

SCHOOL OF SCIENCE AND HUMANITIES

DEPARTMENT OF VISUAL COMMUNICATION

UNIT – I – Communication Research Methodology – SVCA5301

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I - MEDIA RESEARCH

INTRODUCTION

The term mass media refers to any form of communication that simultaneously reaches a large number of people through different channel of communication. Every area of mass media uses research and anyone works in media involve in research. Example. Which advertisement reader views most? Who host new Television show? Which song should radio play? Important thing for a researcher is to understand correct approach to follow to ensure best results.

We conduct research everyday hundreds of research projects like which dress to wear? What to eat to keep working till lunch? We all make many attempts to reach decision about these events. We need to learn the best way to collect inform and analyze it, though we are everyday researchers.

Usually kind of things researcher investigate in mass media are: a radio station adopted format, a radio station's morning show listeners, The advertising effective on TV, radio, the Internet, and in all types of print. The reason for newspaper subscriptions declining, the elements of a successful magazine cover page.

All research, whether formal or informal, begins with a basic question or proposition about a specific phenomenon. For example, why do viewers select one television program over another?

THE METHODS OF KNOWING

There are several possible approaches in answering research questions.

A user of the **method of tenacity** follows the logic that something is true because it has always been true. Media exploit the youth is a general concept.

In the method of **intuition**, or the a priori approach, a person assumes that something is true because it is "self-evident" or "stands to reason." Some creative people in advertising agencies resist efforts to test their advertising methods because they believe they know what will attract customers.

THE DEVELOPMENT OF MASS MEDIA RESEARCH

Mass media research has evolved in definable steps and similar patterns followed in each medium's need for research.

There are four phases in media research are as follows:



RESEARCH PHASES IN MASS MEDIA

In Phase 1 of the research, the research subject is medium itself, there is an interest in the medium.

- 1. What is it?
- 2. How does it work?
- 3. What technology does it involve?
- 4. Who will have access to the new medium?
- 5. How much will it cost?

In Phase 2, research begins once the medium is developed. In this phase, specific information is accumulated about the uses and the users of the medium.

- 1. How do people use the medium in real life?
- 2. What is the reason for the usage?
- 3. What purpose they used media?
- 4. What gratifications does the new medium provide?
- 5. What other types of information and entertainment does the new medium replace?

Phase 3 includes investigations of the social, psychological, and physical effects of the medium. 1. How much time do people spend with the medium?

- 2. Does it change people's perspectives about anything?
- 3. What do the users of the medium want and expect to hear or see?
- 4. Are there any harmful effects related to using the medium?

In Phase 4, research is conducted to determine how the medium can be improved, what is the impact of it either in its use or through technological developments.

- 1. Can the medium provide information or entertainment to more types of people?
- 2. How can new technology be used to perfect or enhance the sight and/or sound of the medium?
- 3. Is there a way to change the content to be more valuable or entertaining?

It is not intended to suggest that the research phases are linear- that when a phase is over, it is never considered again. In reality, once a medium is developed and established, research may be conducted simultaneously in all four phases.

The Growth Of Mass Media Research

Research is a never-ending process. At least four major events or social forces have encouraged the growth of mass media research.

1. **The first was World War I,** which prompted a need to understand the nature of propaganda. Researchers working from a stimulus-response point of view uncovered effects of media on people. Media at that time were thought to exert a very powerful influence over their audiences, what media could and could not do.

Hypodermic Needle model of Communication

Mass communicators only need 'shoot' messages at an audience and those messages that produce preplanned universal effects. Belief was people behave in similar way when encounter media messages.Now we know that individual differences among people rule their view.

2. **Realization by Advertisers,** A second contributor to the development of mass media research was in the 1950s and 1960s that research data are useful in developing ways to persuade potential customers to buy products and services. Advertisers studied message effectives, audience demography size, and placement of ad to achieve highest level of exposure.

3. A third contributing social force was the **increasing interest of citizens** in the effects of the media on the public, especially on children such as the violence or sexual content shown in the television programmes or commercial during children programme. Researchers include pro-social and antisocial effect of television.

Increased **competition among the media for advertising dollars** was a fourth contributor to the growth of research. Most media managers use long-range plans, an increasing dependency on data to support decision-making process.Mass media now focus on audience fragmentation which means masses of people are divided into small groups. Researchers need information about these groups. Image studies, trend studies previously conducted by marketing psychology, sociology disciplines. Today mass media researchers dominate the field, now cross-disciplinary studies with sociology, psychology and political scientists.

Modern mass media research includes psychological and sociological investigation such as physio, emotional responses to television programmes, commercial, and music by radio. Mass media research once eccentric now a legitimate and esteemed field.

Communication Research in India

Journalism education in India, for all practical purposes, is as old as independent India. Before Independence, the press with its obsession with political issues had little or no time to conduct even readership surveys. Circulation figures were the only source of information as to the readership. The departure of the British from India provided the press both challenges and opportunities. Industrialists took over the ownership of major newspaper groups and as a result journalism acquired the overtones of business profit and power were the twin motives behind these acquisitions. Not much importance was attached to readership research. On the other hand, the government owned All India Radio already had the listener survey or audience research unit that later paved the way for more expansive research into the field of broadcasting. Professional research organizations came into the scene only in 1970s. the ABC (Audit Bureau of Circulation) was perhaps the only source of circulation data considered authentic. Historically, academic research in journalism per se was not a phenomenon till 1970s. some research efforts in journalism could be seen in other social sciences, which were basically inter-disciplinary in nature, either in history or political science or English literature. In fact, many of the early teachers who took interest in teaching journalism were from the background of English literature.Unlike the West which had a flourishing media market linked to the industrial revolution, India started struggling to imitate the developing countries, attempting devise a middle road between two competing ideologies of capitalism and communism.

In the West, especially in the United States, the university-industry linkage is significant in the media sector professionals who have high academic qualification join universities and help develop research programmes. They also secure projects to produce high quality research output while the newsroom-classroom hiatus has narrowed down with the graduates in journalism hooding media houses and media houses in turn opting for campus recruitment, the two-way traffic is not happening professionals, except a few, do not have interest in academic programmes including research. For some, research seems to be a collection of information. (The National Knowledge Commission) has bemoaned the quality of Ph.D.s churned out by Indian universities and suggested the production of Ph.D.s of more quality and quantity. When it come to quantitative techniques and their application, it is merely duplication or multiplication of what has already been done. Even qualitative research is far from satisfactory. There exists an urgent need to train a dedicated band of researchers in universities.

In this context, we should also remember the industry investment in its own R and D as well as in academic institutions for research is abysmally low compared even to china. On the other, the media revolution in the form of television channel boom has prompted rating research, each channel vying for a higher TRP for its programmes than others. Obviously, several Indian and foreign players have entered the field. Among Indian organisations mention must be made of ORG (Operational Research Group), MARG, IMRB. A.C Nielsen has emerged a key player of late. However, most research organisations follow the technique of market research, different from media or communication research.

Intermedia competition should encourage research in communication/ mass communication as it happened in the West.Unlike many developed countries, the collection of primary data is not an easy task in India Social and other factors have made collection of date difficult. Most academic researchers depend upon secondary sources of information for their output. The logistics, accessibility and finance have been the main areas of deficiency for communication researchers in India. In reality, there exists no research tradition or culture in the field of mass communication in India. The private – public participation (PPP) model has not taken off mainly due to the disinterestedness on both sides.

The public institutions have framed such rigid rules that even the most enterprising academics back out when it comes to consultancy services including research. On their part, private media houses have very little faith in the quality of research work carried out in academic institution.

For these reasons, institutions like the ICSSR should conduct workshops regularly on research methods to update and improve the knowledge level of young academicians and researchers.

Advertising as persuasive communication, is a fertile area of research. The story is similar and it is left to the researchers in the management sector to take care of it. Neither copy research nor the design aspects have been researched upon. Advertising agencies do have research departments, but for other purposes, public Relations firms have not evinced much interest in research activities for reasons best known to them only Likewise the new media sector calls for meaningful research efforts. Other Asian countries like China, Korea, Malaysia, Singapore and Japan have made enormous strides in communication research, keeping India for behind. The urgent need of the hour is to introduce professionalism in academic research in the field of communication. What is needed is an expansive development of Indian contribution to methods of investigation.

Evolution of New Media and Social Media

Generally, New Media is referred to 'digital media' that encompasses a series of platforms including blogs, micro-blogging, Social media, video-sharing, online reporting and RSS feeds. In other words, New Media is a digital mass peer-to-peer communication forum that involves the usage of mobile devices such as cell phones, smart phones, laptops and computers.

Further more, New Media is not restricted to digital 'online' activity but encompasses a large array of activity offline, e.g. film making or live streaming of any event may not be digital activity but their reliance on digital technologies and platforms to create and distribute content to wider audience put themselves within the scope of New Media.

In New Media era, Mainstream Media including newspapers, magazines and television, traditionally held by the political and cultural elite, can no longer monopolize and control the communication and information. The big media corporations still exist but their dominance is no longer as assured as it was. Furthermore, New Media encourages mass engagement and creates unprecedented opportunities for expression and interaction which allows the members of society, especially among activists, artists, and other political and cultural groups around the world to disagree and challenge the dominant narratives set by mainstream or culture (Lievrouw, L. 2011: 1-2).

According to Habermas, J. (1989), the advent of New media provides new form of public sphere in which the provision of information, almost unlimited access to different voices and feedback is possible as contrast to traditional mass media where the information flow is predominantly vertical, thus limited access and discouraged participation. With the new inventions and advancements in New media devices and platforms, access to information and exchanges of ideas enhanced so did the political participation, civil society and democratic activism which introduced new dimension to the social movements (Cammaerts, B. and Carpentier, N. eds, 2007:219).

However, the benefits of New Media are limited to those societies where the internet and telecommunication technology have advanced. Most of the underdeveloped societies are yet to be benefited for the new public sphere provided by New media. Beside that Balding, T (2007) while addressing conference organized by the WRFC and UNESCO warned that 'the internet has opened up extraordinary new possibilities for the widespread, damaging, and sometimes dangerous manipulation of information which is difficult if not impossible to stem.' Therefore, despite many positives of new

media, there are some gray aspects of new media that require further research to examine the magnitude of danger they may posed.



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II - RESEARCH PROCEDURE

Research Procedure :

The scientific evaluation of any problem must follow a sequence of steps to increase the chances of producing relevant data. Researchers who do not follow a prescribed set of steps do not subscribe to the scientific method of inquiry and simply increase the amount of error present in the study. This chapter describes the process of scientific research, from identifying and developing a topic for investigation to replication of results. The first section briefly introduces the steps in the development of a research topic.

Objective, rigorous observation and analysis are characteristic of the scientific method. To meet this goal, researchers must follow the prescribed steps shown in Figure 2.1. This research model is appropriate to all areas of scientific research.



Steps in the development of a research project

Selecting a Research Topic

Selecting a research topic is not a concern for all researchers; in fact, only a few investigators in communications fields are fortunate enough to be able to choose and concentrate on a research area interesting to them. Many come to be identified with studies of specific types, such as focus group methodology, magazine advertising, or communications and the law. These researchers investigate small pieces of a puzzle in communications to obtain a broad picture of their research area.

In the private sector, researchers generally do not have the flexibility of selecting topics or questions to investigate. Instead, they conduct studies to answer questions raised by management or they address the problems/questions for which they are hired, as is the case with full-service research companies.

Although some private sector researchers are limited in the amount of input they can contribute to topic selection, they usually are given total control over how the question should be answered; that is, what research methodology should be used. The goal of private sector researchers is to develop a method that is fast, inexpensive, reliable, and valid. If all these criteria are met, the researcher has performed a valuable task. However, selecting a topic is a concern for many beginning researchers, especially those writing term papers, theses, and dissertations. The problem knows where to start. Fortunately, there are virtually unlimited sources available in searching for a research topic; academic journals, periodicals, and newsweeklies, and everyday encounters can provide a wealth of ideas. Although academic journals tend to publish research that is 12 to 24 months old (due to review procedures and backlog of articles)

Sources of Research Topics

Magazines and Periodicals

Many educators feel that publications other than professional journals contain only "watered-down" articles written for the general public. To some extent this is true, but these articles tend to eliminate the tedious technical jargon and are often good sources for problems and hypotheses. In addition, more and more articles written by highly trained professionals are appearing in weekly and monthly publications. These sources often provide interesting perspectives on complex problems and many times raise interesting questions that researchers can pursue.

Research Summaries

Professional research organizations irregularly publish summaries that provide a close look at the major areas of research in various fields. These summaries are often useful for obtaining information about research topics, since they survey a wide variety of studies.

Everyday Situations

Each day we are confronted with various types of communication via broadcasting and print, interpersonal communication, public relations campaigns, and so forth. These confrontations can be excellent sources of research topics for the researchers who take an active role in analyzing them. What types of messages are produced? Why are they produced in a specific way? What effects are expected from the various types of communication? These and other questions may help develop a research idea. Significant studies based on questions arising from everyday encounters with the media and other forms of mass communication have covered investigations of television violence, layout of newspaper advertisements, advisory warnings on television programs, and approaches to public relations campaigns.

Archive Data

Data archives, such as the Inter-University Consortium for Political Research (ICPR) at the University of Michigan, the Simmons Target Group Index (TGI), the Galiup and Roper organizations, and the collections of Arbitron, Nielsen, and Birch media ratings data (Chapter 14), are valuable sources of ideas for researchers. The historical data are used by researchers to investigate questions different from those which the data were originally intended to address. For example, ratings books provide information about audience size and composition for a particular period in time, but other researchers may use the data for historical tracking, prediction of audiences in the future, the changes in popularity of types of stations and/or programs,

and the relationship between audience ratings and advertising revenue generated by individual stations or an entire market. This process, known as secondary analysis, has become a major research approach because of the time and resource savings it affords.

Secondary analysis provides an opportunity for researchers to evaluate otherwise unavailable data. Secondary analysis may be defined as: [the] reuse of social science data after they have been put aside by the researcher who gathered them. The reuse of the data can be by the original researcher or someone uninvolved in any way in the initial research project. The research questions examined in the secondary analysis can be related to the original research endeavor or quite distinct from it.

Advantages of Secondary Analysis

Ideally every researcher should conduct a research project of some magnitude to learn about design, data collection, and analysis. Unfortunately, this ideal situation does not exist. Modern research is simply too expensive. In addition, because survey methodology has become so complex, it is rare to find one researcher, or even a small group of researchers, who are experts in all phases of large studies.

Secondary analysis is one research alternative that solves some of these problems. There is almost no expense involved in using available data. There are no questionnaires or measurement instruments to construct and validate salaries for interviewers and other personnel are nonexistent, and there are no costs for subjects and special equipment. The only expenses entailed in secondary analysis are those for duplicating materials — some organizations provide their data free of charge — and computer time. Data archives are valuable sources for empirical data. In many cases, archive data provide researchers with information that can be used to help answer significant media problems and questions. The argument here is that in lieu of conducting a small study that has limited (if any) value to other situations, researchers would benefit from using data that have been previously collected. guments for secondary analysis come from a variety of researchers It is clear that the research method provides excellent opportunities to produce valuable knowledge. The procedure, however, is not free from criticism.

Disadvantages of Secondary Analysis

Researchers who use secondary analysis are limited to the types of hypotheses or research questions that can be investigated. The data already exist, and since there is no way to go back for further information, researchers must keep their analyses within the boundaries of the type of data originally collected.

Researchers conducting secondary analysis studies also may face the problems of using data that were poorly collected, inaccurate, or flawed. Many studies do not include information about the research design, sampling procedures, weighting of subjects' responses, or other peculiarities. Perhaps it is suspected that some of the data were fabricated. Large research firms tend to explain their procedures in detail.

Although individual researchers in mass media have begun to make their data more readily available, not all follow adequate scientific procedures. This may seriously affect a secondary analysis. Before selecting a secondary analysis approach, researchers need to consider the

advantages and disadvantages. However, with the increased use of secondary analysis, some of the problems associated with research explanations and data storage are being solved.

Research and Experimental Design

Different research approaches are required. Some questions call for a survey methodology via telephone or mail; others are best answered through in-person interviews. Still other problems necessitate a controlled laboratory situation to eliminate extraneous variables. The approach selected by the researcher depends on the goals and purpose of the study and how much money is available to conduct the analysis. Even projects that sound very simple may require a highly sophisticated and complex research approach.

The terms research design and experimental design have become interchangeable to refer to the process involved in developing or planning a research project. Some researchers prefer to use research design to describe nonlaboratory projects, and experimental design only for projects conducted in a laboratory setting. In this book, the terms are used interchangeably because countless arguments can be raised about whether or not a research project is an "experiment," and the relationship between "laboratory" and "experiment." That is, must an "experiment" be conducted in a controlled laboratory situation to be called an "experiment"?

Research and experimental design are essentially blueprints, or sets of plans, for collecting information. The ideal design collects a maximum amount of information with a minimal expenditure of time and resources. Depending on the circumstances, a design may be brief or very complicated; there are no specific guidelines concerning the amount of detail required for a design. However, all designs incorporate the steps in the process of collecting and analyzing the data.

Researchers must determine how the data will be collected and analyzed before beginning a research project. Attempting to force a study to follow a particular approach or statistic after the data have been gathered only invites error. For example, a director of marketing for a large shopping mall was interested in finding out more about the customers who shopped at the mall (for example, where they lived and how often they shopped at the mall). With very little planning, she designed a simple questionnaire to collect the information. However, the respondents' possible answers, or response choices, to each of the questions were inadequate and the questionnaire inappropriately designed for any type of summary analysis. Thus, the director of marketing was stuck with thousands of useless questionnaires.

There are four characteristics of research design that should be noted if a study is to produce reliable and valid results:

I. Naturalistic setting: For the results of any project to have external validity, the study must be conducted under normally encountered environmental conditions. This means that subjects should be unaware of the research situation, if possible; that phenomena should not be analyzed in a single session; and that normal intervening variables, such as noise, should be included in the study. Also, long- term projects are more conducive to a naturalistic atmosphere than short-term studies.

2. Clear cause-and-effect relationships: The researcher must make every effort to control intervening or spurious independent/dependent variable relationships (Chapter 3). The results of a study can be interpreted with confidence if and only if all confounding effects are identified.

Unobtrusive and valid measurements: There should be no perceptible connection between the communication presented to subjects and the measurement instruments used. Subjects tend to answer questions differently if they can identify the purpose of the study. Also, the study should be designed to assess both immediate and long-term effects on the subjects.

4. Realism: A research design must above all be realistic. This necessitates a careful consideration of the availability of time, money, personnel to conduct the study, and researchers who are competent in the proposed research methodology and statistical analysis.

Every analysis should be carefully planned and performed according to guidelines designed for that analysis. Once the computations have been completed, the researcher must "step back" and consider what has been discovered. The results must be analyzed with reference to their external validity and the likelihood of their accuracy.

Researchers must determine through analysis whether their work is valid internally and externally. This chapter has touched briefly on the concept of external validity; an externally valid study is one whose results can be generalized to the population. To assess internal validity, on the other hand, one asks: Does the study really investigate the proposed research question?

Internal Validity

Control over research conditions is necessary to enable researchers to rule out all plausible rival explanations of results. Researchers are interested in verifying that "y is a function of x," or y = f(x). Control over the research conditions is necessary to eliminate the possibility of finding that y = f(b), where b is an extraneous variable. Any such variable that creates a rival explanation of results is known as an artifact (also referred to as extraneous variable). The presence of an artifact indicates a lack of internal validity: the study has failed to investigate its hypothesis.

External Validity

External validity refers to how well the results of a study can be generalized across populations, settings, and time. The external validity of a study can be severely affected by the interaction in an analysis of variables such as subject selection, instrumentation, and experimental conditions. A study that lacks external validity cannot be projected to other situations. The study is only valid for the sample tested.

Most procedures to guard against external invalidity relate to sample selection. Here, three considerations must be taken into account:

- 1. Use random samples.
- 2. Use heterogeneous samples and replicate the study several times.
- **3.** Select a sample that is representative of the group to which the results will be generalized.

Using random samples rather than convenience or available samples allows researchers to gather information from a variety of subjects rather than those who may share similar attitudes, opinions, and lifestyles. As we will see later on, a random sample means that everyone (within the guidelines of the project) has an equal chance of being selected for the research study.

Several replicated research projects using samples with a variety of characteristics (heterogeneous) allow researchers to test hypotheses and research questions and not worry that the results will only relate to one type of subject.

Presenting Results

The format used in presenting results depends on the purpose of the study. Research intended for publication in academic journals follows a format prescribed by each journal; research conducted for management in the private sector tends to be reported in simpler terms, excluding detailed

explanations of sampling, methodology, and review of literature. However, all presentations of results need to be written in a clear and concise manner appropriate to both the research question and the individuals who will read the report.

Replication

One important point is that the results of any single study are, by themselves, only indications of what might exist. A study provides information that says, in effect, "This is what may be the case." To be relatively certain of the results of any study, the research must be replicated. Too often, researchers conduct one study and report the results as if they are providing the basis for a theory or law. The information presented in this chapter, and in other chapters that deal with internal and external validity, argues that this cannot be true.

A research question or hypothesis requires investigation from many different perspectives before any significance can be attributed to the results of any one study. Research methods and designs must be altered to eliminate design-specific results, that is, results that are based on, hence specific to, the design used. Similarly, subjects with a variety of characteristics should be studied from many angles to eliminate sam-pie-specific results; and statistical analyses need variation to eliminate method-specific results. In other words, all effort must be made to ensure that the results of any single study are not created by or dependent on a methodological factor; studies must be replicated.

Selecting Research Problem based on various aspects:

- Usefulness to the society
- Completion within pre fixed time frame
- No over burden on affordable money
- Interesting and explorative in nature
- More scope of further study

Research Problem:

One research question may have many research problems. Selecting one proper research problem out of those is important task. Proper understanding and planning is necessary for the same.

Objective

After finalizing the research title, second phase is framing the relevant objectives. It means-

- fixing a clear cut direction to study the research problem
- helping to design the research
- guiding the procedure of analyzing facts
- assisting in report writing
- It is a tentative assumption on approving or disapproving, agreeing or
- disagreeing the result based on would be collected data.

HYPHOTHESIS

- **Parametric tests** assume that the variables of interest are measured on at least an interval scale.
- Nonparametric tests assume that the variables are measured on a nominal or ordinal scale.

- These tests can be further classified based on whether one or two or more samples are involved.
- The samples are **independent** if they are drawn randomly from different populations. For the purpose of analysis, data pertaining to different groups of respondents, e.g., males and females, are generally treated as independent samples.
- The samples are **paired** when the data for the two samples relate to the same group of respondents.

Characteristics of Hypothesis:

- Clear
- Brief
- Limited
- Easy to test
- Power to add on knowledge
- Straight forward
- Goal oriented
- Articulated

Classification of hypothesis:

- General hypothesis
- Specific hypothesis
- Narrative hypothesis
- Cause and effect relationship hypothesis
- Directional hypothesis
- Non-directional hypothesis
- Alternate hypothesis

Hypothesis Testing

Parametric test: Z, X², F t test

Non parametric test



Sampling Procedure

Population-totality of the objects or individuals regarding inferences are made in a sampling study. Sample-smaller representation of a large whole.Sampling- is a process of selecting a subset of randomised number of the members of the population of a study

Sampling frame /Source list -complete list of all the members/ units of the population from which each sampling unit

Sample design / sample plan-is a definite plan for obtaining a sample from a given population.

Sampling unit-is a geographical one (state, district)

Sample size-number of items selected for the study

Sampling Error-is the difference between population value and sample value.

Sampling distribution-is the relative frequency distribution of samples.

CENSUS/SAMPLING

Census-collection of data from whole population.

Sampling is taking any portion of a population or universe as representative of that population.

Sampling method has been using in social science research since 1754 by A.L.BOWLEY

Indispensable of sampling in Research

Saves lot of time Provides accuracy Controls unlimited data Studies individual Reduces cost Gives greater speed /helps to complete in stipulated time Assists to collect intensive and exhaustive data Organises conveniences

Steps in Sampling Process / Procedures

Define the population (element,units,extent and time) Specify sampling frame(Telephonedirectory) Specify sampling unit (retailers,our product,students,unemployed) Specify sampling method/technique Determine sampling size Specify sampling size-(optimum sample) Specify sampling plan Select the sample

PRINCIPLES OF SAMPLING

Two important principles Principles of Statistical Regularity-random (sufficient representative of the sample), Principles of Large Numbers-(steadiness , stability and consistency) Principles are referred to as the laws of sampling

Methods of sampling

Bloomers and Lindquist

Probability	Non Probability
Random/simple	Quota

Stratified random	Purposive
Cluster	Accidental
Systematic	Incidental Multistage
Proportionate	Snow ball

Probability sampling technique is one in which every unit in the population has a chance of being selected in the sample. This probability can be accurately determined.

Simple random sampling

In a <u>simple random sample</u> ('SRS') of a given size, all such subsets of the frame are given an equal probability.

Method of chance selection. Lottery method, Tippet's table, Kendall and Babington smith, Fisher and Yate's numbers.

Simple random sampling with replacement:- equal probability selection of each unit=1/N (Monte-Carlo simulation)

Simple random without replacement -varying probability selection of each. First unit=1/N, Second unit=1/N-1, Probality of selection of the nth unit=1/N-(n-1)(Monte-Carlo simulation

Systematic sampling

Systematic sampling involves a random start and then proceeds with the selection of every kth element from then onwards. In this case, k=(population size/sample size).

It is important that the starting point is not automatically the first in the list, but is instead randomly chosen from within the first to the kth element in the list

Sampling interval width=I=N/n=800/40=20

Stratified or Mixed sampling

Where the population embraces a number of distinct categories, the frame can be organized by these categories into separate "strata." Each stratum is then sampled as an independent sub-population, out of which individual elements can be randomly selected.(homogenous group)

Two types-Proportionate (equal number of unit from each stratum proportion to size of the strata) and Disproportionate (not equal number of unit from each stratum proportion to size of the strata)

Cluster sampling

<u>Cluster sampling</u> is an example of 'two-stage sampling' or <u>'multistage sampling</u>/ Multi phase sampling' in the first stage a sample of areas is chosen in the second stage a sample of respondents within those areas is selected.(several stages)- State level, Dist level, Village level, Hosehold level.

This stepwise process is useful for those who know little about the population they're studying. First, the researcher would divide the population into clusters (usually geographic boundaries). Then, the researcher randomly samples the clusters. Finally, the researcher must measure all units within the sampled clusters. Researchers use this method when economy of administration is important.

Sequential sampling

Single sampling

Double sampling

Multiple sampling

Nonprobability sampling is any sampling method where some elements of the population have no chance of selection (these are sometimes referred to as 'out of coverage'/'undercovered'), or where the probability of selection can't be accurately determined.

It involves the selection of elements based on assumptions regarding the population of interest, which forms the criteria for selection.

Purposive/Judgment Sampling

In purposive sampling, selecting sample with a purpose in mind

Purposive sampling can be very useful for situations where we need to reach a targeted sample quickly and where sampling for proportionality is not the primary concern.

It is for pilot study

Questions / questionnaires may be tested.

Quota sampling

Quota sampling, the population is first segmented into <u>mutually exclusive</u> sub-groups, just as in <u>stratified sampling</u>.

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Then judgment is used to select the subjects or units from each segment based on a specified proportion. For example, an interviewer may be told to sample 200 females and 300 males between the age of 45 and 60.

Proportional quota sampling

Nonproportional quota sampling

It is very popular for market survey and opinion poll.

Snowball Sampling

Identifying someone who meets the criteria for inclusion in the study.

Snowball sampling is especially useful when we are trying to reach populations that are inaccessible or hard to find

This method would hardly lead to representative samples

Intially certain members and add few members latter

Convenience sampling

Convenience sampling (sometimes known as **grab** or **opportunity sampling**) is a type of nonprobability sampling which involves the sample being drawn from that part of the population which is close to hand

Accidental Sampling

The researcher can select any sample in any place, can collect the data from pedestrian also.

It can be used for exploratory studies

It has sample error.

It has less accuracy

Combination of Probability sampling and Non Probability sampling

If sampling is carried out in series of stages, it is possible to combine probability and nonprobability sampling in one design

Users of particular product in one street for the particular group of people.

Utility of the particular product in the town.

Sampling Errors

The errors which arise due to the use of sampling surveys are known as the sampling errors.

Two types of sampling errors-Biased Errors, Unbiased Errors

Biased Errors-Which arise due to selection of sampling techniques.-size of the sample

Unbiased Errors / Random sampling errors-arise due to chance differences between the members of the population included in the sample and not included.

Methods of reducing Sampling Errors

Specific problem selection

Systematic documentation of related researchEffective enumeration

Effective pre testing

Controlling methodological bias

Selection of appropriate sampling techniques.

Non-sampling Errors

Non-sampling errors refers to biases and mistakes in selection of sample.

CAUSES FOR NON-SAMPLING ERRORS

Sampling operations

Inadequate of response

Misunderstanding the concept

Lack of knowledge

Concealment of the truth.

Loaded questions

Processing errors

Sample size



SCHOOL OF SCIENCE AND HUMANITIES DEPARTMENT OF VISUAL COMMUNICATION

UNIT – III – Communication Research Methodology – SVCA5301

III - PRIMARY DATA

Types of data

Measurement can occur at different levels and the relationship among the values assigned determines the level of measurement. To date, most psychologists and social scientists subscribe to the four hierarchical levels of measurement identified by Stevens (1946): nominal, ordinal, interval, and ratio. Each one identifies a different relationship among assigned values. The levels of measurement are hierarchical because each step up in the typology retains all the qualities of the level below it and adds additional relational attributes. Specifically, nominal measurements represent the lowest level followed by ordinal, interval, and then ratio measurements. As a result, interval measurements, for example, have all the same attributes as ordinal measurements but they have additional information that changes the way researchers represent and analyze the data. Levels of measurement are useful for understanding the nature of one's data. First, the levels guide interpretations of the differences between values. For example, when comparing the values 1, 3, and 5, the level of measurement characterizes the numerical differences between the values. Specifically, the level of measurement indicates whether the difference is arbitrary, relative, or equidistant. Second, the level of measurement determines the appropriate statistical analyses one may perform on the data. This second point is particularly important, as it helps researchers interpret their data correctly and avoid meaningless analyses. Using the preceding example, if the 2 point difference between 1 and 3 and 3 and 5 is relative, rather than equidistant, mathematical operations such as addition and multiplication become meaningless.

Levels of measurement Nominal. Measurements akin to mere categorization are nominal. Examples would include measuring gender, favorite color, political party affiliation, or media genre (e.g., action or horror). In these cases, researchers assign values, called numerals, to variables to organize them into groups within data sets. The differences between the values are entirely arbitrary. For example, suppose a researcher collects participants' political party affiliation. The researcher then codes all Democrats as 1, Republicans as 2, and everyone else as 3. In this instance, the specific values serve merely as labels. There is no rank or order associated with the values. In fact, the researcher could have assigned any value to identify the groups because no mathematical relationships exist at this nominal level. For example, Democrats could be 7, Republicans 1, and everyone else 99.

Nevertheless, the values do indicate difference and similarity such that all those with the same value (e.g., Democrats as 1s) share the same political affiliation and are distinct from those with a different value (e.g., Republications as 2s). Although nominal level measurements are categorical, the identified categories must possess two characteristics. First, the categories used must be exhaustive. In other words, researchers must be able to categorize all cases appropriately. For example, researchers wanting to categorize people according to their political party affiliation could not include only Republican and Democrat categories, as many cases may not fit these labels. Indeed, people could be Independents, Socialists, politically apathetic, or undecided. An easy solution to this problem is to include a catchall category such as "None" or "Other" for nominal variables. However, including this category may unduly limit accuracy unless the list of categories is adequately identified. For example, using the categories "Democrat" and "Other" to assess political party affiliation may be useful, but the "Other" category would comprise a large proportion of the results and thus limit accuracy. Widely established rules that guide the scope of included categories and the relative size of the catchall category do not exist. Under most circumstances, it is up to the discretion of the researcher how many categories to include but relying on theory or categories identified by existing research is prudent (Singleton Jr, Straits, & Straits, 1993). Second, categories of nominal measurements should also be mutually exclusive. Mutual exclusivity means that researchers can classify a case only into a single category. For example, suppose a group of researchers want to know the type of place participants currently live. To assess this, they develop the following categories: urban, suburban, rural, and farm. This list is not mutually exclusive because someone could easily belong to both the rural and farm category. To solve this problem, the researchers would need to alter the list's specificity. They could make the list more specific by changing the categories to be urban, suburban, rural with farm, and rural without farm. Alternatively, they could make the list less specific by changing the categories to be urban, suburban, rural with farm, and rural without farm. Alternatively, they could make the list less specific by collapsing both final categories into one category (e.g., rural; Singleton Jr et al., 1993).

Ordinal. Measurements that indicate the rank order of cases are ordinal. Examples would include general time of day (i.e., morning, afternoon, evening) and attitudes/opinions (e.g., strongly dislike and moderately like). With ordinal measurements, one can know the relative differences among the values and order them appropriately. Nevertheless, the intervals between values are inconsistent. For example, suppose a researcher asked a woman, a man, and a child to rate how much they liked a movie using a 1 (strongly disliked) to 5 scale (strongly liked) and the woman selected 1, the man selected 3, and the child selected 5. It would be incorrect to assume that the difference between the woman and the man was equal to the difference between the man and the child even though the difference between both sets of points is 2 units. This is because the distances between the points are distorted. The most the researcher can surmise is that the child liked the movie the most, followed by the man and then the woman. Thus, ordinal measurements allow one to make accurate judgments about a value assigned to a variable compared to another value assigned to the same variable. Although this may appear as a significant limitation, it is also a great strength of ordinal level measurements. The ability to surmise relative, comparative differences allows researchers the ability to make claims about the magnitudes of phenomena that may be very difficult or impossible to quantify precisely. When analyzing ordinal variables, researchers can use all of the statistics relevant to nominal variables. Unlike nominal measurements, ordinal variables exhibit mathematical relationships among their values. As a result, medians and quartiles are appropriate descriptive statistics and Spearman Rank-order correlation is an appropriate inferential statistic.

Interval. Measurements that have consistent distances between values are interval. Celsius and Fahrenheit temperature scales are examples of interval measurements. The difference between ordinal and interval measurements is that the latter uses a standard unit of measurement, or metric. For temperature, the metric is degrees. Because the difference between values is standardized, one could say that the difference between 19°C and 29°C is the same as the difference between 101°C and 111°C. The equidistant intervals between values allows researchers to perform basic mathematical operations such as addition and subtraction with ordinal measurements. Thus, variables operationalized at the interval level are properly quantitative. Variables operationalized at lower levels (i.e., nominal or ordinal) are not quantitative. Nevertheless, one cannot multiply or divide interval measurements because they do not have an absolute zero point. For example, a value of zero on the Celsius temperature scale does not mean there is an absence of temperature or kinetic energy; rather, the zero point is an arbitrary point on the scale that conveniently indicates the temperature at which water freezes. Likewise, a researcher cannot claim that 80° C is twice as hot as 40° C. Researchers may perform all the appropriate analyses possible for nominal and ordinal level measurements on interval measurements. In addition, assuming that the data do not violate the assumptions of the analysis in question, researchers may use means and standard deviations to calculate descriptive statistics. For inferential statistics, researchers may use t-tests, F-tests, and Pearson Productmoment correlations.

Ratio. Measurements that have an absolute zero point are ratio. Examples include income, Kelvin temperature scale, years married, and reaction time. Because each of these cases includes an absolute zero, ratios are meaningful. In other words, one could say that 200°K is

twice as hot as 100°K, as the true zero point makes multiplication and division possible. Social scientists often employ ratio measurement when using counts (e.g., the number of comments on a social media post or the number of points in a video game). For **ratio measurements**, researchers may use all of the appropriate arithmetic operations prescribed for nominal, ordinal, and interval measurement. In addition, geometric mean, harmonic mean, and percent variation are appropriate descriptive statistics.



DATA COLLECTION

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. The data collection component of research is common to all fields of study including physical and social sciences, humanities, business, etc. While methods vary by discipline,

the emphasis on ensuring accurate and honest collection remains the same. The goal for all data collection is to capture quality evidence that then translates to rich data analysis and allows the building of a convincing and credible answer to questions that have been posed. Regardless of the field of study or preference for defining data (quantitative, qualitative), accurate data collection is essential to maintaining the integrity of research. Both the selection of appropriate data collection instruments (existing, modified, or newly developed) and clearly delineated instructions for their correct use reduce the likelihood of errors occurring. Data collection is one of the most important stages in conducting a research. You can have the best research design in the world but if you cannot collect the required data you will be not be able to complete your project. Data collection is a very demanding job which needs thorough planning, hard work, patience, perseverance and more to be able to complete the task successfully. Data collection starts with determining what kind of data required followed by the selection of a sample from a certain population. After that, you need to use a certain instrument to collect the data from the selected sample.

TYPES OF DATA

Data are organized into two broad categories: qualitative and quantitative. Qualitative Data: Qualitative data are mostly non-numerical and usually descriptive or nominal in nature. This means the data collected are in the form of words and sentences. Often (not always), such data captures feelings, emotions, or subjective perceptions of something. Qualitative approaches aim to address the 'how' and 'why' of a program and tend to use unstructured methods of data collection to fully explore the topic. Qualitative questions are open-ended. Qualitative methods include focus groups, group discussions and interviews.

generally their findings are not generalizable to any specific population, rather each case study produces a single piece of evidence that can be used to seek general patterns among different studies of the same issue. Regardless of the kinds of data involved, data collection in a qualitative study takes a great deal of time. The researcher needs to record any potentially useful data thoroughly, accurately, and systematically, using field notes, sketches, audiotapes, photographs and other suitable means. The data collection methods must observe the ethical principles of research. The qualitative methods most commonly used in evaluation can be classified in three broad categories - \Box In-depth interview \Box Observation methods

Quantitative approaches address the 'what' of the program. They use a systematic standardized approach and employ methods such as surveys and ask questions. Quantitative approaches have the advantage that they are cheaper to implement, are standardized so comparisons can be easily made and the size of the effect can usually be measured. Quantitative approaches however are limited in their capacity for the investigation and explanation of similarities and unexpected differences. It is important to note that for peer-based programs quantitative data collection approaches often prove to be difficult to implement for agencies as lack of necessary resources to ensure rigorous implementation of surveys and frequently experienced low participation and loss to follow up rates are commonly experienced factors. Mixed Methods: Mixed methods approach as design, combining both qualitative and quantitative research data, techniques and methods within a single research framework. Mixed methods approaches may mean a number of things, i.e. a number of different types of methods in a study or at different points within a study or using a mixture of qualitative and quantitative methods. Mixed methods encompass multifaceted approaches that combine to capitalize on strengths and reduce weaknesses that stem from using a single research design. Using this approach to gather and evaluate data may assist to increase the validity and reliability of the research. Some of the common areas in which mixed-method approaches may be used include -

□ Initiating, designing, developing and expanding interventions;

 \Box Evaluation;

 \Box Improving research design; and \Box Corroborating findings, data triangulation or convergence. Some of the challenges of using a mixed methods approach include –

□ Delineating complementary qualitative and quantitative research questions;

□ Time-intensive data collection and analysis; and

□ Decisions regarding which research methods to combine. Mixed methods are useful in highlighting complex research problems such as disparities in health and can also be transformative in addressing

issues for vulnerable or marginalized populations or research which involves community participation. Using a mixed-methods approach is one way to develop creative options to traditional or single design approaches to research and evaluation.

There are many ways of classifying data. A common classification is based upon who collected the data.

PRIMARY DATA

Data that has been collected from first-hand-experience is known as primary data. Primary data has not been published yet and is more reliable, authentic and objective. Primary data has not been changed or altered by human beings; therefore its validity is greater than secondary data. Importance of Primary Data: In statistical surveys it is necessary to get information from primary sources and work on primary data. For example, the statistical records of female population in a country cannot be based on newspaper, magazine and other printed sources. A research can be conducted without secondary data but a research based on only secondary data is least reliable and may have biases because secondary data has already been manipulated by human beings. One of such sources is old and secondly they contain limited information as well as they can be misleading and biased. Sources of Primary Data: Sources for primary data are limited and at times it becomes difficult to obtain data from primary source because of either scarcity of population or lack of cooperation. Following are some of the sources of primary data. Experiments: Experiments require an artificial or natural setting in which to perform logical study to collect data. Experiments are more suitable for medicine, psychological studies, nutrition and for other scientific studies. In experiments the experimenter has to keep control over the influence of any extraneous variable on the results. Survey: Survey is most commonly used method in social sciences, management, marketing and psychology to some extent. Surveys can be conducted in different methods. Questionnaire: It is the most commonly used method in survey. Questionnaires are a list of questions either open-ended or close-ended for which the respondents give answers.

Observations: Observation can be done while letting the observing person know that s/he is being observed or without letting him know. Observations can also be made in natural settings as well as in artificially created environment.

Advantages of Using Primary Data

The investigator collects data specific to the problem under study.

There is no doubt about the quality of the data collected (for the investigator).

If required, it may be possible to obtain additional data during the study period. Disadvantages of Using Primary Data

- 1. The investigator has to contend with all the hassles of data collection-
 - \Box deciding why, what, how, when to collect;
 - □ getting the data collected (personally or through others);
 - □ getting funding and dealing with funding agencies;
 - □ ethical considerations (consent, permissions, etc.).
- 2. Ensuring the data collected is of a high standard□ all desired data is obtained accurately, and in the format it is required in; □ there is no fake/ cooked up data; □ unnecessary/ useless data has not been included.
- 3. Cost of obtaining the data is often the major expense in studies.

SECONDARY DATA

Data collected from a source that has already been published in any form is called as secondary data. The review of literature in any research is based on secondary data. It is collected by someone else for some other purpose (but being utilized by the investigator for another purpose). For examples, Census data being used to analyze the impact of education on career choice and earning. Common sources of secondary data for social science include censuses, organizational records and data collected through qualitative methodologies or qualitative research. Secondary data is essential, since it is impossible to conduct a new survey that can adequately capture past change and/or developments. Sources of Secondary Data: The following are some ways of collecting secondary data –

- Books
- Records
- Biographies
- Newspapers
- Dublished censuses or other statistical data
- Data archives
- ☐ Internet articles
- □ Research articles by other researchers (journals)
- Databases, etc.

Importance of Secondary Data:

Secondary data can be less valid but its importance is still there. Sometimes it is difficult to obtain primary data; in these cases getting information from secondary sources is easier and possible. Sometimes primary data does not exist in such situation one has to confine the research on secondary data. Sometimes primary data is present but the respondents are not willing to reveal it in such case too secondary data can suffice. For example, if the research is on the psychology of transsexuals first it is difficult to find out transsexuals and second they may

METHODS OF PRIMARY DATA COLLECTION

In primary data collection, you collect the data yourself using qualitative and quantitative methods. The key point here is that the data you collect is unique to you and your research and, until you publish, no one else has access to it. There are many methods of collecting primary data. The main methods include -

- Questionnaires
- □ Interviews
- □ Focus Group Interviews
- □ Observation
- □ Survey
- □ Case-studies
- Diaries
- □ Activity Sampling Technique
- □ Memo Motion Study
- Process Analysis
- Link Analysis
- □ Time and Motion Study
- Experimental Method
- □ Statistical Method etc.

QUESTIONNAIRE METHOD

A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. Although they are often designed for statistical analysis of the responses, this is not always the case. The questionnaire was invented by Sir Francis Galton (1822 - 1911). Questionnaires have advantages over some other types of surveys in that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys, and often have standardized answers that make it simple to compile data. As a type of survey, questionnaires also have many of the same problems relating to question construction and wording that exist in other types of opinion polls. Types: A distinction can be made between questionnaires with questions that measure separate variables, and questionnaires with questions that are aggregated into either a scale or

index. Questionnaires within the former category are commonly part of surveys, whereas questionnaires in the latter category are commonly part of tests.

Questionnaires with questions that measure separate variables, could for instance include questions on

□ preferences (e.g. political party)

 \Box behaviors (e.g. food consumption)

 \Box facts (e.g. gender).

Questionnaires with questions that are aggregated into either a scale or index, include for instance questions that measure -

□ latent traits (e.g. personality traits such as extroversion)

 \Box attitudes (e.g. towards immigration)

□ an index (e.g. Social Economic Status).

Question Types: Usually, a questionnaire consists of a number of questions that the respondent has to answer in a set format. A distinction is made between open-ended and closed-ended questions. An open-ended question asks the respondent to formulate his/her own answer, whereas a closed-ended question has the respondent pick an answer from a given number of options. The response options for a closed-ended question should be exhaustive and mutually exclusive. Four types of response scales for closed-ended questions are distinguished - Dichotomous, where the respondent has two options.

Nominal-polytomous, where the respondent has more than two unordered options. Ordinal-polytomous, where the respondent has more than two ordered options. (Bounded), where the respondent is presented with a continuous scale. A respondent's answer to an open-ended question is coded into a response scale afterwards. An example of an open-ended question is a question where the testee has to complete a sentence (sentence completion item). Question Sequence: In general, questions should flow logically from one to the next. To achieve the best response rates, questions should flow from the least sensitive to the most sensitive, from the factual and behavioral to the attitudinal, and from the more general to the more specific. There typically is a flow that should be followed when constructing a questionnaire in regards to the order that the questions are asked

. The order is as follows –

- □ Screens
- □ Warm-ups
- □ Transitions
- □ Skips
- Difficult
- Changing Formula

Screens are used as a screening method to find out early whether or not someone should complete the questionnaire. Warm-ups are simple to answer, help capture interest in the survey, and may not even pertain to research objectives. Transition questions are used to make different areas flow well together. Skips include questions similar to 'If yes, then answer question 3. If no, then continue to question 5'. Difficult questions are towards the end because the respondent is in 'response mode'. Also, when completing an online questionnaire, the progress bars lets the respondent know that they are almost done so they are more willing to answer more difficult questions. Classification or demographic question should be at the end because typically they can feel like personal questions which will make respondents uncomfortable and not willing to finish survey. Basic Rules for Questionnaire Item Construction: The basic rules are - 🗆 Use statements which are interpreted in the same way by members of different subpopulations of the population of interest.
Use statements where persons that have different opinions or traits will give different answers.

Think of having an 'open' answer category after a list of possible answers. \Box Use only one aspect of the construct you are interested in per item. Use positive statements and avoid negatives or double negatives.

Do not make assumptions about the respondent.
Use clear and comprehensible wording, easily understandable for all educational levels. \Box Use correct spelling, grammar and punctuation. \Box Avoid items that contain more than one question per item (e.g. Do you like strawberries and potatoes?).

Question should not be biased or even leading the participant towards an answer. Questionnaire Administration Modes: Main modes of questionnaire administration are -
Face-to-face questionnaire administration, where an interviewer presents the items orally.

Paper-and-pencil questionnaire administration, where the items are presented on paper.
Computerized questionnaire administration, where the items are presented on the computer.
Adaptive computerized questionnaire administration, where a selection of items is presented on the computer, and based on the answers on those items, the computer selects following items optimized for the testee's estimated ability or trait. Concerns with Questionnaires: It is important to consider the order in which questions are presented. Sensitive questions, such as questions about income, drug use, or sexual activity, should be put at the end of the survey. This allows the researcher to establish trust before asking questions that might embarrass respondents. Researchers also recommend putting routine questions, such as age, gender, and marital status, at the end of the questionnaire. Double-barreled questions, which ask two questions in one, should never be used in a survey. An example of a double barreled question is, please rate how strongly you agree or disagree with the following statement - 'I feel good about my work on the job, and I get along well with others at work'. This question is problematic because survey respondents are asked to give one response for two questions. Researchers should avoid using emotionally loaded or biased words and phrases. Advantages of Questionnaires:

The advantages of questionnaires are –

 \Box Large amounts of information can be collected from a large number of people in a short period of time and in a relatively cost effective way.

 \Box Can be carried out by the researcher or by any number of people with limited affect to its validity and reliability.

 \Box The results of the questionnaires can usually be quickly and easily quantified by either a researcher or through the use of a software package.

□ Can be analyzed more scientifically and objectively than other forms of research.

 \Box When data has been quantified, it can be used to compare and contrast other research and may be used to measure change.

 \Box Positivists believe that quantitative data can be used to create new theories and / or test existing hypotheses.

INTERVIEWS METHOD

Interviewing involves asking questions and getting answers from participants in a study. Interviewing has a variety of forms including: individual, face-to-face interviews and face-to-face group interviewing. The asking and answering of questions can be mediated by the telephone or other electronic devices (e.g. computers). Interviews can be -

A. Structured,

B. Semi-structure or

. Unstructured.

Structured Interviews

Char acteristics of the Structured

□ The interviewer asks each respondent the same series of questions.

 \Box The questions are created prior to the interview, and often have a limited set of response categories.

 \Box There is generally little room for variation in responses and there are few open-ended questions included in the interview guide.

Questioning is standardized and the ordering and phrasing of the questions are kept consistent from interview to interview.

 \Box The interviewer plays a neutral role and acts casual and friendly, but does not insert his or her opinion in the interview

□ Self-administered questionnaires are a type of structured interview. When to Use a Structured

Interview:

Development of a structured interview guide or questionnaire requires a clear topical focus and welldeveloped understanding of the topic at hand. A well- developed understanding of a topic allows researchers to create a highly structured interview guide or questionnaire that provides respondents with relevant, meaningful and appropriate response categories to choose from for each question. Structured interviews are, therefore, best used when the literature in a topical area is highly developed or following the use of observational and other less structured interviewing approaches that provide the researcher with adequate understanding of a topic to construct meaningful and relevant closeended questions. Recording Interviews: There are a range of ways to collect and record structured interview data. Data collections methods include, but are not limited to - paper-based and self-report (mail, face- to-face); telephone interviews where the interviewer fills in participants' responses; webbased and self-report. Benefits: Structured interviews can be conducted efficiently by interviewers trained only to follow the instructions on the interview guide or questionnaire. Structured interviews do not require the development of rapport between interviewer and interviewee, and they can produce consistent data that can be compared across a number of respondents. Semi-structured Interviews Characteristics of Semi - structured Interviews
The interviewer and respondents engage in a formal interview.
The interviewer develops and uses an 'interview guide'. This is a list of questions and topics that need to be covered during the conversation, usually in a particular order. The interviewer follows the guide, but is able to follow topical trajectories in the conversation that may stray from the guide when s/he feels this is appropriate. When to Use Semi-structured Interview s: Semi-structured interviewing, according to Bernard (1988), is best used when you won't get more than one chance to interview someone and when you will be sending several interviewers out into the field to collect data. The semi-structured interview guide provides a clear set of instructions for interviewers and can provide reliable, comparable qualitative data. Semi-structured interviews are often preceded by observation, informal and unstructured interviewing in order to allow the researchers to develop a keen understanding of the topic of interest necessary for developing relevant and meaningful semi-structured questions. The inclusion of open-ended questions and training of interviewers to follow relevant topics that may stray from the interview guide does, however, still provide the opportunity for identifying new ways of seeing and understanding the topic at hand. Recording Semi - Structured Interviews: Typically, the interviewer has a paper-based interview guide that s/he follows. Since semi-structured interviews often contain open-ended questions and discussions may diverge from the interview guide, it is generally best to tape-record interviews and later transcript these tapes for analysis. While it is possible to try to jot notes to capture respondents' answers, it is difficult to focus on conducting an interview and jotting notes. This approach will result in poor notes and also detract for the development of rapport between interviewer and interviewee. Development of rapport and dialogue is essential in unstructured interviews.

Informal Interviewing

Characteristics of Informal interviewing

 \Box The interviewer talks with people in the field informally, without use of a structured interview guide of any kind.

 \Box The researcher tries to remember his/her conversations with informants, and uses jottings or brief notes taken in the field to help in the recall and writing of notes from experiences in the field

□ Informal interviewing goes hand-in-hand with participant observation.

 \Box While in the field as an observer, informal interviews are casual conversations one might have with the people the researcher is observing. When to Use Informal Interviews: Informal interviewing is typically done as part of the process of observing a social setting of interest. These may be best used in the early stages of the development of an area of inquiry, where there is little literature describing the setting, experience, culture or issue of interest. The researcher engages in fieldwork - observation and informal interviewing - to develop an understanding of the setting and to build rapport. Informal interviewing may also be used to uncover new topics of interest that may have been overlooked by previous research.

FOCUS GROUP DISCUSSION (FGD)

A focus group discussion (FGD) is an in-depth field method that brings together a small homogeneous group (usually six to twelve persons) to discuss topics on a study agenda. The purpose of this discussion is to use the social dynamics of the group, with the help of a moderator/ facilitator, to stimulate participants to reveal underlying opinions, attitudes, and reasons for their behavior. In short, a well facilitated group can be helpful in finding out the 'how' and 'why' of human behavior. Focus group discussions are a data collection method. Data is collected through a semi-structured group interview process. Focus groups are generally used to collect data on a specific topic. Focus group methods emerged in the 1940s with the work of Merton and Fiske who used focus groups to conduct consumer satisfaction.

The discussion is conducted in a relaxed atmosphere to enable participants to express themselves without any personal inhibitions. Participants usually share a common characteristic such as age, sex, or socio-economic status that defines them as a member of a target subgroup. This encourages a group to speak more freely about the subject without fear of being judged by others thought to be superior. The discussion is led by a trained moderator/facilitator (preferably experienced), assisted by an observer who takes notes and arranges any tape recording. The moderator uses a prepared guide to ask very general questions of the group. Usually more than one group session is needed to assure good coverage of responses to a set of topics. Each session usually lasts between one and two hours but ideally 60 to 90 minutes. The aim of the focus group is to make use of participants' feelings, perceptions and opinions. This method requires the researcher to use a range of skills - group skills; facilitating; moderating; listening/observing; analysis. Focus groups or group discussions are useful to further explore a topic, providing a broader understanding of why the target group may behave or think in a particular way, and assist in determining the reason for attitudes and beliefs. They are conducted with a small sample of the target group and are used to stimulate discussion and gain greater insights. The design of focus group research will vary based on the research question being studied. Below, highlight some general principles to consider -

□ Standardization of questions - focus groups can vary in the extent to which they follow a structured protocol or permit discussion to emerge.

 \Box Number of focus groups conducted - or sampling will depend on the 'segmentation' or different stratifications (e.g. age, sex, socioeconomic status, health status) that the researcher identifies as important to the research topic.

 \Box Number of participants per group - the rule of thumb has been 6-10 homogeneous strangers, but as Morgan (1996) points out there may be reasons to have smaller or slightly larger groups.

 \Box Level of moderator involvement - can vary from high to low degree of control exercised during focus groups (e.g. extent to which structured questions are asked and group dynamics are actively managed). Focus group interviews typically have the characteristics –

Identify the target market (people who possess certain characteristics).

 $\hfill\square$ Provide a short introduction and background on the issue to be discussed.

 \Box Have focus group members write their responses to the issue(s).

 \Box Several focus groups should be used in order to get a more objective and macro view of the investigation, i.e. focusing on one group may give you idiosyncratic results. The use of several groups will add to the breadth and depth of information. A minimum of three focus groups is recommended for best practice approaches.

 \Box Members of the focus group should have something in common which is important to the investigation.

 \Box Groups can either be put together or existing groups - it is always useful to be mindful of the group dynamics of both situations.

□ Provide a summary of the focus group issues at the end of the meeting. The purpose of an FGD is to obtain in-depth information on concepts, perceptions, and ideas of the group.

An FGD aims to be more than a question-answer interaction. In combination with other methods, focus groups might be used to -

 \Box explore new research areas;

 \Box explore a topic that is difficult to observe (not easy to gain access);

 \Box explore a topic that does not lend itself to observational techniques (e.g. attitudes and decision-making);

 \Box explore sensitive topics;

□ collect a concentrated set of observations in a short time span;

□ ascertain perspectives and experiences from people on a topic, particularly when these are people who might otherwise be marginalized;

 \Box gather preliminary data;

 \Box aid in the development of surveys and interview guides.

OBSERVATIONAL METHOD

Observation is a fundamental way of finding out about the world around us. As human beings, we are very well equipped to pick up detailed information about our environment through our senses. However, as a method of data collection for research purposes, observation is more than just looking or listening. Research, simply defined, is 'systematic enquiry made public' (Stenhouse, 1975). Firstly, in order to become systematic, observation must in some way be selective. We are constantly bombarded by huge amounts of sensory information.

Human beings are good at selectively attending to what is perceived as most useful to us. Observation harnesses this ability; systematic observation entails careful planning of what we want to observe. Secondly, in order to make observation 'public', what we see or hear has to be recorded in some way to allow the information to be analysed and interpreted. Observation is a systematic data collection approach. Researchers use all of their senses to examine people in natural settings or naturally occurring situations. Observation of a field setting involves - \Box prolonged engagement in a setting or social situation; \Box clearly expressed, self-conscious notations of how observing is done; \Box methodical and tactical improvisation in order to develop a full understanding of the setting of interest; \Box imparting attention in ways that is in some sense 'standardized';

 \Box recording one's observations. Use of Observational Method There are a variety of reasons for collecting observational data. Some of these reasons include –

 \Box When the nature of the research question to be answered is focused on answering a how- or what-type question.

 \Box When the topic is relatively unexplored and little is known to explain the behavior of people in a particular setting.

When understanding the meaning of

a setting in a detailed way is valuable.

 \Box When it is important to study a phenomenon in its natural setting.

 \Box When self-report data (asking people what they do) is likely to be different from actual behavior (what people actually do). One example of this seen in the difference between self- reported versus observed preventive service delivery in health care settings.

 \Box When implementing an intervention in a natural setting, observation may be used in conjunction with other quantitative data collection techniques.

Observational data can help researchers evaluate the fidelity of an intervention across settings and identify when 'stasis' has been achieved.

Classification of Observational Method Observational methods can be classified as follows -

Casual and Scientific Observation: An observation can be sometimes casual in nature or sometimes it may act scientifically. An observation with a casual approach involves observing the right thing at the right place and also at the right time by a matter of chance or by luck whereas a scientific observation involves the use of the tools of the measurement, but a very important point to be kept in mind here is that all the observations are not scientific in nature. Natural Observation: Natural observation involves observing the behaviour in a normal setting and in this type of observation, no efforts are made to bring any type of change in the behavior of the observed. Improvement in the collection of the information and improvement in the environment of making an observation can be done with the help of natural observations.

SURVEY METHOD

Survey research is often used to assess thoughts, opinions, and feelings. Survey research can be specific and limited, or it can have more global, widespread goals. Today, survey research is used by a variety of different groups. Psychologists and sociologists often use survey research to analyze behavior, while it is also used to meet the more pragmatic needs of the media, such as, in evaluating political candidates, public health officials, professional organizations, and advertising and marketing directors. A survey consists of a predetermined set of questions that is given to a sample. With a representative sample, that is, one that is representative of the larger population of interest, one can describe the attitudes of the population from which the sample was drawn. Further, one can compare the attitudes of different populations as well as look for changes in attitudes over time. A good sample selection is key as it allows one to generalize the findings from the sample to the population, which is the whole purpose of survey research.

Use of Survey When determining the need for a survey, departments/agencies should first check that the required information is not already available. The option of collecting the required information using existing administrative records should also be explored. Using existing data or records provides considerable advantages in terms of cost, time and the absence of respondent burden. The major disadvantage is the lack of control over the data collected. If existing data are not available or suitable, a number of factors must then be considered when determining which type of survey, if any, is appropriate. For example - Practicality \Box Can the information be collected cost effectively and accurately via a survey? \Box How complex and how sensitive is the topic? \Box Do respondents have access to the required information? \Box Will they be willing to supply the information? \Box Will their responses to the questions be valid? Resources \Box Are the necessary financial, staff, computer or other resources available?

Timing

□ When is the information required?

 \Box Is enough time available to ensure that data of sufficient quality can be collected and analysed? \Box When is the best time to conduct the survey? (For example, need to allow for seasonality, impact of school holiday periods etc). Survey requirements

 \Box Do you want to use this information to target program improvements? If so, you may need to identify the key sub-groups you wish to report on (for example, geographic areas, age groups, sex, industry and size of business) and obtain sufficient responses for each group to ensure results are accurate enough for your needs.

Accuracy

 \Box What level of error can be tolerated? This depends on how and for what purposes you intend to use the survey results.

Frequency

□ Is the survey to be repeated? How often? Legislative powers

□ Does the department/agency have authority to collect the information through either a compulsory or voluntary survey?

Ethical consideration Ethical considerations must be observed during the survey exercise.

This includes that data, where appropriate, are treated confidentially, and that where information is sought on the understanding that the respondent cannot be identified, that such anonymity is preserved.

Other ethical considerations include –

□ Do you need identifiable information (for example, names, addresses, telephone numbers) relating to respondents for follow-up research or matching with other data? If so, you need to clearly explain why you need such details and obtain the respondents' consent.

□ Will respondents be adversely affected or harmed as a direct result of participating in the survey?

□ Are procedures in place for respondents to check the identity and bonafides of the researchers?

 \Box Is the survey being conducted on a voluntary basis? If so, respondents must not be misled to believe it is compulsory when being asked for their co-operation.

 \Box Is it necessary to interview children under 14 years? If so, the consent of their parents / guardians / responsible adults must be obtained. These factors must all be taken into consideration when developing an appropriate sample design (that is, sample size, selection method, etc.) and survey method.

Survey Process

The following is an outline of the general process to be followed once the need for a survey has been determined. Some steps will not be necessary in all cases and some processes can be carried out at the same time (for example, data collection and preparation for data entry and processing). A sample survey is cheaper and timelier than a census but still requires significant resources, effort and time. The survey process is complex and the stages are not necessarily sequential. Pilot testing of, at least, key elements such as the questionnaire and survey operations is an essential part of the development stage. It may be necessary to go through more than one cycle of development, testing. evaluation and modification before a satisfactory solution is reached.

Scales Thurstone scales:

The Thurstone scale is made up of statements about a particular issue and each statement has a numerical value indicating the repsondent's attitude about the issue, either favorable or unfavorable. People indicate which of the statements with which they agree and the average response is computed. First, you must be very clear about exactly what it is you're trying to measure. Then, collect statements on the topic ranging from attitudes that are favorable to unfavorable. For this example, we will use same sex marriage. Example statements are It should be against the law. There's absolutely nothing wrong with it. Marriage is between a man and a woman. It should be a sin. It's perfectly appropriate for two consenting adults. It should be legalized. It can harm children. Same sex couples should have the same legal rights as a male/female couple. It's just horrible. It can't do any harm. Next, you have judges evaluate, on an 11 point response format (1 very negative to 11 indicating very positive), what kind of attitude each of these statements reflects. For example it's likely that the statement "It should be a sin." would be judged to represent a very negative attitude while the statement "It should be legalized." would be judged to represent a very positive attitude. The idea is that you'd like to develop a set of items that not only reflect the entire continuum between 1 and 11, but that your judges who helped you develop the set of items would have considerable consensus about what level of attitude each of the statements reflected. In this exercise, statements for which there is little consensus would be discarded. Lett's assume that the average ratings among our judges are as below:

Average It's should be against the law. 1.7 There's absolutely nothing wrong with it. 6.8 Marriage is between a man and a woman. 2.4 It should be a sin. 1.3 It's perfectly appropriate for two consenting adults. 8.4 It should be legalized 9.1 It can harm children. 2.0 Same sex couples should have the same legal rights as male/female couples. 7.6 It's just horrible. 1.5 It can't do any harm. 6.9

Suppose that there was reasonable consensus among our judges for the above items. When administering the scale, we'd ask individuals to indicate which of the above they agreed with (the average level that our judges had agreed upon would not be indicated on the scale when administered to individuals).

Finally, the average of those checked would be calculated to determine the individual's attitude. Problems with developing Thurstone scales include

1) it can be quite time consuming and expensive,

2) examples for the mid-points of the scale for which there is consensus among the judges can be difficult to obtain.

Guttman scales:

With a Guttman scale, you have a set of statements so that a respondent who agrees with any specific statement in the list will also agree with all previous statements. In other words, each statement subsumes the lower order statements. For example, a scale designed to measure Post-Traumatic Stress Syndrome, presented below, was based upon the Guttman technique and was published in the Journal of Clinical Psychology (1323-1328, 1984).

Scale score Scale item 0 In service 1965-1975 1 Stationed in Vietnam 2 Saw injury or death of US Serviceman 3 Fired weapon/fired upon in combat 4 Responsible for death of enemy military 5 Wounded in combat 6 Responsible for death of enemy civilian 7

Served third tour of duty in Vietnam Likert,

Likert-type, or Summated Rating Scales: Individuals without tremendous expertise are able to develop sophisticated measures using the Likert method for developing scales. Although originally developed with a number of statements in which individuals indicated their extent of agreement with response choices such as

- 1 = disagree,
- 2 = disagree somewhat,
- 3= neither agree nor disagree,
- 4= agree somewhat,
- 5 = agree,

statements with other response choices such as unimportant to important can be used. Additionally, it's been found that if the anchors at each end are good anchors, the choice points in between the end anchors do not need to be labeled. Thus, a scale that measures job satisfaction might look like Very Dissatisfied, Very Satisfied

very Dissuismed, very Suismed	
The actual job itself.	12345
The degree to which you feel 'motivated' by your job.	12345
Current career opportunities.	12345
The level of security in your present job.	12345
The extent to which you may identify with the public	
image or goals of yourorganization.	12345
The style of supervision that your superiors use.	12345
Your level of salary relative to your experience.	12345
The way changes and innovations are implemented.	12345



SCHOOL OF SCIENCE AND HUMANITIES DEPARTMENT OF VISUAL COMMUNICATION

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IV - RESEARCH DESIGN

Experimental Research Design

The Research design that is used to test a Research Design of causal relationship under controlled situation is called experimental design. We should remember that an experiment is an observation under controlled conditions or in other words, we can say that it is a design in which some of the variables being studied are manipulated or which seek to control the condition within which persons are observed. Controlling of conditions means that the phenomenon or the condition should not be allowed to change while the experimentation is going on. In experimentation, various types of evidence have to be, controlled so that the alternative hypothesis can be tested, and causal relationship may be found out. In short, here "control" means holding once factor constant while others are free to vary in the experiment. Independent variable are manipulated and its effect upon dependent variable is measured, while other variables which may confound such a relationship are controlled.32 Types of Experimental Research 1. After-only experimental design 2. Before – after experimental design. 3. Ex-post facto design 4. Panel study In the first type of experimental design, the experimental group and the control group are similar the uncontrolled extreme factors may affect both the group causal. The experimental group is exposed to the assumed causal variable (X) but the control group is not exposed. After the experimentation is over, both groups are compared, and it may be noticed that some effect (Y) is produced in the experimental group, but not in the control group the groups are assumed to be exactly similar. This may not be true. Secondly, it is possible that Y is produced not by X, but by some other external factors, or by the joint interaction of X & other external factions.33 In the second type, the dependent variable, i.e. effect is measured both a before and after the exposure of group, groups to experiment. This experiment may use one group or several groups. There may be one control group or more than one control group. The greatest weakness of this design is that during experiment, a group may be influenced by the external factor in a different way than the other group, for there is nothing to ensure uniform change. However, this design is more reliable than after-only design.34 In the third type of experimental research design, researcher depend on historical background because sometimes it is not possible to divide the population into two clear and similar groups this may be the case where the entire society consisting of different varieties of people and conditions are involved. It may be necessary to study the entire historical background of a country in the export facto design past is studied through the present.35 And the last type of experimental research design is panel study. It is a method of study of aparticular subject over time by using different kinds of data. In this, the researcher may secure direct evidence of time relationship among variables. It involves repeated observations on the same subject at different period of time. In after sense it is a time-series study.

Non Experimental Research

Nonexperimental designs include research designs in which an experimenter simply either describes a group or examines relationships between preexisting groups. The members of the groups are not randomly assigned and an independent variable is not manipulated by the experimenter, thus, no conclusions about causal relationships between variables in the study can be drawn. Generally, little attempt is made to control for threats to internal validity in nonexperimental designs. Non-experimental designs are used simply to answer questions about groups or about whether group differences exist. The conclusions drawn from nonexperimental research are primarily descriptive in nature. Any attempts to draw conclusions about causal relationships based on nonexperimental research are done

The research question or hypothesis can be about a single variable rather than a statistical relationship between two variables (e.g., How accurate are people's first impressions?).

The research question can be about a noncausal statistical relationship between variables (e.g., Is there a correlation between verbal intelligence and mathematical intelligence?).

The research question can be about a causal relationship, but the independent variable cannot be manipulated or participants cannot be randomly assigned to conditions or orders of conditions (e.g., Does damage to a person's hippocampus impair the formation of long-term memory traces?).

The research question can be broad and exploratory, or it can be about what it is like to have a particular experience (e.g., What is it like to be a working mother diagnosed with depression?).

Again, the choice between the experimental and nonexperimental approaches is generally dictated by the nature of the research question. If it is about a causal relationship and involves an independent variable that can be manipulated, the experimental approach is typically preferred. Otherwise, the nonexperimental approach is preferred. But the two approaches can also be used to address the same research question in complementary ways. For example, nonexperimental studies establishing that there is a relationship between watching violent television and aggressive behaviour have been complemented by experimental studies confirming that the relationship is a causal one (Bushman & Huesmann, 2001). Similarly, after his original study, Milgram conducted experiments to explore the factors that affect obedience. He manipulated several independent variables, such as the distance between the experimenter and the participant, the participant and the confederate, and the location of the study (Milgram, 1974).

Research can also be nonexperimental because it focuses on a statistical relationship between two variables but does not include the manipulation of an independent variable, random assignment of participants to conditions or orders of conditions, or both. This kind of research takes two basic forms: correlational research and quasi-experimental research. In **correlational research**, the researcher measures the two variables of interest with little or no attempt to control extraneous variables and then assesses the relationship between them. A research methods student who finds out whether each of several middle-school students has been bullied and then measures each student's self-esteem is conducting correlational research. In **quasi-experimental research**, the researcher manipulates an independent variable but does not randomly assign participants to conditions or orders of conditions. For example, a researcher might start an antibullying program (a kind of treatment) at one school and compare the incidence of bullying at that school with the incidence at a similar school that has no antibullying program.

Qualitative Research

A process of building a complex and holistic picture of the phenomenon of interest, conducted in a natural setting Researcher who use qualitative methods seek a deeper truth. They aim to "study things in their natural setting", attempting to make sense of, or interpret, phenomena in terms of meanings people bring to them The goal of qualitative research is to develop an understanding of a social or human problem from multiple perspectives

Multiple realities exist in any given situation Researcher interacts with those he/she studies and actively works to minimize the distance between the researcher and those being researched. Researcher explicitly recognizes and acknowledges the valueladen nature of the research. Research is context-bound. Research is based on inductive forms of logic, categories of interest emerge mainly from informants (subject). The goal is to uncover and discover patterns of theories that help explain a

phenomenon of interest Determination of accuracy involve verifying the information with informants or triangulation among different sources of information.

Quantitative Research

A process of inquiry based on testing a theory composed of variables, measured with numbers, and analyzed using statistical techniques. The goal of quantitative methods is to determine whether the predictive generalization of a theory hold true.

Reality is objective, "out there" and independent of the researcher, therefore reality is something that can be studied objectively; The researcher should remain distant and independent of what is being researched; Research is based primarily on deductive forms of logic, and theories and hypotheses are tested in a cause-effect order; The goal is to develop generalization that contribute to theory that enable the researcher to predict, explain, and understand a phenomenon.

Quantitative Research: Involves the numerical representation and manipulation of observations for the purpose of describing and explaining the phenomenon that those observations reflect. It is argued that quantification allows for more precision in analysis and ease in summarizing data and making inferences Attempts to be very objective and controlled Can lack the depth of some qualitative approaches.

Qualitative research: Involves the examination and interpretation of observations for the purpose of discovering underlying meanings and patterns of relationship. It provides much richer, in depth data, which often provide insights into subtle nuances that quantitative approaches might miss. Very useful for exploratory research and in the early stages of theory development.

TYPES OF RESEARCH

- 1. Experimental
- 2. Exploratory
- 3. Descriptive
- 4. Longitudinal Historical studies

Experimental

Controlled testing to understand the causal procedure.

Establish and correlation between cause and effect, within variably.

The experimental design can be classified based on two criteria- Approach and Method

✓ Residual method

Filtration of known variable of the cause and left cause exists with unknown variable

✓ Associated variation method

 \hat{E} One variable increase cause, at the sometime due to that the other variable increases the effect or vice-versa.

 \hat{E} First variable i.e. X is cause and can be considered as predecessor and second variable i.e. Y is effect and can be considered as succession.

Tools – Survey, Case studies

Ê Studying past using present situation. (another research

future prediction is being done using present situation)

Quite comparative in nature

Quasi Experimental design:

Quasi means single or almost same

It is very much similar in before-after research method

Only single group will be decided to experiment

E.g.: In a class the researcher will interview only Mediocre students before and after the examination, but did not take any other

student's opinion.

Exploratory Research Design

It is also called formulative study

It is to find out scope, concept, to develop idea, to understand the

limitation of a subject

Aim is to explore something

Method used:

Literature review

Survey

Case study

Description Research Design

Descriptive in nature

 \hat{E} To identify the problem, to understand the specific nature, to find out the possible variable and factors

Method used:

Ê Interview, questionnaire, schedule

Ê Documentation

Ê Observation

Longitudinal – Historical Studies

It is called vertical study

Ê Relating the facts in either ascending or descending order

Ê Especially in historical study, it gives date wise logical analysis

If it is only historical research-

> Understanding socio-cultural-economical change and transformation

Source of information: Diaries, autobiography, archive, agreement, museums, historical document.

Classification of Longitudinal Design

Longitudinal research design can be classified as below-

a. Trend Study Different time frame

Different group of people (different population)

E.g. In election period people voting behavior

b. Cohort Study

A group of people may be from different places have experienced the same event within a given period. E.g. A study on the student attitude passed in 1980 matriculation.

Variable

Variables means characteristics or various factors in an incident/event that can be measured and manipulated based on facts and logic

More one will earn, s/he will have more wealth. Wealth variable depends on earning variable.

Dependent variable: Wealth depends upon earning

Independent variable: Earning is independent variable

Wealth is effect and earning is cause

Earning = Independent variable = cause

Wealth = dependent variable = effect

Content analysis

Content analysis is a research tool used to determine the presence of certain words, themes, or concepts within some given qualitative data (i.e. text). Using content analysis, researchers can quantify and analyze the presence, meanings and relationships of such certain words, themes, or concepts. As an example, researchers can evaluate language used within a news article to search for

bias or partiality. Researchers can then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of surrounding the text.

Sources of data could be from interviews, open-ended questions, field research notes, conversations, or literally any occurrence of communicative language (such as books, essays, discussions, newspaper headlines, speeches, media, historical documents). A single study may analyze various forms of text in its analysis. To analyze the text using content analysis, the text must be coded, or broken down, into manageable code categories for analysis (i.e. "codes"). Once the text is coded into code categories, the codes can then be further categorized into "code categories" to summarize data even further.

Three different definition of content analysis are provided below.

- Definition 1: "Any technique for making inferences by systematically and objectively identifying special characteristics of messages." (from Holsti, 1968)
- Definition 2: "An interpretive and naturalistic approach. It is both observational and narrative in nature and relies less on the experimental elements normally associated with scientific research (reliability, validity and generalizability) (from Ethnography, Observational Research, and Narrative Inquiry, 1994-2012).
- Definition 3: "A research technique for the objective, systematic and quantitative description of the manifest content of communication." (from Berelson, 1952)

Systematically collect data from a set of texts, which can be written, oral, or visual:

- Books, newspapers and magazines
- Speeches and interviews
- Web content and social media posts
- Photographs and films

Content analysis can be both quantitative (focused on counting and measuring) and qualitative (focused on interpreting and understanding). In both types, you categorize or "code" words, themes, and concepts within the texts and then analyze the results.

Case Study

The procedure used in a case study means that the researcher provides a description of the behavior. This comes from interviews and other sources, such as observation.

The client also reports detail of events from his or her point of view. The researcher then writes up the information from both sources above as the case study, and interprets the information.

Case study research has grown in reputation as an effective methodology to investigate and understand complex issues in real world settings. Case study designs have been used across a number of disciplines, particularly the social sciences, education, business, law, and health, to address a wide range of research questions. Consequently, over the last 40 years, through the application of a variety of methodological approaches, case study research has undergone substantial development. Change and progress have stemmed from parallel influences from historical approaches to research and individual researcher's preferences, perspectives on, and interpretations of case study research. Central to these variations is the underpinning ontological and epistemological orientations of those involved in the evolution of case study research. Researchers who have contributed to the development of case study research come from diverse disciplines and their philosophical underpinnings have created variety and diversity in approaches used. Consequently, various designs have been proposed for preparing, planning, and conducting case study research with advice on key considerations for achieving success. As a result, while case study research has evolved to be a pragmatic, flexible research approach, the variation in definition, application, validity, and purposefulness can create a confusing platform for its use.



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V - DATA ANALYSIS

After collecting data, the method of converting raw data into meaningful statement; includes data processing, data analysis, and data interpretation and presentation.

Data reduction or processing mainly involves various manipulations necessary for preparing the data for analysis. The process (of manipulation) could be manual or electronic. It involves editing, categorizing the open-ended questions, coding, computerization and preparation of tables and diagrams.

Editing data:

Information gathered during data collection may lack uniformity. Example: Data collected through questionnaire and schedules may have answers which may not be ticked at proper places, or some questions may be left unanswered. Sometimes information may be given in a form which needs reconstruction in a category designed for analysis, e.g., converting daily/monthly income in annual income and so on. The researcher has to take a decision as to how to edit it.

Editing also needs that data are relevant and appropriate and errors are modified. Occasionally, the investigator makes a mistake and records and impossible answer. "How much red chilies do you use in a month" The answer is written as "4 kilos". Can a family of three members use four kilo chilies in a month? The correct answer could be "0.4 kilo".

Care should be taken in editing (re-arranging) answers to open-ended questions. Example: Sometimes "don't know" answer is edited as "no response". This is wrong. "Don't know" means that the respondent is not sure and is in a double mind about his reaction or considers the questions personal and does not want to answer it. "No response" means that the respondent is not familiar with the situation/object/event/individual about which he is asked.

Coding of data:

Coding is translating answers into numerical values or assigning numbers to the various categories of a variable to be used in data analysis. Coding is done by using a code book, code sheet, and a computer card. Coding is done on the basis of the instructions given in the codebook. The code book gives a numerical code for each variable.

Now-a-days, codes are assigned before going to the field while constructing the questionnaire/schedule. Pose data collection; pre-coded items are fed to the computer for processing and analysis. For open-ended questions, however, post-coding is necessary. In such cases, all answers to open-ended questions are placed in categories and each category is assigned a code.

Manual processing is employed when qualitative methods are used or when in quantitative studies, a small sample is used, or when the questionnaire/schedule has a large number of open-ended questions, or when accessibility to computers is difficult or inappropriate. However, coding is done in manual processing also.

Data classification/distribution:

Sarantakos (1998: 343) defines distribution of data as a form of classification of scores obtained for the various categories or a particular variable. There are four types of distributions:

- 1. Frequency distribution
- 2. Percentage distribution
- 3. Cumulative distribution
- 4. Statistical distributions

Frequency distribution:

In social science research, frequency distribution is very common. It presents the frequency of occurrences of certain categories. This distribution appears in two forms:

Ungrouped: Here, the scores are not collapsed into categories, e.g., distribution of ages of the students of a BJ (MC) class, each age value (e.g., 18, 19, 20, and so on) will be presented separately in the distribution.

Grouped: Here, the scores are collapsed into categories, so that 2 or 3 scores are presented together as a group. For example, in the above age distribution groups like 18-20, 21-22 etc., can be formed)

Percentage distribution:

It is also possible to give frequencies not in absolute numbers but in percentages. For instance instead of saying 200 respondents of total 2000 had a monthly income of less than Rs. 500, we can say 10% of the respondents have a monthly income of less than Rs. 500.

Cumulative distribution:

It tells how often the value of the random variable is less than or equal to a particular reference value.

Statistical data distribution:

In this type of data distribution, some measure of average is found out of a sample of respondents. Several kind of averages are available (mean, median, mode) and the researcher must decide which is most suitable to his purpose. Once the average has been calculated, the question arises: how representative a figure it is, i.e., how closely the answers are bunched around it. Are most of them very close to it or is there a wide range of variation?

Tabulation of data:

After editing, which ensures that the information on the schedule is accurate and categorized in a suitable form, the data are put together in some kinds of tables and may also undergo some other forms of statistical analysis.

Table can be prepared manually and/or by computers. For a small study of 100 to 200 persons, there

may be little point in tabulating by computer since this necessitates putting the data on punched cards. But for a survey analysis involving a large number of respondents and requiring cross tabulation involving more than two variables, hand tabulation will be inappropriate and time consuming.

Usefulness of tables:

Tables are useful to the researchers and the readers in three ways:

1. The present an overall view of findings in a simpler way.

2. They identify trends.

3. They display relationships in a comparable way between parts of the findings.

By convention, the dependent variable is presented in the rows and the independent variable in the columns.

Cross Tabulation

• While a frequency distribution describes one variable at a time, a cross-tabulation describes two or more variables simultaneously.

Cross-tabulation results in tables that reflect the joint distribution of two or more variables with a limited number of categories or distinct values.

Graphical Representation of data

The aim of presenting scientific data graphically is to utilise the power of visual display to communicate information efficiently, while avoiding deception or confusion. This is important both in how we communicate our findings to others, and to our understanding and analysis of the data. Patterns will often be revealed in a plot of data which would pass completely unnoticed if statistical analyses alone were used. The purpose of this interlude is to consider the relative merits of various type of graph commonly used in biology, along with some thoughts about what they should be used for. Then we will look at the basic principles of constructing graphs and how to deal with some of the common problems encountered with graphing biological data.

There are relatively few types of graph in common use. Most computer packages used for scientific graphs offer a similar selection, and it is these that will be dealt with here. (This is not to say that graphs have to be drawn using a computer, it is perfectly possible to produce publication quality figures by hand, but it simply provides a convenient starting point).

SPSS

- The main program in SPSS is FREQUENCIES. It produces a table of frequency counts, percentages, and cumulative percentages for the values of each variable. It gives all of the associated statistics.
- If the data are interval scaled and only the summary statistics are desired, the DESCRIPTIVES procedure can be used.
- The EXPLORE procedure produces summary statistics and graphical displays, either for all of the cases or separately for groups of cases. Mean, median, variance, standard deviation, minimum, maximum, and range are some of the statistics that can be calculated.

To select these procedures click:

- Analyze>Descriptive Statistics>Frequencies
- Analyze>Descriptive Statistics>Descriptives
- Analyze>Descriptive Statistics>Explore

The major cross-tabulation program is CROSSTABS.

- This program will display the cross-classification tables and provide cell counts, row and column percentages, the chi-square test for significance, and all the measures of the strength of the association that have been discussed.
- To select these procedures click:
- Analyze>Descriptive Statistics>Crosstabs

Thesis Wiriting Method

The following pages discuss each of these in turn, and give more detailed advice about how to prepare and write each one:

- Research Proposal
- Introduction
- Literature Review
- Methodology
- Anaysis and Interpretation
- Results and Discussion
- Conclusions and Extra Sections
- Particularly for master's programmes, your university may ask for your thesis to be submitted in separate sections, rather than as a single document. One breakdown that is often seen is three-fold:
- **Introduction and/or Research Proposal**, which should set out the research question that you plan to explore and give some ideas about how you might go about it. If you are submitting it as a research proposal, it will be fairly sketchy as you won't have had a chance to review the literature thoroughly, but it should contain at least some theoretical foundation, and a reasonable idea of why you want to study this issue;
- Literature Review and Methodology, which are often combined because what you plan to do should emerge from and complement the previous literature; and
- **Results and Discussion**, which should set out what you actually did, the results you obtained, and discuss these in the context of the literature.

Ethics in Conducting Research

Historical overview- Ethical codes Human experimentation has been conducted even before 18th century. However, the ethical attitudes of researchers drawn the interest of society only after 1940's because of human exploitation in several cases. Professional codes and laws were introduced since then in order to prevent scientific abuses of human lives. The Nazi experiments led to the Nuremberg Code (1947) which was the leading code for all subsequent codes made to protect human rights in research. This code focuses on voluntary informed consent, liberty of withdrawal from research, protection from physical and mental harm, or suffering and death. It also emphasises the risk- benefit balance. The only weak point of this code was the self regulation of researchers which can be abused in some research studies. All declarations followed, forbade nontherapeutic research. It was only in

1964 with the declaration of Helsinki that the need for non therapeutic research was initiated. The declaration emphasised the protection of subjects in this kind of research and strongly proclaimed that the well being of individuals is more important than scientific and social interests.

1.As some topics are controversial in their nature, so it becomes the prime duty of the researcher to check whether the topic to be studied has innate ethical ramifications. Thus, before finalising the topic, the ethical implications of the topic must be given a thought.

2. Ethics play a paramount role in the studies involving direct human contacts. So, the effects of the research on subjects must be given due consideration. Harmful research should be avoided.

3. Researchers conducting studies involving human subjects should clearly describe and justify the research protocol in the research design.

4. Authorship: Each author must be credited in the manuscript. In the same way, all the persons listed as authors in the article should have contributed significantly to both the research and writing.

5. Data management: The data must be collected in a way that doesn't harm or injure anyone. In order to address and sort out all the issues of conflict, a clear and ethically sound plan for data management must be carried out. Besides that, the ethical and truthful collection of reliable data, ownership and responsibility of collected data, and retaining data and sharing access to collected data with colleagues and the public are the three most important ethical issues must be taken care of in data management process. Data manipulation must be avoided.

6. Avoid plagiarism: Researchers must properly cite the original source. She has to act responsibly and take care of copyrights, intellectual property, patents and other forms of rights. Self-plagiarism - copying one's own work, must be avoided at any cost.

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