful. For example, For example, the difference between 60 and 50 degrees is a measurable 10 degrees, as is the difference between 80 and 70 degrees.

9.5.4. Ratio level of measurement

The fourth level of measurement is the ratio level of measurement. The Ratio Scale is the highest level scale that allows the researcher to classify or identify the objects, rank-order the objects and compare the intervals or differences. In this level of measurement, the observations, in addition to having equal intervals, can have a value of zero as well. The zero in the scale makes this type of measurement unlike the other types of measurement, although the properties are similar to that of the interval level of measurement. In the ratio level of measurement, the divisions between the points on the scale have an equivalent distance between them.

Check your Progress –2

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is nominal level of measurement? Discuss

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_____

Notes

9.6. TESTS OF RELIABILITY

Reliability of a test pertains to reliable measurement which means that the measurement is accurate and free from any sort of error. Reliability is one of the most essential characteristic of a test. If a test gives same result on different occasions, it is said to be reliable. According to Anastasi and Ubrina (1982), "Reliability refers to the consistency of scores obtained by the same persons when they are re-examined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions."

9.6.1. Stability of Reliability or Test – retest method

The stability of reliability or test –retest method is done be administering a test at two different point of time to the same respondents to find out the correlation between the two sets of scores. It is a measure of consistency over a period of time for similar samples. The correlation coefficient using test- retest method is usually estimated using Pearson statistics or t-test. Whiston (2005) suggests that if the correlation coefficient using test-retest were 0.80 (80% correct observation and 20% error) or higher, then the reliability can be guaranteed.

9.6.2. Parallel forms reliability

Estimating reliability using alternate or parallel form requires developing two forms of an instrument using the same content domain, the same test specifications, the same number of items, the same items format and similar difficulty and discriminating indices. If the correlation between the alternative forms is low, it could indicate that considerable measurement error is present, because two different scales were used. The scores derived from the two instruments are then correlated to estimate the reliability coefficient

9.6.3. Inter-rater or Inter-observer Reliability

Interrater reliability (also called interobserver agreement) establishes the equivalence of ratings obtained with an instrument when used by

different observers. The focus is on the extent to which the results obtained by two or more raters agree for similar or the same rating. Interrater reliability requires completely independent ratings of the same event by more than one rater. No discussion or collaboration can occur when reliability is being tested. Reliability is determined by the correlation of the scores from two or more independent raters (for ratings on a continuum) or the coefficient of agreement of the judgments of the raters

9.6.4. Internal consistency reliability

Internal consistency gives an estimate of the equivalence of sets of items from the same test (e.g., a set of questions aimed at assessing quality of life or disease severity).

9.6.4.1. Split – half method

In split-half reliability, a test for a single knowledge area is split into two parts and then both parts given to one group of students at the same time. The scores from both parts of the test are correlated.

9.6.4.2. Cronbach's alpha

Cronbach's alpha tests to see if multiple-question Likert scale surveys are reliable. These questions measure latent variables — hidden or unobservable variables like: a person's conscientiousness, neurosis or openness. These are very difficult to measure in real life. Cronbach's alpha will tell you if the test you have designed is accurately measuring the variable of interest. It is used under the assumption that you have multiple items measuring the same underlying construct.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain test –retest method

_____

_____

9.7. TESTS OF VALIDITY

Validity is the strength of our conclusions, inferences or propositions. Validity is concerned with the meaningfulness of research components. When researchers measure attitudes, they are concerned with whether

they are measuring what they intended to measure. The term validity refers to whether or not the test measures what it claims to measure.

9.7.1. Content validity

Content validity refers to the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure. Content validity is concerned primarily with the adequacy with which the test items adequately and representatively sample the content area to be measured.

9.7.2. Face Validity

Face validity is when a test appears valid to examinees who take it, personnel who administer it and other untrained observers. Anyone who looks over the test, including examinees and other stakeholders, may develop an informal opinion as to whether or not the test is measuring what it is supposed to measure

9.7.3. Concurrent Validity

Concurrent validity measures how well a new test compares to an well-established test. It can also refer to the practice of concurrently testing two groups at the same time, or asking two different groups of people to take the same test

9.7.4. Construct Validity

According to Walden (2012), construct validity refers to whether the operational definition of a variable actually reflects the theoretical meanings of a concept. In other words, construct validity shows the degree to which inferences are legitimately made from the operationalisations in one's study to the theoretical constructs on which those operationalisations are based.

Check your Progress –4

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What do you mean by content validity?

_____

_____

9.8. STATISTICAL PACKAGES

Statistics is the collection of numerical facts or data. Statistics is generally thought of as serving two functions. One is to describe sets of data; the other is to help in drawing inferences. A statistical package is the software for the collection, organisation, interpretation, and presentation of numerical information. The need for a statistical package has arisen because of the complexity of calculations involved in making inferences from the data. The advances in computing technologies have made statistics a yet more powerful field.

9.8.1. Definition

According to Ripley (2004), "The most widely used piece of statistical packages/ software for statistics is Excel. SPSS and SAS dominate certain communities, and Minitab is widely used in teaching. Many niche products, e.g. GenStat, Generalised Linear Interactive Modelling Package (GLIM), Stata and S-PLUS dominate the high end, hence is widely seen in methodology papers."

9.8.2. Data Measurement

Statistical data is generally obtained in many formats such as spreadsheets (e.g. MS Excel) or databases (e.g. MS Access). Data may also be received in various open formats such as typically tab-delimited text (*.dat, *.tab, *.txt), comma-separated text or fixed-width text data (*.dat, *.txt). The data could be of two types, qualitative and quantitative. Most of the statistical methods are based on the quantitative data. Quantitative variable is a variable whose values are numbers with real numeric meaning. It consists of mainly two types of data viz. discrete and continuous. A set of data is said to be discrete if the values/observations belonging to it are distinct and separate, i.e. they can be counted e.g. number of books in a library. Whereas, a set of data is said to be continuous if the values/observations belonging to it may take on any value within a finite or infinite interval. There are four well-known levels of measurement scales i.e. nominal, ordinal, interval, and ratio. There is a relationship between the level of measurement and the appropriateness of various statistical procedures. For example, it would be impractical to compute the mean of nominal measurements. Data must be measured on an interval or a ratio scale for the computation of means and other statistics to be valid. Therefore, if data are measured on an ordinal scale, the median but not the mean can serve as a measure of central tendency

9.8.3. Functions of statistics

Many people intend to use statistical techniques in their research. It is definitely a good practice to substantiate your claims with the help of

data. Statistics has various functions, which can be broadly categorised as follows:

1) Summarise and Describe data: One summarises and describes the data in order to view data at a glance. If it is nominal or ordinal data, one makes cross-tabulations and graphs; if it is interval or ratio data then z-scores are calculated.

2) Variance and distribution of the data: In order to measure the spread of the data and knowing its distributions one makes tables and charts and graphs for nominal/ordinal data and histograms with normal curve or box plots with interquartile range for interval/ratio data.

3) Compare groups: When one has to compare two or more populations then one makes cross-tabulations for nominal/ordinal data and employ testing of hypothesis for continuous/numeric data divided into groups.

Identify relationships: In order to identify relationships in the data, one uses cross- tabulations for nominal/ordinal data; calculate correlation coefficient and scatter plot for Interval/ratio data or go for linear regression/ ANOVA for data with one dependent and 2 or more predictor variables.

5) Identify groups of similar cases: Carrying out hierarchical cluster analysis solves the problem of identifying groups of similar cases or k-means cluster analysis. One uses Discriminant analysis for identify characteristics of known groups.

6) Identify groups of similar variables: Factor analysis is carried out to identify groups of similar variables.

Check your Progress –5

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Define statistical package

_____

_____

9.9. FEATURES OF STATISTICAL PACKAGES

Advances in computing especially the advent of the personal computer (PC) have made computing a game of the commoners. Today one has the computing power as one can easily load software of his choice or need into his PC.

9.10. MICROSOFT EXCEL

Microsoft Excel is a big worksheet (it can take data rows in thousands across 256 columns). This worksheet can be used for data entry and for performing calculations by click of buttons. It has a "paste function where you can paste any formula from a big list of inbuilt functions. MS Excel can be used to create tables, and graphs and perform statistical calculations. The work done in MS Excel can be easily copied and pasted to many window-based programs for further analysis. According to Pottel, "Spreadsheets are a useful and popular tool for processing and presenting data. In fact, Microsoft Excel spreadsheets have become somewhat of a standard for data storage, at least for smaller data sets. The fact that the program is often being packaged with new computers, which increases its easy availability, naturally encourages its use for statistical analysis. However, many statisticians find this unfortunate, since Excel is clearly not a statistical package. There is no doubt about that, and Excel has never claimed to be one. But one should face the facts that due to its easy availability many people, including professional statisticians, use Excel, even on a daily basis, for quick and easy statistical calculations. Therefore, it is important to know the flaws in Excel, which, unfortunately, still exist today! …. ''Excel is clearly not an adequate statistics package because many statistical methods are simply not available. This lack of functionality makes it difficult to use it for more than computing summary statistics and simple linear regression and hypothesis testing". However in MS Excel 2003 aspects of the some statistical functions, including rounding results, and precision have been enhanced. The MS Excel worksheet is a collection of cells. As we have earlier said, there are 65,000 (rows) X 256 (columns) cells in an MS Excel worksheet. Each row or column can be used to enter data belonging to one category. Data entry in MS Excel is as simple as writing on a piece of paper. MS Excel assigns each column a field depending upon the type of data. It supports various data formats; one can choose a data format by formatting the cells. Once the type of cells is defined it is easy to enter the data without taking care of the format. MS Excel can perform usual calculations on the data so entered. It has an insert function (f*x*) icon that contains many inbuilt functions like sum, count, max/min, standard deviation etc. In fact it has a plethora of built-in functions that performs special calculations without even typing the formula. To perform a calculation one has to select a function and specify the range of values on which it has to be applied. These functions are known as paste functions.

Notes

We will concentrate on the statistical functions and see some of the major statistical Statistical Packages functions of MS Excel. As you can see in figure 9.2, once you go to the function menu and choose "statistical"

category, you will be asked to select a function. Suppose you have chosen t-test. You will be told on the same screen that t-test returns the probability associated with a student's t-test. Now if you are still not comfortable with the description, you may select help on this function, which is at the bottom left of the screen. More help is offered in the following form. MS Excel has a built-in statistical package for taking you in further details of data analysis. It provides a set of data analysis tools called the Analysis ToolPak, which you can use to save steps when you develop complex statistical analyses. You provide the data and parameters for each analysis; the tool uses the appropriate statistical macro functions and then displays the results in an output table. Some tools generate charts in addition to output tables. To access these tools, click Data Analysis on the Tools menu.

9.11. SPSS

SPSS is the short form for Statistical Package for Social Sciences (SPSS). It is a very popular package due to its features and compatibility with other window-based programs. In the late 1960s, three Stanford University graduate students developed the SPSS statistical software system. SPSS can take data input from many packages like dBase (*.dbf), Excel (*.xls), Lotus 123 (*.w*) and others like *.dat and *.txt. It can filter the data and perform analysis only in selected case. One can see that many of these tools are available in MS Excel also, but the difference Statistical Packages is that the output given by SPSS contains many more details regarding the statistical aspects of the findings. For example the cross-tabs procedure forms two-way and multi-way tables in both MS Excel and SPSS, but in SPSS it also provides a variety of tests and measures of association for two-way tables. The supporting statistics provided in SPSS is Pearson chi-square, likelihood-ratio chi-square, linear-by-linear association test, Fisher's exact test, Yates' corrected chi-square, Pearson's r, Spearman's rho, contingency coefficient, phi, Cramér's V, symmetric and asymmetric lambdas, Goodman and Kruskal's tau, uncertainty coefficient, gamma, Somers' d, Kendall's tau-b, Kendall's tau-c, eta coefficient, Cohen's kappa, relative risk estimate, odds ratio, McNemar test, and Cochran's and Mantel-Haenszel statistics. SPSS is thus more comprehensive. SPSS also supports several statistical graphs. It displays many statistics on the graph itself. It has a feature that helps you to find a chart that is most suitable for your data, which is called "Chart Galleries by Data Structure Now suppose you have chosen single categorical variable as the gallery that best describes your data. Then the next screen that will appear would be like the following figure. Suppose here you choose Simple Pareto Counts or Sums for Groups of Cases, then SPSS will describe what this graph does like, "Creates a bar

chart summarizing categories of a single variable, sorted in descending order. A line shows the cumulative sum."

9.12. OTHER SOFTWARE FOR STATISTICAL ANALYSIS

Modern statistics can perform very large and complex calculations with the help of computers. There are a lot of softwares available in the market. Many of them are shareware, freeware and online pages that perform statistical calculations. Many of the universities offer statistics online computational resources e.g. http://www.socr.ucla.edu/ (University of California at LA), Statlib: Data, Software and News from the Statistics Community http://lib.stat.cmu.edu/ (Carnegie Melon University) and free statistical tools on the web http://www.cbs.nl/isi/ (International Statistical Institute). The list is endless. We therefore restrict ourselves by giving brief introduction to some of the popular statistical software.

Notes

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Check your Progress –6

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What is SPSS? Explain

_____

_____

9.13. ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. The term **null** is used because this hypothesis assumes that there is no difference between the two means or that the recorded difference is not significant. The notation that is typically used for the null hypothesis is H0.

   Null hypothesis (H_0): $\mu_1 = \mu_2$

   The opposite of a null hypothesis is called the **alternative hypothesis**. The alternative hypothesis is the claim that researchers are actually trying to prove is true. However, they prove it is true by proving that the null hypothesis is false. If the null hypothesis is false, then its opposite, the alternative hypothesis, must be true. The notation that is typically used for the alternative hypothesis is Ha.

   Alternative hypothesis (H1): $\mu 1 \neq \mu 2$
2. The first level of measurement is nominal level of measurement. In nominal measurement the numerical values just name the attribute uniquely. No ordering of the cases is implied. When measuring using a nominal scale, one simply names or categorizes responses. In this level of measurement, the numbers in the variable are used only to classify the data. In this level of measurement, words, letters, and alpha-numeric symbols can be used. For example, gender, your favourite news channel, favourite anchor etc.
3. The stability of reliability or test –retest method is done be administering a test at two different point of time to the same respondents to find out the correlation between the two sets of scores. It is a measure of consistency over a period of time for similar samples. The correlation coefficient using test- retest method is usually estimated using Pearson statistics or t-test. Whiston (2005) suggests that if the correlation coefficient using test-retest were 0.80 (80% correct observation and 20% error) or higher, then the reliability can be guaranteed.
4. Content validity refers to the extent to which the items on a test are fairly representative of the entire domain the test seeks to measure. Content validity is concerned primarily with the adequacy with which the test items adequately and representatively sample the content area to be measured.
5. A statistical package is the software for the collection, organisation, interpretation, and presentation of numerical information.
6. SPSS is the short form for Statistical Package for Social Sciences (SPSS). It is a very popular package due to its features and compatibility with other window-based programs. In the late 1960s, three Stanford University graduate students developed the

SPSS statistical software system. SPSS can take data input from many packages like dBase (*.dbf), Excel (*.xls), Lotus 123 (*.w*) and others like *.dat and *.txt.

9.14. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

9.14.1. Self assessment questions and exercises

vi. Identify the different software packages used in different industries for statistical analysis

9.14.2. Short answer questions

xxiii. Explain the steps in hypotheses testing
xxiv. What is p-value in a statistical test? Discuss
xxv. Explain the two types of errors
xxvi. Discuss the different levels of measurement
xxvii. Write a note on SPSS

9.14.3. Long answer questions

xi. Discuss tests of reliability and validity, their importance and procedure
xii. Elaborate on SPSS and other statistical packages
xiii. Discuss non-parametric statistics and its types

Notes

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UNIT X

STRUCTURE

Notes

10.1. INTRODUCTION

This unit explains the context of media research as a tool of reporting. The different types of media related research, namely, newspaper and magazine readership research and broadcast audience research are described in detail. Further, the steps in preparation of research different types of reports are explained. The ethical perspectives to be included in a media research are also part of this unit.

10.2. OBJECTIVES

After going through the course you will be able:

29. To understand media research as a tool of reporting
30. To know about readership and audience surveys
31. To know about preparation of research reports
32. To understand the ethical perspectives of mass media research

10.3. MEDIA RESEARCH AS A TOOL OF REPORTING

Media research makes use of scientific methods of research. It aims at providing an objective, unbiased evaluation of data. First the research problem is identified, and then a prescribed set of procedures of research is followed to investigate the problem. Only thereafter comes report of the findings. Viewed thus, media research is an objective and systematic way of collecting information. News reporting on the other hand, tries to collect information and present them in an objective and fair manner. The objectives of both media research and news reporting are the same. The difference lies in the processes involved. Media research uses more stringent and severe data collection and data analysis methods. So media research is often used as a tool of reporting. Major examples of this include news reporting based on surveys, opinion polls, pre-poll surveys, exit polls, etc. When media research methodology and related tools are used for news reporting, it is called *precision journalism.*

10.4. NEWSPAPER AND MAGAZINE READERSHIP RESEARCH

Mass media research has been more in terms of print media compared to other forms of media owing to its inception much earlier. Newspapers, magazines, journals etc were the prominent forms of mass media in print. Data on print media readership was essential to understand the nature, scope and significance of readership. Thus readership surveys were one of the important methods of mass media research. Readership surveys were very much required for the media as well as people. Readership surveys are done involving huge samples over different time frames and locations. The need and importance of readership surveys are as follows,

1. To understand the priorities of readers
2. The reach is known in terms of circulation research
3. The difference in terms of locality, gender, age, income, educational levels etc the readership details are understood
4. Scope for advertising is improved

10.4.1. Readership Research

According to Wimmer and Domnick (2006), newspaper readership is composed primarily of five types of studies, namely,

i. **Reader Profiles:**

This type of studies provide a demographic summary of the readers of a particular publication. The nature of the readers priorities are identified through reader profiles. Accordingly the strategies to improve readership are outlined for each segment of readers. Insights

about editorial aims, target audiences and circulation goals are also got.

ii. Item-selection studies:

This type of study is used to determine who reads specific parts of the paper. The readership of a particular item is usually measured by means of aided recall. This is a method where the preference of news stories of the respondents is found by talking to them to identify which stories they liked in an issue. Through this the most sought after subjects are identified.

Notes

iii. Reader – nonreader studies:

Non-readers of newspapers can be classified as those who never read a newspaper, those who have read one recently, those who have read one two days back and so on. This means they may not be the regular newspaper readers. Such studies help identify the reasons for people not reading a newspaper.

iv. Uses and gratifications studies:

Uses and gratifications study helps identify the motives that lead to newspaper reading in relation to personal, psychological, entertainment, educational and communicational needs.

v. Journalist – reader comparisons:

In this method, a group of journalists are questioned about a certain topic and their answers are compared to those of their readers to see whether there is any correspondence between the two groups.

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain the meaning and need of readership research
2. What do you mean by reader profile studies? Discuss

_____

_____

10.4.1.1. Circulation research

The circulation research measures it in terms of the overall characteristics of a particular market. Specifically, the circulation patterns in relation to location or demographic factors. Circulation as a dependent variable is found to be influenced by several variables as follows,

i. Content of the newspaper
ii. Space allocation for specific content
iii. Presence of analytic content
iv. Geographic locations or the distance from the production point to the circulation point

v. Population density
vi. Urbanization
vii. Affluence
viii. Newspaper price
ix. Staff strength of the newspaper

10.4.1.2. Management research

Newspaper magazine management and ownership patterns have been found to be a major area research. This is because studies show that the nature of ownership pattern and management influences the content more specifically the political stand of the newspaper or magazine.

10.4.1.3. Readability research

Readability research is the sum total of all the elements and their interactions that affect the success of a piece of printed material. It depends on the speed of the reading by the readers and calculated with the time duration and classified accordingly.

10.4.1.4. Online readership research

Globally the convergence of print and electronic media into online is taking place rapidly. Several researches on online readership are gaining momentum among mass communication researchers. It throws more light on how the public sphere is modifying to a global public sphere with global readers.

Check your Progress –2

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain circulation research

_____

_____

10.5. BROADCAST AUDIENCE RESEARCH

The major radio and television stations in the less developed countries as well as in many industrialised countries are often funded out of taxation or license revenue. In this case they are expected to provide a public service, serving the interests of the whole of the tax or license-paying public. So here there arises a need for audience research in the broadcast sector to know what the audience are listening to, their preferences, mode, time, etc. Audience research is more than a matter of knowing if anyone is listening or viewing, important though this undoubtedly is. By audience research we mean the various methods and techniques used to

find out about the audience. It covers a wide range of information gathering exercises. Research is essential when the main source of funds for broadcasting is advertising and programme sponsorship. Research here enables media planning towards advertising and getting the prime time slots for the most bidding production house programmes.

Audience research was formally established within the BBC in 1936. Its role has, from the outset, included serving as an instrument of public accountability as well as providing an information system for programme makers and management. There have been several special studies on particular contemporary broadcasting issues which help the corporation decide on major policy issues.

Notes

10.5.1. Audience measurement

The single most common kind of research activity so far as TV and radio are concerned is audience measurement. TV and radio audience measurement has to rely entirely on some kind of survey instrument because here there are no sales or transactions taking place. When audience measurement is carried out according to certain principles it is usually possible to make reasonably accurate estimates of the numbers of listeners or viewers to different services and programmes. It is also possible to work out the times that they listen or watch and the number of minutes or hours spent watching or listening, and the kinds of programmes that attract the most listening. Research can normally provide information about the kinds of people who form the audience for different programmes at various times in the day. Research of this kind carried out over a period of time can plot trends in audience behaviour. It can show whether new programmes have increased or decreased audience size, whether new services have achieved their audience target objectives or whether there are any significant long term trends.

10.5.2. Ratings research

Wimmer and Dominck (2006), state that there was a need to understand the nature of audience of broadcast media to estimate its reach and use. In US, the Nielsen Media Research company undertakes the rating research. It is involved in television ratings in both the United states and Canada and including ratings for national broadcast and cable networks, syndicators, television stations, local cable TV systems, and so on.

i. Nielsen People's Meter

The ratings by Nielsen Media Research were divided as national and local. In this process Nielsen used an electronic measurement device called the Nielsen People's Meter. A people meter is an audience measurement tool used to measure the viewing habits of TV and cable audiences. The People Meter is a 'box', about the size of a paperback book. The box is hooked up to each television set and is accompanied by a remote control unit. The Portable People Meter (PPM), also known

as Nielsen Meter, is a system developed by Arbitron (now Nielsen Audio) to measure how many people are exposed or listening to individual radio stations and television stations, including cable television.

ii. Diary method

In terms of broadcast media diary method involves demographic viewing data which are collected from separate samples of households which each maintain a paper viewing diary for one week. Household members are asked to write down what programs they and their guest watch in their home over the course of that week. This method by Nielsen Media Research is done once in four months in television markets in the US. Arbitron produces network radio ratings with its service called RADAR (Radio's All-Dimension Audience Research).

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain the meaning and need for audience research
2. Explain People's meter

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_____

10.6. Preparation of research reports

The final and a very important step in a research study is a write report. The research report is a means for communicating our research experiences to others and adding them to the fund of knowledge. This chapter discusses the purpose of research reports types of reports, planning report writing, research report format, principles of writing, drafting and finalising the report, and evaluation of a research report.

10.6.1. Research report

Research reporting is the oral or written presentation of evidence and the findings of the research work carried out by the researcher outlining the objectives, research questions, method, theory, process of analysis, research findings and interpretation. Research report writing is the culmination of the research investigation. It is at the stage of reporting that the researcher assembles the findings of the study, draws conclusions and evaluates one's own findings. It is highly skilled work; it is an interesting, fascinating, challenging, gruelling and sometimes even exasperating experience. Writing a research report is a technical activity that demands all the skills and patience of the researcher. It requires

considerable thought, effort, patience and penetration and an overall approach to the problem, data and analysis.

10.6.2. Project reports

The national level projects on health, housing, development, digitalization etc release the project reports which contain details on its implementation, objectives, findings, outcomes and beneficiaries of the projects. Projects report can be annually, interim or end reports.

Notes

10.6.3. Annual reports

The annual reports are by the professional bodies compiling their activities into an action report. For example, the National Crime Records Bureau is a professional body that collates all the crime related statistics of the executive and judicial sectors in India. This report gives a status of the crime in India on an annual basis. The number of crime, the reasons, number of convictions, number of acquittals, and so on. Similarly, annual reports of different government sectors, bodies, organizations provide data on the different schemes, activities, gaps, growth, trends etc.

10.6.4. Academic reports

Proper planning and organisation of study materials are important while preparing the research report. At the writing stage, a researcher will have accumulated a mass of data and information that will have to be prudently and carefully used. Well-conceived planning and organisation facilitates the writing of the report, with a proper emphasis on the different aspects of the study. Planning involves each chapter and aspect of the report. It is nothing but the arrangement of ideas in a logical and coherent manner

Check your Progress –4

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by a research report? Discuss

_____

_____

10.7. Ethical perspectives of mass media research

Mass media research like any other research requires basic ethics of research. Research ethics are important for a number of reasons. They promote the aims of research, such as expanding knowledge. They

support the values required for collaborative work, such as mutual respect and fairness. This is essential because scientific research depends on collaboration between researchers and groupsThe following are some of the ethical perspectives of mass media research

i. Honesty
ii. Objectivity
iii. Public interest
iv. Follow guidelines in data collection
v. Inform the respondents about the research
vi. Seek permission
vii. Cite sources
viii. Trustworthiness
ix. Law abiding
x. Application of scientific methods
xi. Acknowledgement
xii. Time management

10.8. ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. Data on print media readership was essential to understand the nature, scope and significance of readership. Thus readership surveys were one of the important methods of mass media research. Readership surveys were very much required for the media as well as people. Readership surveys are done involving huge samples over different time frames and locations. The need and importance of readership surveys is to understand the priorities of readers, the reach is known in terms of circulation research and the difference in terms of locality, gender, age, income, educational levels etc the readership details are understood

2. Reader profile studies provide a demographic summary of the readers of a particular publication. The nature of the readers priorities are identified through reader profiles. Accordingly the strategies to improve readership are outlined for each segment of readers. Insights about editorial aims, target audiences and circulation goals are also got.

3. The circulation research measures it in terms of the overall characteristics of a particular market. Specifically, the circulation patterns in relation to location or demographic factors

4. The major radio and television stations in the less developed countries as well as in many industrialized countries are often funded out of taxation or license revenue. In this case they are expected to provide a public service, serving the interests of the whole of the tax or license-paying public. So here there arises a need for audience

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5. The ratings by Nielsen Media Research were divided as national and local. In this process Nielsen used an electronic measurement device called the Nielsen People's Meter. A people meter is an audience measurement tool used to measure the viewing habits of TV and cable audiences. The People Meter is a 'box', about the size of a paperback book. The box is hooked up to each television set and is accompanied by a remote control unit. The Portable People Meter (PPM), also known as Nielsen Meter, is a system developed by Arbitron (now Nielsen Audio) to measure how many people are exposed or listening to individual radio stations and television stations, including cable television.
6. Research reporting is the oral or written presentation of evidence and the findings of the research work carried out by the researcher outlining the objectives, research questions, method, theory, process of analysis, research findings and interpretation. Research report writing is the culmination of the research investigation. It is at the stage of reporting that the researcher assembles the findings of the study, draws conclusions and evaluates one's own findings.

10.9. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

10.9.1. Self assessment questions and exercises

vii. Identify the significance of non-parametric tests in communication studies

10.9.2. Short answer questions

xxviii. Explain the meaning of descriptive statistics
xxix. What is mean? Discuss
xxx. Explain measures of variability and its uses
xxxi. Discuss the role of chi-square test and its importance

10.9.3. Long answer questions

xiv. Elaborate on Parametric statistics and its types

xv. Discuss non-parametric statistics and its types

10.10. FURTHER READINGS AND REFERENCES

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Notes

Notes

UNIT XI

STRUCTURE

11. INTRODUCTION

The following chapter explains data processing, steps in data processing, data classification, its importance and types of classification. It also

describes computer processing operations, data presentation techniques and data interpretation approaches.

11.1. OBJECTIVES

After going through the course you will be able:

33. To understand data processing and the steps in data processing
34. To know the data presentation techniques
35. To understand about data interpretation

11.2. DATA PROCESSING

Data processing is the act of handling or manipulating data in some fashion. Regardless of the activities involved in it, processing tries to assign meaning to data. Thus, the ultimate goal of processing is to transform data into information. Data processing is the process through which facts and figures are collected, assigned meaning, communicated to others and retained for future use. Hence we can define data processing as a series of actions or operations that converts data into useful information. We use the term 'data processing system' to include the resources that are used to accomplish the processing of data**.**

11.3. DATA PROCESSING CYCLE

i. Input

The term input refers to the activities required to record data and to make it available for processing. The input can also include the steps necessary to check, verify and validate data contents.

ii. Processing

The term processing denotes the actual data manipulation techniques such as classifying, sorting, calculating, summarizing, comparing, etc. that convert data into information.

iii. Output

It is a communication function which transmits the information, generated after processing of data, to persons who need the information. Sometimes output also includes decoding activity which converts the electronically generated information into human-readable form.

iv. Storage

It involves the filing of data and information for future use.

The above mentioned four basic functions are performed in a logical sequence as shown in Fig. 2.3 in all data processing systems.

Notes

11.4.1 Steps in Data Processing

11.4.1.1 Data inspection

Data inspection is to check the collected data immediately in the field and to ensure if everything is got. In case of missing details the researcher can approach the respondent and get clarifications on the same. This can ensure that there are non-responses and can reduce errors to a larger extent. The second step in data inspection is to get a clear picture of the data in order to determine appropriate statistical analyses and necessary data modifications. Usually, one examines each variable singly (univariate analysis), especially for insufficient variation in responses, missing information, abnormalities, and other weaknesses that may be mitigated prior to the analysis.

11.4.1.2 Editing of data

Editing of data is a process of examining the collected raw data (specially in surveys) to detect errors and omissions and to correct these when possible. As a matter of fact, editing involves a careful scrutiny of the completed questionnaires and/or schedules. Editing is done to assure that the data are accurate, consistent with other facts gathered, uniformly entered, as completed as possible and have been well arranged to facilitate coding and tabulation. Editing is carried out both during and after the process of data collection, and much of it occurs simultaneously with coding

Guidelines for editing:

(a) Ensure the completeness of the data in each of the entry. In case the information could be collected again or verified it could be done

(b) The ineligible data sheets should be weeded out

(c) The instructions given to the investigators and respondents should coincide with the data collected

(d) Number the individual data sheets so that it is easy to refer again

Check your Progress –1

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Explain data processing

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_____

11.4.1.3 Coding of data

Coding refers to the process of assigning numerals or other symbols to answers so that responses can be put into a limited number of categories or classes. The classes should be appropriate to the research problem being studied. They must be exhaustive and must be mutually exclusive so that the answer can be placed in one and only one cell in a given category. Further, every class must be defined in terms of only one concept.

Notes

Coding is necessary for efficient analysis and through it the several replies may be reduced to a small number of classes which contain the critical information required for analysis. Coding decisions should usually be taken at the designing stage of the questionnaire. This makes it possible to pre-code the questionnaire choices and which in turn is helpful for computer tabulation as one can straight forward key punch from the original questionnaires. But in case of hand coding some standard method may be used. One such standard method is to code in the margin with a coloured pencil. The other method can be to transcribe the data from the questionnaire to a coding sheet. Whatever method is adopted, one should see that coding errors are altogether eliminated or reduced to the minimum level. Generally coding of closed ended questions are easy whereas coding of open-ended questions is a more complex task as the verbatim responses of the respondents are recorded by the interviewer.

Check your Progress –2

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. What do you mean by data coding? Explain

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__

11.4.1.4 Data Classification

It is the process of arranging data in groups or classes or the basis of common characteristics. Due to this process data having common characteristics are placed in one class and in this way the entire data get divided into number of groups or classes. Most research studies result in a large volume of raw data which must be reduced into homogeneous

groups if we are to get meaningful relationships. This fact necessitates classification of data which happens to be the process of arranging data in groups or classes on the basis of common characteristics. Data having a common characteristic are placed in one class and in this way the entire data get divided into a number of groups or classes. Classification condenses the data, facilitates comparisons, helps to study the relationships and facilitates in statistical treatment of data. The classification should be unambiguous and mutually exclusive and collectively exhaustive. Further, it should not only be flexible but also suitable for the purpose for which it is sought. Classification can either be according to attributes or numerical characteristics.

Notes

11.4.1.4.1 Importance of classification

i. Classification gives meaning to the data
ii. Identifies similarities and differences
iii. Significances can be identified
iv. Simplified and clear

11.4.1.4.2 Characteristics of a good classification

i. The classes are clear cut and there is no over-lapping. Every unit of the group must find a place in some class on the other and no unit can be placed in more than one class.

ii. The unit lying within a group must be homogeneous in respect of the fact that has been the basis of classification. All the unit of group must either posses or should be lacking in the quality that has been the basis of classification.

iii. The same basis should be applied throughout the classification.

11.4.1.4.3 Types of classification

ii. Classification according to attributes

To classify the data according to attributes we use descriptive characteristics like sex, caste, education, user of a product etc. The descriptive characters are the one which cannot be measured quantitatively. One can only talk in terms of its presence or absence.

11.4.1.4.4 Classification according to numerical characteristics

Where the direct quantitative measurement of data is possible, the classification can be done according to class-intervals. Characteristics like height, weight, income, production, consumption, etc. can be measured quantitatively and are capable of taking different size. In such eases, data are classified, each of them is called a class-interval. The limits within which a class-interval lies are known as classlimits. The difference between two class-limits is called as class magnitude. When the observations possesses numerical characteristics such as sales, profits, height, weight, income, marks, they are classified according to class intervals.

Check your Progress –3

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Describe the meaning of data classification

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Notes

11.4.1.5 Data Tabulation

Tabulation comprises sorting of the data into different categories and counting the number of cases that belong to each category. Tabulation is a process of presenting data in a compact form in such a way as to facilitate comparisons and show the involved relations. In other words, it is an arrangement of data in rows and columns. This also helps the researcher to perform statistical operation on the data to draw inferences. The simplest way to tabulate is to count the number of responses to one question. When a mass of data has been assembled, it becomes necessary for the researcher to arrange the same in some kind of concise and logical order. This procedure is referred to as tabulation. Thus, tabulation is the process of summarising raw data and displaying the same in compact form (i.e., in the form of statistical tables) for further analysis. In a broader sense, tabulation is an orderly arrangement of data in columns and rows.

Check your Progress –4

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain tabulation

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11.4.1.6 Data Analysis

The purpose of data analysis is to prepare data as a model where relationships between the variables can be studied. Analysis of data is made with reference to

the objectives of the study and research questions if any. It is designed to test the hypothesis. It also involves re-classification of variables, tabulation, explanation and casual inferences.

11.4.2 Computer Processing Operations

Notes

Research involves large amounts of data, which can be handled manually or by computers. Computers provide the best alternative for more than one reason. Besides its capacity to process large amounts of data, it also analyses data with the help of a number of statistical procedures. Computers carry out processing and analysis of data flawlessly and with a very high speed.

11.4.2.1 Data entry

A computer can accept data (input) from and supply processed data (output) to a wide range of input/output devices. These devices such as keyboards, display screens, and printers make human-machine communication possible.

11.4.2.2 Computer based analysis

The computer can provide several data analysis opportunities based on the nature of software. A detailed planning of the nature of analysis and the variables can make the task easier.

11.4. Data Presentation Techniques

Data presentation is very essential in research where volumes of data are dealt. Unless the data presentation is planned and executed systematically it would be chaos. Presentation of data should be such a way that it talks to the reader enabling an understanding in their minds. Tabular form is the most commonly used technique for data presentation. Tables permit the actual numbers to be seen most clearly, while graphs are superior for showing trends and changes in the data. Graphs also permit interpolation (the estimation of a value between two data points) or extrapolation (the estimation of a value beyond the experimentally measured quantities) to be made with ease. Another approach is to represent the data with an empirical equation that describes the graph. This method is most useful for exact interpolation or extrapolation. Some of the more important features of these methods are described below.

11.4.1. Tables

One variable is represented in columns and other in rows. Combination of row and column is known as cell. Data is stored in cells and can be

retrieved with the row and column notations. Tables should be numbered for ease of reference and to avoid confusion.

11.4.2. Diagram

Diagrams are both graphical as well as geometric in nature. The processed data is portrayed through different diagrams for visual presentations. A diagram can be defined as a figure generally consisting of lines, made to accompany and geometrical theorem, mathematical demonstration etc. A drawing, sketch or plan that outlines and explains the parts of something, is also a type of diagram. It is important to make use of diagrams based on their relative merit of visual presentation. The diagrams mostly refer to time or space or both the characteristics related to one location. Diagrams are constructed free handed and no strict rules or regulations are applied on the dimensional measurements of the object.

Notes

11.4.3. Graphs

A graph is used to replace a table of data in order to draw attention to significant features of the data that may not be readily apparent. Graphic representation is another way of analysing numerical data. A graph is a sort of chart through which statistical data are represented in the form of lines or curves drawn across the coordinated points plotted on its surface. It exhibits the relation between data, ideas, information and concepts in a diagram. It is easy to understand and it is one of the most important learning strategies. It always depends on the type of information in a particular domain. Different disciplines may use different format of graphs as per their needs. Yet, there are relatively few types of graph in common use. Graphs should be numbered and each graph should have a caption that briefly and clearly describes its content.

Characteristics of a graph

i. Easy to understand
ii. Understand trends and easy to compare between variables
iii. A graph saves time.
iv. Self explanatory
v. Mode, median, and mean values of the data can be located
vi. It is useful in forecasting, interpolation, and extrapolation of data.

Essential rules for graphical representation of data

i. Have a suitable title
ii. Measurement unit
iii. Appropriate Scale
iv. Index
v. Data sources
vi. Simple

vii. Clear

viii. Not too many things in one diagram

Graphical representation helps to quantify, sort and present data in a method that is understandable to a large variety of audiences. Several types of mediums are used for expressing graphics, including plots, charts and diagrams.

There are different types of graphical representation as follows,

11.4.3.1. Bar graph

The bar graph is one of the most common methods of presenting data in a visual form. Its main purpose is to display quantities in the form of bars. A bar chart consists of a set of bars whose heights are proportional to the frequencies that they represent. It may be drawn horizontally or vertically. There are different types of bar charts, depending on the number of variables and the type of information to be displayed. The length of bar is kept proportional to the size of production or the volume of change. Thus bar diagram is used to represent many elements at one point of time and one element across the time. The compound bar diagrams are used to represent the subclasses of an element.

11.4.3.2. Line graph

Linear graphs are used to display the continuous data and it is useful for predicting the future events over time. Line graphs can compare multiple continuous data-sets easily. Interim data can be inferred from graph line. Essentially a scatter plot in which the points are joined up. It is obviously only appropriate to join the data points where the sequence of points has some particular meaning. One common situation where line plots are often useful is where the x-axis represents some sequential variable like time, or distance along a transect (right, and below). In both cases there is an explicit (spatial or temporal) relationship between adjacent points along the x-axis, and the inclusion of the line makes the pattern of this sequence much clearer.

11.4.3.3. Scatter graph

Scatter diagrams, also known as scatter plots, are used to investigate the relationship between two variables. If it is suspected that a causal (cause-effect) relationship exists between two variables, inspection of a scatter plot may well provide us with an answer. A scatter diagram or a dot chart enables us to find the nature of the relationship between the variables. If the plotted points are scattered a lot, then the relationship between the two variables is lesser. One variable is plotted on the horizontal axis and the other is plotted on the vertical axis. The pattern of their intersecting points can graphically show relationship patterns. Commonly a scatter diagram is used to prove or disprove cause-and-effect relationships.

11.4.3.4. Pie charts

Pie diagrams are familiar to everyone, much beloved of business graphics packages and the media, but of relatively limited use for scientific figures. A type of graph is which a circle is divided into sectors that each represents a proportion of whole. Each sector shows the relative size of each value. A pie chart displays data, information and statistics in an easy to read „pie slice" format with varying slice sizes telling how much of one data element exists. Pie chart is also known as circle graph. The bigger the slice, the more of that particular data was gathered. The main use of a pie chart is to show comparisons. Data that presented as a pie diagram can always be presented as a histogram or bar chart which is both easier to make quantitative judgments from and, in the latter case, can also include error bars. The pie chart follows the principle that the angle of each of its sectors should be proportional to the frequency of the class that it represents. It can be an effective communication tool for even an uninformed audience, because it presents data visually as a fractional part of a whole. Users see a data comparison at a glance, enabling them to make an immediate analysis or to understand information quickly. This type of data visualization chart removes the need for readers to examine or measure underlying numbers themselves. One can also manipulate pieces of data in the pie circle to emphasize points which are needed. A Pie chart becomes less effective if it uses too many pieces of data

Notes

11.4.3.5. Histogram

Out of several methods of presenting a frequency distribution graphically, the histogram is the most popular and widely used in practice. When we are unsure what to do with a large set of measurements presented in a table, we can use a Histogram to organize and display the data in a more user-friendly format. A Histogram will make it easy to see where the majority of values fall in a measurement scale, and how much variation exist. A histogram is a set of vertical bars whose areas are proportional to the frequencies of the classes that they represent.

While constructing a histogram, the variable is always taken on the x-axis while the frequencies are on the y-axis. Each class is then represented by a distance on the scale that is proportional to its class interval. The distance for each rectangle on the x-axis shall remain the same in the case that the class intervals are uniform throughout the distribution. If the classes have different class intervals, they will obviously vary accordingly on the x-axis. The y-axis represents the frequencies of each class which constitute the height of the rectangle.

A histogram is mainly used to display data for continuous variables but can also be adjusted so as to present discrete data by making an appropriate continuity correction. Moreover, it can be quite misleading if the distribution has unequal class intervals.

11.4.3.6. Use of graphics in data presentation

Notes

Use of computer graphics to create images which aid in the understanding of complex often massive representation of data is known as visualization. Graphics are visual elements often used to point readers and viewers to particular information. They are also used to supplement text in an effort to aid readers in their understanding of a particular concept or make the concept more clear or interesting. For the preparation of reports or summarising the financial, statistical, mathematical, scientific, economic data for research reports, managerial reports, moreover creation of bar graphs, pie charts, time chart, can be done using the tools present in computer graphics. Visual Data Mining is the process of discovering implicit but useful knowledge from large data sets using visualization techniques. Computer graphics is responsible for displaying art and image data effectively and meaningfully to the consumer. It is also used for processing image data received from the physical world.

Check your Progress –5

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain the importance of data presentation

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11.5. INTERPRETATION OF DATA

Data Interpretation is the process of making sense out of a collection of data that has been processed. This collection may be present in various forms like bar graphs, line charts and tabular forms and other similar forms and hence needs an interpretation of some kind. Interpretation of data helps in finding meaning to the data and analyzing at the background of several other variables even if they are not related. This involves asking a series of questions about the data that relate to the study objectives. The answers to objectives and research questions are organized as findings and conclusions. Based on these, you may develop recommendations for action or further study. While interpreting the data,

it is suggested that the researchers should summarise the findings in such a way that it would not only help the group under study but also provide an opportunity for the other researchers to conduct the related research in a better and more efficient way. It is also taken care that the interpretations are summarised in such a way that the findings can be justified later on in the process of reporting. The findings should also have a proper support of the relevant literature review.

11.5.1. Different approaches in data interpretation

The processed data can be interpreted in the following approaches, specifically to understand the variables in terms of,

i. Nature of relationship between different variables
ii. Influencing factors
iii. Differences among variables and their components
iv. High/Low
v. Intensity
vi. Strength of relationships
vii. Relation with previous research/theories
viii. Linkages
ix. The positive and negative effects due to the results given by the data
x. The influence of the results on related aspects beyond the study.

11.6. ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. Data processing is the process through which facts and figures are collected, assigned meaning, communicated to others and retained for future use. Hence we can define data processing as a series of actions or operations that converts data into useful information. We use the term 'data processing system' to include the resources that are used to accomplish the processing of data**.**
2. Coding is necessary for efficient analysis and through it the several replies may be reduced to a small number of classes which contain the critical information required for analysis. Coding decisions should usually be taken at the designing stage of the questionnaire. This makes it possible to pre-code the questionnaire choices and which in turn is helpful for computer tabulation as one can straight forward key punch from the original questionnaires.
3. Data classification ensures that the classes are clear cut and there is no over-lapping. Every unit of the group must find a

place in some class on the other and no unit can be placed in more than one class. The unit lying within a group must be homogeneous in respect of the fact that has been the basis of classification. All the unit of group must either posses or should be lacking in the quality that has been the basis of classification. The same basis should be applied throughout the classification.

4. Tabulation comprises sorting of the data into different categories and counting the number of cases that belong to each category. Tabulation is a process of presenting data in a compact form in such a way as to facilitate comparisons and show the involved relations. In other words, it is an arrangement of data in rows and columns.
5. Data presentation is very essential in research where volumes of data are dealt. Unless the data presentation is planned and executed systematically it would be chaos. Presentation of data should be such a way that it talks to the reader enabling an understanding in their minds. Tabular form is the most commonly used technique for data presentation

11.7. SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

11.7.1. Self assessment questions and exercises

viii. Critically analyse the role of graphs and its use in news media channels

11.7.2. Short answer questions

xxxii. Describe the steps involved in data processing

xxxiii. Explain the types of classification

xxxiv. Discuss the general criteria for good tabulation

xxxv. Explain diagrammatic data presentation

11.7.3. Long answer questions

xvi. Describe the different ways of data presentation

xvii. Elaborate on the various approaches in data presentation

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Notes

UNIT XII

STRUCTURE

Notes

12. 1 INTRODUCTION

This unit enables you to understand the basic meaning of a research proposal, its components and the ways of writing a research proposal. Further, it differentiates the components between a research proposal and a research report. The ways of writing a research report, its structure and the essential aspects required for a good research report are outlined in this unit.

Notes

12.2 OBJECTIVES

After going through the course you will be able:

1. To understand the meaning of a research proposal
2. To know about the components of a research proposal
3. To know about the ways of writing a research report
4. To understand the structure of a research report
5. To know the essential aspects required for a good research report

12.3 WRITING A RESEARCH PROPOSAL

A research proposal is a concise and coherent summary of your proposed research. It is used to establish whether there is expertise knowledge in the proposed area of research. The goal of a research proposal is to present and justify the need to study a research problem and to present the practical ways in which the proposed study should be conducted. a proposal describes detailed methodology for conducting the research consistent with requirements of the professional or academic field and a statement on anticipated outcomes and/or benefits derived from the study's completion.

12.4 PURPOSE OF A RESEARCH PROPOSAL

A research proposal serves several purposes as discussed below,

i. Basic requirement to apply for a research degree/research funding
ii. Gives an understanding on the knowledge and clarity of the researcher in the given area of research

iii. The information on prior researches done in similar areas
iv. An understanding whether the proposed research is feasible or not
v. An estimation of human and material resources required is estimated
vi. An understanding of the researcher on the identified research problem, methods and approaches is got
vii. Expected outcomes throws more light on the use of the research for intended reasons

Notes

12.5 COMPONENTS FOR A RESEARCH PROPOSAL

The basic components in a research proposal are as follows,

12.5.1 Title

The title should be brief; it should be accurate, descriptive and comprehensive, clearly indicating your research area. An effective title not only pricks the reader's interest, but also predisposes him/her favorably towards the proposal.

12.5.2 Abstract

It is a brief summary of approximately 300 words. It should include the research question, the rationale for the study, the hypothesis (if any), the method and the main findings. Descriptions of the method may include the design, procedures, the sample and any instruments that will be used.

12.5.3 Proposed research problem

Give a short and precise overview about the current state of research that is immediately connected with your own research project. The proposal should contain a clear and logical discussion of the theoretical scope of the framework of ideas that will be used to back the research. The proposal needs to show that you are fully conversant with the ideas you are dealing with and that you grasp their methodological implications.

12.5.4 Research objectives and questions

Give a concise and clear outline of what you intend to find out in your project and what objectives you want to achieve. Research questions may take the form of a hypothesis to be tested against a specific set of criteria or a more open-ended inquiry. Together with the general overview this section should establish the relevance and value of the proposed research in the context of current academic thinking. Your proposal needs to show why the intended research is important and to justify the reason for doing the research.

12.5.5 Literature reviews

Name the most important contributions of other scientists Your research review should indicate an open problem which then will be the motive for your project

12.5.6 Proposed research methods

This is a very important part of your research outline and should receive a lot of attention. It may well be the longest section of your proposal. Give detailed information about how you intend to answer your research questions. Anyone who reads your proposal will want to know the sources and quality of evidence you will consult, the analytical technique you will employ, and the timetable you will follow. Depending on the discipline and the topic, suitable research strategies should be defined. You will need to describe for example the intended methods of data gathering, the controls you will introduce, the statistical methods to be used, the type of literature or documentary analysis to be followed and so on. Ethical issues as well as difficulties in gathering data and other material could also be discussed in this section.

Notes

12.5.7 Tentative time frame

Give information about your estimated timetable (if possible in table form), indicating the sequence of research phases and the time that you will probably need for each phase. Take into account that at this stage, it can only be estimated, but make clear that you have an idea about the time span that will be needed for each step.

12.5.8 Expected budget

When the researcher prepares a research budget, he/she should predict and cost all aspects of the research and then add an additional allowance for unpredictable disasters, delays and rising costs. All items in the budget should be justified.

12.5.9 Expected outcomes of the research

12.5.10 Expected uses of the research

12.5.11 Bibliography

Check your Progress –1

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Describe the purpose of a research report

_____
_
_____

12.6 Writing a research report

Report writing is the final step in a research process which communicates the entire process and results of a research. Research report is a research

document that contains basic aspects of the research project.If the research is conducted effectively and the report does not reflect the same than the entire process of research loses its importance. Thus the final stage is the deciding factor of the entire research process. Report writing is one such activity where the researcher has to establish effective communication with the readers. This is not an easy task as the communication has to be done keeping in mind the fact that the report is not meant only for a selected group of readers. It requires a good deal of knowledge, imagination, experience, and expertise.

12.6.1 Nature of a research report

Research report is a medium to communicate research work with relevant people. A research report is the culmination of the research process. It is a comprehensive presentation of a researcher's activities and the results of the study. A research report could be an individual project report such as a master's degree dissertation or a thesis for doctoral degree. It is also a good source of preservation of research work for the future reference.

12.6.2 Purpose of a research report

Understand the purpose of the research report. Research is under taken for several purposes and based on its need the reporting has be designed. The several purpose of research report are as follows,

i. Academic
ii. Organizational
iii. Business
iv. Policy building
v. Test product/concept/scheme/policy etc
vi. Future reference

12.6.3 Characteristics of a research report

i. Follow prescribed standards

Research reports cannot be written as per the will of the researcher. The purpose and institution for which the research is done decide the structure and standards to be followed in writing a research report. For example when research reports are written for academic reasons for a degree, then the educational institution decides upon the norms to be adhered in writing a research report. If the research is done for some other institutions/reasons then as per the required norms the research reports are written.

ii. Communicative

The research reports should be communicative in such a manner that it should create an understanding in the minds of the readers**.**

iii. Definition of terms

Usually research is topic specific and done on a particular area. So terms/ concepts/theories/methods/variables relating to the specific research should be explained how it relates with the research one is doing.

iv. Follow research ethics

It is important that research ethics is followed not only in conducting the research but also in reporting. The exact results of the research are to be reported. Exaggerations or false information in reports can have bigger consequences. Ethics in terms of accuracy, honesty, adhering to the norms or standards etc is very much essential. The report should reflect the research ethics so that the credibility of the report is high.

v. Understand target population of the report

The target population or people who the research report is intended to is to be identified at the very beginning stage. Based on the target people the reporting style and language should be adopted.

vi. Grammatically correct

Research report is a higher order academic deliberation which is a result of systematic and structured inquiry into an area. Thus, it is the duty of the researcher to ensure that the language used in the report is grammatically correct.

vii. Discuss limitations

The limitations of the study should be discussed clearly so that focus is clear. This can enable the people using the study to understand if it fit into their search criteria.

viii. Acknowledgement / Credit sources

In this technological era access to varied sources of information is very easy. So the report should strictly be free from plagiarism. In case crucial information or concept or theory is taken due acknowledgements or citations are must.

12.6.4 Stages of writing a research report

In general, there are six stages in writing a report. They are:

- Systematic analysis of the subject.
- Drawing the outline of the report.
- Preparation of the rough draft.
- Enrichment of the final draft.
- Preparation of the final bibliography.
- Finalising the complete draft.

Check your Progress –2

Note: a. Write your answer in the space given below
b. Compare your answer with those given at the end of the unit

1. Explain the meaning of a research report
2. Why is acknowledgement / citations important?

_____

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Notes

12.7 STRUCTURE OF A RESEARCH REPORT

Research reports are structured into different sections in a logical sequence. The uses of sections make it easy for referring the required part of the report.

12.7.1 Title

The title needs to concisely state the topic of the report. It needs to be informative and descriptive so that someone just reading the title will understand the main issue of your report. You don't need to include excessive detail in your title but avoid being vague and too general.

12.7.2 Abstract

Abstract is the summary of the entire research. "Structured abstract" has become the standard for research reports which contain introduction, objectives, methods, results, conclusions and keywords of the study. The abstract should answer the five W's and one H of a research – namely, What, Why, Where, When, Who, and How.

i. What is the research about?
ii. What are the methods used?
iii. What are the objectives?
iv. What are the major findings of the research?
v. Why is the research done?
vi. Where was it done?
vii. When was it done?
viii. Who are the respondents/beneficiaries/etc?
ix. How was the research carried out?
x. How will the results benefit the intended?

12.7.3 Introduction

The introduction should explain the statement of the problem of the research and set the context of the research. The "why did you do the study"; setting the scene or laying the foundation or background for the

paper.It should outline the research problems, the need of the study, the scope, justification and aims so as to enable the reader to understand the further process of the research.

12.7.4 Literature survey

This is a survey of publications (books, journals, authoritative websites, sometimes conference papers) reporting work that has already been done on the topic of your report. It should only include studies that have direct relevance to your research. A literature survey should be written like an essay in a discursive style, with an introduction, main discussion grouped in themes and a conclusion. Introduce your review by explaining how you went about finding your materials, and any clear trends in research that have emerged. Group your texts in themes. It may be useful to do a chronological format where you discuss from the earliest to the latest research, placing your research appropriately in the chronology. Alternately, you could write in a thematic way, outlining the various themes that you discovered in the research regarding the topic. Write about each theme as a separate section, giving a critical summary of each piece of work and showing its relevance to your research. Conclude with how the review has informed your research (things you'll be building on, gaps you'll be filling etc).

12.7.5 Research methods used

The methods section describes the relevant research approach used to collect data to meet the objectives of the research. It is usually written in a 'passive' voice rather than an 'active' voice. Explain how the research was conducted, why the method was found suitable, the steps carried out in this method, the changes, the developments, etc. more specifically this section includes the following,

i. Context of the study
ii. Study design
iii. Population
iv. Sampling details
v. Characteristics of the sample
vi. Variables used in the research
vii. Elaborate on the method
viii. Hypothesis to be tested
ix. Data collection instrument, its structure and components

12.7.6 Data Analysis

Use the appropriate data analysis based on the type and nature of the data. Relevant statistical tests help in studying the variables and its relationship with other variables. Clearly label and number any diagrams, charts, and graphs. Ensure that they are relevant to the research.

Notes

12.7.7 Results

Based on the data analysis the results are derived. Such findings are evidence based findings. They are to be placed in a logical manner. Findings should address the objectives of the research. When deciding on a graphical format to use, think about how the data will look to the reader. Label your graphs and tables clearly. Give each figure a title and describe in words what the figure demonstrates. Writing in this section should be clear, factual and informative. This is the main body of the report, presented in clear and non-technical terms with the liberal use of all sorts of illustrations such as charts, diagrams and the like.

12.7.8 Discussion

This is probably the longest section and worth spending time on. It brings everything together, showing how your findings respond to the brief you explained in your introduction and the previous research you surveyed in your literature survey. It should be written in a discursive style, meaning you need to discuss not only what your findings show but why they show this, using evidence from previous research to back up your explanations.

12.7.9 Conclusion

Conclusion is basically summing up of the research. The conclusion may include recommendations and suggestions for further research.
They may be addressed at different levels as required for the research,

i. Local, state, national and international levels
ii. Individuals, families, society, governments
iii. Different stake holders

12.7.10 References

List here full details for any works you have referred to in the report, including books, journals, websites and other materials. These list the referenced publications sequentially in the order they are referred to in your research report. This can be useful as it enables you to include comments and footnotes as well as references.

12.7.11 Appendices

The appendices hold any additional information that may help the reader but is not essential to the report's main findings: anything that 'adds value'. That might include (for instance) interview questions, raw data or a glossary of terms used. Label all appendices and refer to them where appropriate in the main text (e.g. 'See Appendix A for an example questionnaire').

Check your Progress –3

Note: a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Discuss components of an abstract
2. What does a reference section contain? Explain

_____

_____

Notes

12.8 Essentials of a good research report

i. Simplify. Keep to the essentials.
ii. Justify. Make no statement that is not based on facts and data.
iii. Quantify when you have the data to do so. Avoid 'large', 'small'; instead, say '50%', 'one in three'.
iv. Be precise and specific in your phrasing of findings.
v. Inform, not impress. Avoid exaggeration.
vi. Use short sentences.
vii. Use adverbs and adjectives sparingly.
viii. Be consistent in the use of tenses (past or present tense). Avoid the passive voice, if possible, as it creates vagueness (e.g., 'patients were interviewed' leaves uncertainty as to who interviewed them) and repeated use makes dull reading.
ix. Aim to be logical and systematic
x. Make a good initial impression
xi. Encourage the readers, and give them an idea of how the material has been organised so the reader can make a quick determination of what he will read first.
xii. An attractive layout for the title page and a clear table of contents.
xiii. Consistency in margins and spacing.
xiv. Consistency in headings and subheadings, e.g,.: font size 16 or 18 bold, for headings of
chapters; size 14 bold for headings of major sections; size 12 bold, for headings of subsections, etc.
xv. Good quality printing and photocopying. Correct drafts carefully with spell check as well as critical reading for clarity by other team-members, your facilitator and, if possible, outsiders.
xvi. Numbering of figures and tables, provision of clear titles for tables, and clear headings
for columns and rows, etc.
xvii. Accuracy and consistency in quotations and references.

12.9 ANSWERS FOR CHECK YOUR PROGRESS QUESTIONS

1. A research proposal serves several purposes, (1) basic requirement to apply for a research degree/research funding, (2) gives an understanding on the knowledge and clarity of the researcher in the given area of research (3) the information on prior researches done in similar areas, (4) an understanding whether the proposed research is feasible or not, (5) an estimation of human and material resources required is estimated, (6) an understanding of the researcher on the identified research problem, methods and approaches is got and (7) expected outcomes throws more light on the use of the research for intended reasons

2. Research report is a medium to communicate research work with relevant people. A research report is the culmination of the research process. It is a comprehensive presentation of a researcher's activities and the results of the study. A research report could be an individual project report such as a master's degree dissertation or a thesis for doctoral degree. It is also a good source of preservation of research work for the future reference.
3. In this technological era access to varied sources of information is very easy. So the report should strictly be free from plagiarism. In case crucial information or concept or theory is taken due acknowledgements or citations are must
4. Abstract is the summary of the entire research. "Structured abstract" has become the standard for research reports which contain introduction, objectives, methods, results, conclusions and keywords of the study. The abstract should answer the five W's and one H of a research – namely, What, Why, Where, When, Who, and How. It should be able to answer questions like, what is the research about?, what are the methods used?, what are the objectives?, what are the major findings of the research?, why is the research done? , where was it done?, when was it done?, who are the respondents/beneficiaries/etc?, How was the research carried out? how will the results benefit the intended?
5. List here full details for any works you have referred to in the report, including books, journals, websites and other materials. These list the referenced publications sequentially in the order they are referred to in your research report. This can be useful as it enables you to include comments and footnotes as well as references.

12.10 SELF ASSESSMENT QUESTIONS AND EXERCISES, SHORT ANSWER QUESTIONS AND LONG ANSWER QUESTIONS

12.10.1 Self assessment questions and exercises

ix. Analyze the different structure of research reports of government bodies and their components

12.10.2 Short answer questions

xxxvi. Explain the need for writing a research proposal
xxxvii. Discuss the components of a research proposal
xxxviii. Explain the meaning of expected outcomes
xxxix. What is the purpose of a research proposal?
xl. Explain the different stages in writing a research report

Notes

12.10.3 Long answer questions

xviii. Elaborate on the different components of a research proposal
xix. Explain the characteristics of a research report
xx. Describe the structure of a research report

12.11 FURTHER READINGS AND REFERENCES

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xxxvi. Levin R.I., Rubin, D.S. (2001). Statistics for Management. Prentice Hall of India Private Limited : New Delhi.

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Notes