1

SCIENTIFIC METHODS OF MEDIA EFFECTS RESEARCH

Unit Structure

1.0 OBJECTIVES

In this chapter we are going to understand the

- Scientific approach to the study of media effects
- Way of Knowing
- The nature of science
- What is theory

1.1 INTRODUCTION:

Studying media has three major dimensions

1) Creation of the Content

2) Representation of the Content

3) Effect of the Content

a) The creation of the content is the policy and managerial functions of media which follow the objectives and agenda of any communication strategy/campaign or initiatives. We must consider many normative and authoritative verticals to understand the decision-making process in the media organization with respect to the selection, processing, and transmission of the content through any media platforms.

b) Representation of the content is based on the availability of the resources and understanding the media habits of the target groups and reaching out to them more efficiently and constructively. Representation also has a view point which expresses the stand taken by media professionals on certain issues and developments.

c) Effect of the media is altogether a large spectrum which emphasizes on the changes in psychological, social, and economic behavior after the usage of the media or media content by its audience.

We must check with what is scientific approach and how does one can understand, develop, and practice it. We are surrounded by science, science is everywhere. Science is in the artifacts (tools) we are using, science is in the way we behave, science is in the way people participate, science is in the production, distribution, promotion. Science is in our social, political and economic structures and hierarchies.

Media also is an outcome of science and technology. There are many stakeholders such as government, management, investors, media professionals, and audiences who playan important role in every laddered position in the media verticals. These stakeholders play an important role in the media industry as far as content creation, selection and processing are concerned. We always observe things around. We try to see the relation and co relations of each phenomenon we see and try to understand the relations of certain phenomenon with other verticals in our mind and try to measure those observations in a systematic and orderly way that is scientific approach.

1.2 WHAT IS THE SCIENTIFIC METHOD?

Merriam Webster defines scientific method as, “Principles and procedures for the systematic pursuit of knowledge involving the recognition and formulation of a problem, the collection of data through observation and experiment, and the formulation and testing of hypotheses.”

1.2.1 Scientific Methods of Media Effect Research

Media effect is an audience perspective about media. Media effect is all about knowing how does audience respond to the certain media content, what do they do when any actionable information is consumed by them, how do they respond to the appeal by various opinion leaders? Do they adopt or abandon the certain practices or thinking patterns from media content? What role media plays in the behavioural changes in the audience? There are and will be many questions and assumptions as far as media consumption and response to the consumed content by audiences are concerned.

1.2.2 Definition of Media Effect:

"Media effects refers to the many ways individuals and society may be influenced by both news and entertainment mass media, including film, television, radio, newspapers, books, magazines, websites, video games, and music."

To understand this effect of media content on media audiences, need for Mass Media Research arises. To conduct media research following broad steps are followed:

1) Identification of the Problem: Identifying research problem leads curiosity, thought, need to know more about, need to understand something, and exploring the facts. Identification of the problem begin with question or curiosity. We must check the facts and to come to the conclusion by analyzing them with the help of some assumptions.

2) Review of Literature: RoL help researchers to find a best way out for the research they are conducting by referring to the earlier research literature. Reviewing the published literature and understanding how much research work done in a particular domain and how much needs to be done is important. Therefore, learning with evidence-based literature is one of the most important aspects of the research.

3) Formulating the hypothesis: Hypothesis is an assumption in the research which may be proved or unproved in the conclusion. It is pathway for a researcher to stick to the baseline of research and research problem we are looking in to.

4) Research Design: Research design is the blueprint of the research. It's a plan and map for the researcher. Research Aims and Objectives, Research Questions, Data collection, selection and criteria for sampling, sampling tools and techniques, data analysis parameters and measures, research limitations and delimitations, operational definitions, are defined to reduce ambiguity in implementing the research process.

5) Data Collection: This one the most scientific and strategic way to find out which data will support hypothetical proposals and will bring research to the conclusion. Collecting data is an art but fixing the sample in the universe is the science. Data collection can be done using stated scientific methods of social science research.

6) Data Segregation and Analysis: Classification of the data is very much important as it helps in analysis. Categorizing collected information and interpreting the information is equally important in measurement.

7) Conclusion: Writing conclusion is an art which summarizes the task a researcher carried out during his research. People read the abstract and conclusion in the beginning to understand the depth and quality of the research.

1.2.3 There are certain methods we adopt in media effect research.

Mass Media theories offer the outline for impending enquiries around media effects extending since as modest as in what way7-year-old boys respond to cornflakes commercials to as comprehensive as by what method Internet usage affects learning. When researchers imagine a plan and regulate a hypothetic alagenda, they essentially pickup concrete research approaches. Current examine approaches are significantly diverse and can variety after analysing deep-rooted newspapers to execution skilful tests.

Content Analysis

Content analysis is a research method which contains an alysing the content of several systems of media. With the help of content analysis, scholars' nerve to appreciate both the persons who shaped the content and the people who consumed it. A distinctive content analysis plan does not need elaborate trials. In its place, it merely needs access to the suitable media to analyse, making this type of study an easier and low-cost substitute to other systems of research involving complex surveys or human subjects.

Archival Research

Research that examines older media that essentially adopt archival research, which is a type of research that focuses on studying historical credentials such as old newspapers and past publications.

Surveys

Surveys are universal in contemporary lifespan. Questionnaires get the data on whatever since brand recalling to social media habits. Surveys can be open-ended or closed-ended by nature. Mass media surveys usually take one of the following two forms.

A open ended survey purposes to get the existing condition of phenomenon, such as trend in social media and political discourses, Memes and violation of privacy or media habits and brand selections etc. In media, open ended reviews create TV and Broadcasting ratings by result the number of individuals who consume what programs at what time on which media platforms. A systematic survey, yet, does additional than just record a contemporary situation. In its place, it efforts to reach out to why a specific condition exists. Researchers proposed queries or premises around media, and formerly conduct systematic surveys to answer these questions.

Interviews

The interview is an anthropological research tool that is also useful in media studies.

Interviews take reviews one stage closer by permitting researchers to straight enquire a research contributor about precise question to get a

better and broader insights of the participant's insights and understandings. Interviews have been used in investigate projects that follow newspaper reporters to find out their reasons for reporting certain stories and in projects that attempt to understand the motivations for watching world cinema.

Groups discussion

Similar to the depth interviews, group discussion allows researchers to well understand public reactions to media. A group discussion allows the members to begin a gathering active that more closely look like that of usual media usage. In media studies, researchers can employ focus groups to judge the reactions of a group to specific media styles and to content. This can be a valuable means of understanding the reasons for consuming specific types of media.

CHECK YOUR PROGRESS

1. How many types of research methods are there?

2. Define Media Effects.

1.3 WAY OF KNOWING

How do we know? What we know? is the long-lasting question is the study of psychology and behavioural science. Just think once about what you know? and in what way you learned that. Probably you know that you must clean and make your bed in the morning as your parents might have instructed you that. Maybe you know that parrots are green because all of the parrots you have seen are green. The procedures of receiving information can be broken down into five categories each with its own merits and demerits.

Perception

Intuition is one way to know things. When we rely on our instinct, we allow our feelings, predispositions, or gut sentiments to lead the way. Perception entails believing what feels true without considering the evidence or exercising rational reasoning. The problem with depending on instinct is that it's possible for our feelings to be misguided as they are influenced more by our motivations and cognitive biases than by rational deduction from data. While your buddy's odd behaviour may make you suspect that your friend is lying to you, it may simply be that your friend is holding in a little gas or is focused with something unrelated to you.

However, for some people, assessing options and considering all of the potential outcomes can be paralysing, and there are occasions when decisions based on intuition are actually better than those based on analysis. (people interested in this idea should read Malcolm Gladwell's book Blink).

Authority

It's possible that authority is one of the most popular ways to learn. This approach entails embracing novel concepts just because an authority figure declares them to be true. Parents, the media, physicians, priests and other religious leaders, the government, and professors are some of these authorities. Although in an ideal society we should be able to trust authority leaders, history has shown us that this is not always the case. For example, the Salem Witch Trials and Nazi War Crimes are examples of atrocities committed against mankind as a result of individuals blindly deferring to authority. While your parents may have advised you to make your bed every morning, doing so actually creates the warm, moist environment that mites need to grow. Mites are less attracted to the sheets when they are left open. These instances show the difficulty of relying on authorities to provide knowledge because they might be mistaken, rely solely on intuition to draw their judgements, or have other motives for deceiving you. However, as we lack the time to critically evaluate and independently examine every item of knowledge we receive through authority, a large portion of the knowledge we absorb comes from sources we can trust. However, we may develop the ability to assess the credentials of authoritative figures, the processes they utilised to reach their findings, and whether they have any motives to deceive us.

Rationalism

Rationalism is the process of acquiring new knowledge through logic and reasoning. In order to reach sound conclusions using this method, premises are provided and logical principles are followed. For instance, even without seeing the swan, I can rationally conclude that it is white if I am given the premises that all swans are white and that this is a swan. This method has the drawback that the conclusion will not be legitimate if the premises or the logic are incorrect. For instance, it is wrong to assume that all swans are white; Australia is home to black swans. Additionally, mistakes are simple to make unless one has received proper training in reasoning. However, if the premises are true and the rules of logic are applied correctly, this is a sound method of learning.

Empiricism

Empiricism is the process of learning via experience and observation. Again, many of you may have assumed that because you have only ever seen white swans that all swans are white. Because it looks to be flat, people have long assumed that the world is flat. These instances, together with the other optical illusions that deceive our senses, highlight the drawbacks of depending solely on empiricism to generate knowledge. Our capacity for experience and observation is constrained, and our senses are not always reliable. In addition, how we interpret events might be influenced by our past experiences. However, the scientific method is grounded in empiricism. Observations are essential to science. Science, however, is dependent on structured observations, also referred to as systematic empiricism.

1.4 THE SCIENTIFIC METHOD

The scientific method is a procedure for methodically gathering and analysing data to test hypotheses and provide answers. While scientists may draw on authority, reason, empiricism, and intuition to come up with novel theories, they don't stop there. In order to test their theories, scientists take systematic empiricism a step further by making thorough observations under a variety of controlled situations. They then apply rationalism to draw reliable conclusions. The scientific method has its limitations, but it also has the highest likelihood of all techniques of knowledge acquisition to yield reliable knowledge. The scientific approach can sometimes be impractical because it might take a lot of time and money. This is one of the main issues. The inability of the scientific approach to provide answers to all queries is another drawback. The scientific method can only be used to answer empirical questions, as will be discussed in the section that follows. You will gain a thorough understanding of how psychologists apply the scientific method to further our understanding of human behaviour and the mind from this book and your research methods course.

1.4.1 What Is Science?

- Science is a universal method of understanding the accepted biosphere. Its three essential structures are orderly pragmatism, experiential enquiries, and civic knowledge.
- Psychology is a science discipline since it takes the systematic approach to measuring and understanding human behaviours.

Measuring media effects is one of the branches of psychology. Because it has a direct relation with media consumption and audience behaviour. Some people are amazed to know that psychology is also a **science**. They normally believe that astronomy, biology, and chemistry are sciences but surprised what psychology has in mutual with other domains. Though, it is important to reflecting on what other domains of science in joint with *together*. For these and additional explanations, theorists and experts who have thought intensely around this enquiry have decided that what the sciences have in common is a general approach to knowing the natural world. Psychology is a science since it takes this same general approach to understanding one aspect of the natural world: human behaviour.

1.4.2 Features Of Science

1) Systematic Empiricism

2) Empirical Questions

3) Public Knowledge

The over-all systematic method has three essential landscapes. The first is **systematic pragmatism.** Empiricism denotes to knowledge built on observation, and researchers' study around the natural world methodically,

by rationally designing, constructing, recording, and analysing observations of it. Scientists are novel in their persistence on examining their ideas about the way the world is in contradiction of their scientific and systematic observations. Notice, for example, what do people comment on the posts published on the official pages of celebrities.? Researchers will not assume things to make or pass the statements but instead, they methodically noted, calculated, and associated the number and nature of comments given by a large sample of internet users.

The second characteristics of the scientific method—which trails in a upfront technique from, that it is surrounded with **empirical questions**. These are enquiries around the means the world really is then, consequently, can be replied by methodically perceiving it. The question of whether women use social media more than men is empirical. Either women use social media more than men or they do not, and this can be fixed by methodically observing how much women and men use social media.

There are several exciting and significant questions which are not analytically measurable and that science is not able to answer. Like questions about values —What is true? Are things upright or bad, fair, or unfair, or lovely or unpleasant. An example of analytically measurable question can be- Is stereotype precise or imprecise? is an analytically measurable? Similarly, the question like criminal behaviour has a hereditary base- is an empirical question.

The third significance of discipline is that it generates **public knowledge.** Afterward enquiring their experiential queries, creating their methodical remarks, and portrayal their conclusions, researchers circulate their work. This typically means inscription of an article for magazine/book/newspaper or in a professional journal, in which they publish their research question in the background of preceding research, define in depth the approaches and methods they have used to get the answer to their enquiries, and evidently represent their outcomes and conclusions. Progressively, experts are choosing to publish their research work all access media/journals, in which the articles are easily accessible by all,

Publication is an important aspect of science for the above reasons. One is that knowledge is a community procedure—a significant association amongst numerous scholars disseminated sideways together time and space. Our existing scientific knowledge of maximum themes is based on numerous diverse studies carried out by several diverse scholars who have made their work common openly over countless years. The second is that publication permits science to be self-correcting. All experts comprehend that, despite their best efforts, their approaches can be imperfect and their deductions may be incorrect. Publication permits others in the scientific community to notice and accurate these errors so that, over time, scientific knowledge progressively imitates the means the world really is.

1.4.3 What is a theory?

A theory is a comprehensive account of a phenomenon in the natural world that includes laws, hypotheses, and facts. For instance, the gravitational field hypothesis explains why fruits fall from trees and astronauts float in space. Like how this explains why there are many plants and creatures on Earth today and in the past, some of which are remarkably similar and others which are radically distinct.

A theory helps scientists predict what observations they should expect to find if the theory is accurate in addition to explaining the facts that are already known. Hypotheses in science can be tested. A theory should be in line with fresh information. Otherwise, the theory is modified or rejected. A theory's fundamental premises hold true for a longer period, the more observations it predicts, the more tests it passes, and the more facts it explains.

1.6 QUESTIONS

1) What are different ways of knowing?

2) Why should research follow scientific methods?

3) What is theory?

4) Write a detailed note on Features of Science.

1.7 LET'S SUM IT UP

- The creation of the content is the policy and managerial functions of media which follow the objectives and agenda of any communication strategy/campaign or initiatives.

- Representation of the content is based on the availability of the resources and understanding the media habits of the target groups and reaching out to them more efficiently and constructively.

- Media also is an outcome of science and technology. There are many stakeholders such as government, management, investors, media professionals, and audiences who playan important role in every laddered position in the media verticals

- Media effect is all about knowing how does audience respond to the certain media content, what do they do when any actionable information is consumed by them, how do they respond to the appeal by various opinion leaders?

- To understand this effect of media content on media audiences, need for Mass Media Research arises. To conduct media research following one must identify the problem, conduct literature review, formulate the hypothesis, prepare research design, collect data, and analyse, and then conclude with findings and observations.

- Commonly used research methods- content analysis, survey, in-depth interviews, archival research, groups discussion.
- Ways of knowing- perception, authority, rationalism, and empiricism.
- Features of science - Systematic Empiricism, Empirical Questions, Public Knowledge
- A theory is a comprehensive account of a phenomenon in the natural world that includes laws, hypotheses, and facts.

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2

THE BRIEF HISTORY OF MEDIA EFFECTS RESEARCH

Unit Structure

2.0 OBJECTIVES

In this chapter we are going to understand the:

- The Eras of Media Effects Designs
- Types of Media Effects
- Audience theories and Media Effects
- Effects of Media on Education: Do Media Educate?
- Children and the Mass Media: The Lively Audience

2.1 INTRODUCTION

The Eras of Media Effects Designs

The initial segment, from World War I and it was there till 1930. It was categorized by the supposition that the effects of the media on the people would be exceptionally strong. Media were attributed with nearly unlimited supremacy in their capacity to form opinion and belief, to modification of life customs, and to manipulate the audience behavior

extra or fewer conferring to the determination of their supervisors. The influence of mass media messages over unsuspicious audiences was defined in radical relations: the mass media evidently passionate messages like hazardous bullets, or shot posts into the audience like solid remedies pushed through hypodermic needles.

These metaphors offered growth towards the "hypodermic-needle concept" (Berlo 1960, 27), the "magic bullet theory" (Schramm 1973, 243), and the"transmission belt theory" (DeFleur and Ball-Rokeach 1982, 161).

Instinct psychology and the theory of mass society were understood to demonstration that people in developed and industrial society were drifting, disaffected, and integrally susceptible to manipulation. As a result, they were shield less in contradiction of and at the compassion of the unpredictable stimuli of the media – predominantly as initial thoughts preserved that the mass media were run largely by people and establishments that were purposely trying to employ a targeted stimulus upon receivers.

The second stage of the distinctive history continued around from 1930s till 1960s and was distinguished by the hypothesis that the media were mostly not significant and influential.

The research team of Paul F. Lazarsfeld accompanied in the deconstructionism of the bullet theory. The outcome of their pragmatic, social- scientific election study. The people's choice (1944), moved curiosity away after what the mass media did to people and in the direction of what people did with the media. Somewhat than seeing a society of split individuals in receipt of omnipotent messages from the mass media, the interpretation shifted to one of a civilization of individuals who interrelatedinside groups then inadequate the effects of media communications.

Early on, Lazarsfeld et al. (1944) defined all three key concepts that Joseph T. Klapper (1960) later united and used as the basis of his limited effects theory.

These philosophies also categorized the second stage of effects research. They state that: (1) people practiced is criminatory acquaintance and choosy awareness to guard themselves from media effects, accepting nearly solely only such data as agrees to their formerly recognized insolences; (2) opinion leaders starts with a two-step flow of messages by fascinating thoughts and advices from the mass media and then interactive with these – transmuted – thoughts to a smaller amount of active individuals; (3) social group creation improves the part that relational communication plays in shielding an distinct member from a alteration of opinion, as followers do not wish to lose association in their interpersonal group.

The next phase is 1960s onwards till the end of the 1970s, was considered by the renaissance of strong media effects. An amount of exceptionally stared studies presented that it was probable for the mass media to

overwhelmed some selectivity procedures in a TV saturated environment. At the end of the 1940s Herbert Hyman and Paul Sheatsly (1947) presented a study in Public Opinion Quarterly named "Some reasons why information campaigns fail"; then, few years later, Harold Mendelsohn (1973) utilised the similar medium to state the precise differing: "Some reasons why information campaigns can succeed." Three different features are attributed to this stage: more matured approaches of analysis, more precise hypotheses, and more highly differentiated hypothetical approaches. So, survey statistics and content analysis facts could be shared long-term with the help of time-series analyses or panel strategy studies. Mass Media effects research later that time has been not as much of attentive on crude changes in attitude or behaviour, and more interested in delicate variations in our insights about the world outside.

The next fourth stage of the standard media effects past ranges through to the contemporary time and is categorized by "negotiated" or "transactional" effects. Now the leading principle preserves that the media apply their highest influence as they developedand involved in the procedure of creating sense and meaning.

In the beginning, media "construct" social constructions and history itself by enclosing images of reality in expectable and decorated ways. Then, people construct for themselves their personal interpretation of social realism and their place in it, in interface by the representational structures presented by the media. The method permits equally for the control of mass media and for the power of people to choose, with a terrain of continuous negotiation in between, as it were.

2.2 TYPES OF MEDIA EFFECTS

The Sense of 'Media effects' means diverse things to different people. A psychologist, for example, has 'psychological' perspectives while measuring of observing the media effects in mind. Similarly for sociologist, will put things across with the sociologist perspective and will try to figure out media effects in the social-cultural context. The Political theorist will connect the dots with the political perspective and will check the reality in the political point of view. So, everyone put the media effects with their own object-oriented domain-based approaches thus it will change the meaning person to person. Same effects with different point of view. Like for Ex. An advertisement of Cadbury Dairy milk and its impact on children. One can put this research in social, economical and psychological perspectives to understand the reactions of the children to the particular commercial.

So, any effort to know 'effects' essentially take into interpretation the viewpoint from which the 'effects' are being examined. In addition to this, 'effects' are of many types and various degrees too.

They may be temporary, medium-term, or long-term; they may be manifest or latent, strong, or weak or transient and superficial as in the case of fashions, stances, and life-styles. Then there are impacts of a

transitory behaviour or of a more lasting behaviour. In continuation it can influences be termed as ‘effects?

How do "influences," "effects," and "impacts" differ from one another, or are they merely interchangeable terms for the same social phenomenon? Some media sociologists have questioned the ability of common language to accurately capture the complexity of the effects of media on society. What precisely are "the media"? Like technology (printing presses, the telegraph, telephones, radio and television sets, audio and video recorders, video and movie cameras, satellites, computers, etc.) or the "genres," "programmes," or "contents of different media? Or are they the cultural and entertainment sectors, which are currently among the industries with the fastest growing economies and are controlled by huge media conglomerates? Or are they the numerous media companies engaged in the creation, preservation, transfer, and display of media content? The social sciences seem to be known for their utter imprecision when discussing "the media" and "effects."

The straightforward Sender and Receiver paradigm will soon become obsolete as more additional variables emerged in the study of the effects of mass media transmission. However, this was not the last word, as scholars studying mass communication in later times developed further complex theories and conducted additional research to understand effects and communication techniques. That individual, conditional, contextual, and phenomenal factor could be achieved even by complement analyses of the War of the Worlds phenomenon by Princeton scholar Hadley Cantrail and colleagues, such as the use of social media for social engagement by users, the use of social media for social awareness by individuals as well as organisations, etc.

Klapper summarised findings in three areas of concern after reviewing over a thousand studies, articles, and reports published before 1960: the consequences of violence, political impact, and the notion that entertaining content.

2.3 AGENDA-SETTING THEORY AND MEDIA EFFECT

Max McCombs and Donald Shaw, communication researchers first proposed the agenda setting theory, summaries the news media’s hypothetical capability to set significances for public opinion—that is, to regulate the comparative salience of present bulletin topics for associates of the community. In 1968 stated “Chapel Hill study,” McCombs and Shaw (1972) established a strong association amid what themes were enclosed deeply in the news media and what associates of the public measured the most striking matters in political processes and election.

Many studies to follow long-established and prolonged the ideas of agenda-setting theory. A significant variation was completed among agenda-setting is media guide us “What to think about” and agenda-setting tells us “How to think about it” by highlighting convinced characteristics of issues.

Many more studies have scrutinized "agenda-building" stimuluses and intermedia agenda-setting procedures.

2.4 SOCIAL LEARNING THEORY AND MEDIA EFFECTS

Originally, the work of Albert Bandura was intended merely at confirmative that those may learn through perceiving the behaviours of others, relatively solitary via recompense or penalty for their own behaviours.

"Bobo doll studies" study by Albert Bandura confirmed experimental or social learning, both for living models and refereed models. His outline recognized that recipients may obtain information and learned standardizing behaviours from remote and imaginary models, which had strong and far-reaching inferences for mass media effects.

Studies on media effects have also found use for theoretical theories, such as the strengthening impact of displayed incentives (and the opposing effect of punishment) and the likeness of the recipient to the model demonstrating the behaviour.

Many people have used Bandura's theory as the basis for research on violence and the media as well as frequently other effects, such as prosocial behaviours like eating healthily or putting others before oneself. Bandura applied his theory to deliberate changes like the extermination of fears over observation.

2.5 SPIRAL OF SILENCE

With great efforts it came in limelight with an experiential similarity of societal circumstances, Elisabeth Noelle-Neumann's (political scientist), spiral of silence theory (1974) tried to clarify why people in her innate West Germany would incline to endure silent once they supposed that they seized a marginal/minority opinion. She theorized that distress of separation (a lack of conformity) and fear of retaliations were likely clarifications. Mass media centric approach (particularly news media) as prime conveyers of environment of opinion—what feelings are in the mainstream and which in the minority—carried this concept to the courtesy of communication scholars.

The spiral of silence outlook has subsequently remained functional to numerous global circumstances and has been modified and squeezed to explanation for heterogeneousness in the social order by recognizing several spirals and has maximum lately been useful to environment of social media.

2.6 CULTIVATION THEORY AND MEDIA EFFECTS

Cultivation theory is a cognitively focused addition to social cognitive theory that was developed by George Gerbner and colleagues in

communication at the University of Pennsylvania, USA. It states that exposure to mediated images of the world that are repeated and consistent will cultivate the belief that these images reflect the real world. Television, which at the time provided a monopolistic source of information and entertainment for US consumers, was the first focus of the theory and associated research. The uniformity of TV depictions and pictures made it possible to track effects like the mean world hypothesis, which suggested that people who watched a lot of TV had an inaccurate perception of how dangerous and terrifying the real world was. The idea that heavy TV watchers would have more in common with light viewers in terms of how they perceive the outside world was also supported. Stereotyping based on race, gender, and body image have all been subject to cultivation. With the proliferation of channels and the segmentation of audiences brought on by changes in the media landscape, cultivation studies are still mapping the theory.

Everett Rogers' 1962 book on the diffusion of inventions sparked thousands of investigations all around the world and aided policymakers who were having trouble promoting economic growth. The perspective also introduced typologies of adopter types (from innovators to laggards), characteristics of innovations that stimulate or impede adoption, and consequences of innovation adoption. It acknowledged the two-step flow of mediated messages through opinion leaders and change agents. Even now, there is still a strong heritage of research on the diffusion of innovations, with significant international and interdisciplinary overlap and a focus on communication-related technologies. Research on how communication affects development has been a vigorous area of study, not just in terms of diffusion theory.

Wilbur Schramm (1964) highlighted the beneficial association between economic progress and communication services, while Daniel Lerner (1958) recognised the role of the media in influencing national development. Studies on how innovations spread in rural communities throughout the 1960s and 1970s gave rise to the idea of development communication. Examining grassroots initiatives that combined influences from interpersonal channels and popular culture was done in addition to these top-down research.

Like the physical and natural sciences, the social sciences are not 'precise' sciences. The natural sciences investigate minerals, plants, animals, and the cosmos, where regularity and predictability are the order of the day, while the social sciences research people and how they behave in various contexts. In addition, social scientists and media specialists infrequently consider the countless 'uses' that various media and programming are put to in various situations. The term "effects" is typically used in a deceptive way since it implies that the media "does something" to people, as if they were inorganic beings who did not contribute their own personalities to the communication process. Additionally, it implies that the public is being used as a prop by the media. In other words, audiences are unresponsive, if not passive, whereas the media are active.

The Aristotelian linear models of communication, which view persuasion as the primary purpose of all communication, are where these presumptions about media and audiences first emerged. Since media effects generally occur in conjunction with a wide range of social, economic, and cultural variables, the truth is that we don't really know anything about them with any degree of certainty or with any kind of reliable evidence. Do impacts correspond to changes in attitude and behaviour, no matter how slight? Perhaps. The degree of change depends on the individual audience members' wishes and tendencies as well as how they individually and as members of diverse social and cultural groups react to different sorts of stimuli from the mainstream media and social media.

There is frequently little connection between what a person learned, knew, or remembered on the one hand and what he did or how he felt on the other, showing how easily people may be persuaded without paying attention or even making any changes! Therefore, it follows that it's possible to learn something without also believing it, to believe something without acting upon it, and to act upon something without also believing it. The 'interaction' between media and people is a very complicated issue. It becomes much more complicated when we consider the wide range of media available, the multiple programming genres they offer, as well as the wide range of individuals and groups who listen, see, and read in the countless socio-cultural contexts in which they do so. The assessment made by American behavioural scientist Bernard Berelson in 1948 is possibly the only one that can be considered safe regarding the "effects" (or "interactions") of the media: "Some types of communication on some types of issues, brought to the attention of some types of people under some types of circumstances have some types of effects,"

Both 'functionalist' and 'critical' schools of communication have put forth several hypotheses regarding the effects or modifications the media have had on people and society. The 'functionalist' theorists start off with the premise that the media serve a purpose in society: to preserve, strengthen, and stabilise the consensus. They assume that competition among the various groups in society provides for free and fair play and that all groups have an equal chance to rule and dominate. They do not consider the issue of power and conflict as a key driving force in society.

The 'critical' theorists, on the other hand, believe that the social class/group struggles for power are at the core of society and that the dominant class consistently uses the media to spread its ideology. The 'critical' theorists are also less concerned with effects than they are with the cultural and political contexts in which media experiences occur, the ownership and economics of the media, and the various ways in which audiences ‘read' the media, whereas the 'functionalists' research media effects using empirical quantitative methods.

These theories span two extreme positions, one in which the media has all-pervasive, wide-ranging effects and the other in which they have no influence at all. One extreme is represented by authors and academics like

Marie Winn, who consider media, particularly television, to be a "plug-in drug," while the other extreme is represented by Joseph Klapper, who concluded from his longitudinal research that media just serve to "reinforce" pre-existing attitudes, routines, and beliefs. The "negotiation" or interaction theorists, who fall somewhere in the middle, contend that audiences eventually "negotiate" effects and meanings of media texts.

Many media theories focus specifically on the 'effects' of programme content on beliefs, opinions, attitudes, and social behaviour. Although some of the beliefs are based on conjecture or personal experience, most of the theories are based on research on television and film. Most studies have focused on how violence in television shows affects children's and teens' conduct; some studies have looked at how propaganda affects people's opinions and voting habits. Early impacts research was conducted by social psychologists and was based on the 'persuasion' model of communication (the Lasswell model and the Shannon-Weaver model, for example). As a result, the results frequently indicated high effects because that is what they were initially looking for. The social contexts (such as the family, the house, the theatre, the school, or the peer group) in which the media were experienced were rarely taken into consideration. Mechanical pre-test and post-test research techniques were often used in laboratories to conduct stimulus-response tests to measure effects. As a result, the outcomes they obtained were as anticipated.

CHECK YOUR PROGRESS

1. Explain in detail any two types of audience theories?

2. Write two media research topics based on the above media theories.

2.7 REINFORCEMENT AND NARCOSIS: LIMITED EFFECTS THEORIES

For instance, Joseph Klapper and others thought the media reinforce pre-existing values and attitudes. Media programmes can only then become well-liked by numerous social groupings with an interest in maintaining their own customs and statuses. The mass media "cannot be relied upon to work for changes, even minor changes, in the social structure," according to Lazarsfeld and Merton. They emphasised three social functions of the media: the first was the "conveyance of social status," the second was the "enforcement of social norms," and the third was the "narcotizing dysfunction," which diverts viewers' attention away from actual issues and really hinders people from acting.

In other words, audiences are lulled into inactivity and a sensation of elation by the mainstream media, which has an addictive impact like that of drugs. According to Lazarsfeld and Merton, the average reader or listener may become narcotized rather than energised as a result of exposure to a stream of information. A smaller portion of time is available for organised action since more time is spent reading and listening. The

knowledgeable and interested citizen may take pride in his lofty level of knowledge and interest yet oblivious to the fact that he has refrained from making decisions and taking action. He eventually starts to confuse being aware of the issues of the day with doing action to address them.

The argument, which was initially put up in 1948, now seems out of date, especially in light of the mass media's role in ending the Vietnam War and impeaching President Nixon as a result of the reporting on Watergate. Of course, several other societal elements were also important. In India, the journalistic coverage of the emergency's excesses, especially through underground literature, did help put an end to the emergency's reign of terror. More recently, the excessive media attention provided to PM Narendra Modi before, during, and after the national election campaigns in 2014 and 2019 may have been a key factor in the BJP's resounding victory. Significantly more than the Congress and all other political parties combined, the BJP spent money on political advertising on Facebook and Google. Additional examples include the "Arab Spring" upheavals, #MeToo, #BlackLivesMatter, and related social and political movements.

2.8 CATHARSIS: PURGATION OF PITY AND FEAR

Closely related to the 'narcosis' theory, is the 'catharsis' theory of media effects. Seymour Feschbach, the main exponent of the theory, following Aristotle, argued that the media have a 'cathartic' effect on people that somehow purges them of many anti-social and unfulfilled desires, frustrations, and feelings of hostility. In one of his laboratory studies, Feshbach subjected college students to savage insults and criticism at the hands of experimenters; the 'experimental group' was then shown an aggressive film of a brutal boxing match, while the 'control group' was shown a dull film. When they were later questioned about their opinions of the experimenters, those students who had seen the film on boxing felt less hostile to their experimenters than those students who were shown the 'control' film. However, in an almost identical laboratory experiment by Leonard Berkowitz, the experimenters were introduced to the students as either a boxer or a rhetoric student. The students were then exposed to either a violent boxing film or a neutral nonviolent film. Later, they had the chance to give electrical shocks (under the pretext of a separate experiment) to the 'boxer' or the rhetoric student. It was found that those students who had seen the boxing film gave the largest number of shocks to the 'boxer'. Berkowitz concluded that the boxing film was responsible for the aggressive response of the students; this is termed the 'weapons effect'. A variation of this is the 'weapons priming effect' which states that weapon related words too can lead to aggressive behaviour. Other experiments have revealed that children are likely to imitate violence in films if the violent actions in the film are rewarded. Laboratory experiments are by their nature artificial for they cannot recreate the different conditions, environments, and states of mind in which violent films are seen. The reactions to violence in films can be very varied as is well demonstrated in Philip Schlesinger's work on 'Women Viewing Violence' and 'Men Viewing Violence' at the Stirling Media Research

Institute during the 1990s. The 'narcosis' and 'catharsis' theories represent extreme views. So does Ernest Van den Haag's view that 'mass communications, taken together are demeaning, debasing and de-personalizing instruments of manipulation at worst; middle-class hedonism at best'. Yet another extreme theory is that of Fredric Wertham which says that the content of the media is 'corruptive in general and specifically teaches materialism, brutality, antisocial behaviour and callousness towards other humans.

In contrast, Aldous Huxley took the stand that media indeed do teach people things, but most of them are of no consequence; they also have effects, but mostly in unimportant and trivial facets of our lives although we may think that they are important. These trivial facets are fashions, mannerisms, mating habits and food habits. As Schramm, Lyle and Parker found in their study of children and television, 'television could be an especially effective agent of incidental learning while the child is still young. This is because at that time it seems so real'.

2.9 USES AND GRATIFICATIONS

By the 1950s and '60s, communication researchers began to fine tune their methods and their theories. Elihu Katz, Denis McQuail and Michael Gurevitch introduced what they termed the 'uses and gratifications' theory of media effects. They turned their attention to how audiences used the media to live out their fantasy lives and to seek out other gratifications or even to inform and educate themselves about the world and its people. Thus media 'effects' were related to the needs and activities of audiences. The theory was largely concerned with the selection, reception, and nature of response of audiences to the media, the assumption being that individual members in an audience made conscious and motivated selection of channels and programmes. It was also assumed that audiences made supplementary and compensatory uses of the mass media.

2.10 EFFECTS OF MEDIA ON EDUCATION: DO MEDIA EDUCATE?

Right from pre-Independence days, attempts have been made by both government and private groups to use the media for educational purposes. Dadasaheb Phalke, the pioneer of Indian cinema, made educational documentaries such as The Growth of a Pea plant and How to Make a Film besides fictional films. Radio experiments in the use of radio for promoting literacy and education were conducted as early as the 1930s. Television was introduced in India by the Nehru government with the primary aim of exploiting the medium for distance education. B. G. Verghese's Chhatera experiment attempted to use the daily newspaper to educate urban Delhi citizens about rural people and their problems. The most ambitious attempt to exploit the mass media for education was of course, Satellite Instructional Television Experiment (SITE). It sought to educate rural people in six states of India about the need for family planning, improved agriculture, hygiene, nutrition and healthcare.

Classroom-type instructions were also provided to school children. Today, Doordarshan devotes at least 10% of its telecast time to educational or enrichment programmes for farmers, school children, youth and other groups. It has taken to promoting literacy on a nationwide scale. UGC's 'Countrywide Classroom' and IGNOU's transmissions are ambitious post-SITE attempts to use television for higher education. 'Gyandarshan', an exclusively educational channel, was launched by Doordarshan in 2004. A second educational channel called 'Topper' went on air in 2008 to help students prepare for their school examinations.

Do media educate? How effective are the mass media in educating the people of our country? What are the 'effects' of media on 'education'? These are all loaded and difficult questions to which there can be no straight cut-and-dry answers. Literate and educated people benefit much more from educational media than the less literate and educated, unless the education-oriented programmes are specifically geared to the needs, interests, and levels of specific groups. This is an essential condition of any educational programme on any medium to have some kind of 'effect'. Even before groups and regions can benefit from education through the print or the electronic media, they will need to become 'media literate'.

Media literacy precedes or is simultaneous with the skill to learn from the media. The folk media are perhaps much more effective in promoting the message of literacy than any of the mass media. In Kerala, Maharashtra, Andhra Pradesh and other states, folk forms of the local regions have been utilized both by voluntary social action groups and by government supported literacy campaigns. For example, in Maharashtra, literacy campaigns have used folk musical forms such as *Lavani, Powada, Gondhal, Jagar* and others. During the campaign, cultural teams went out to the different villages on Kalajathas. 'The main thrust of the messages conveyed through song, dance and discussions was literacy. However, it was reported that other issues such as mother and child care, family planning, watershed management, the problem of alcoholism and dowry, small savings and agricultural development were also conveyed'.

The social structures operating at the grassroots need to be considered while planning these campaigns. Also, the infrastructure in the form of schools, teachers, volunteers, post-literacy facilities and the caste and communal divides are also important factors to be considered. A factor often overlooked is the time available to agricultural and industrial workers to respond in any meaningful way to literacy drives in the media.

2.11 CHILDREN AND THE MASS MEDIA: THE LIVELY AUDIENCE

Without communication an individual could never become a human being; without mass communication an individual could never become part of modern society. Socialization is a life-long active process, beginning on the day of one's birth. The child learns to socialize from the parents and the social groups he or she belongs to. As children grow up they come into contact with other social groups, but their basic loyalties are to their own

primary and secondary groups which provide them their sets of attitudes, beliefs and norms of behaviour. Children come under three kinds of social control: (1) tradition orientation—social control based on tradition; (2) inner orientation—social control achieved through standards, guidelines or values existing in each individual and external or other orientation—social control achieved by conformity to standards existing in other persons and groups. The child of today comes into contact with groups other than those in school; for instance, through the mass media, which give him/her access to remote groups and their cultures. Besides, the mass media provide models of behaviour and norms of living. The child begins to imitate them, particularly in cases where he or she is least integrated into the family or the peer group. Such children rely heavily on media advice and models; while others do not since their activities outside the home provide them greater stimuli and other role models. But the socialization effects of mass media cannot match the power of the home, the neighbourhood and the school where interpersonal relationships exist.

In contrast, socialization through the mass media is depersonalized and hence effective mainly in the peripheral areas of life. One would expect a national outlook to follow from a wide exposure to national news and social advertisements in the mass media. But communalism continues to hold out against all attempts at national integration through the media—so deep-rooted are our attitudes and beliefs. So also, social evils like the dowry system, child marriages, caste conflicts, foeticide and rape persist. The mass media are not a panacea for social or economic under-development as some governments are prone to believe. Even interactive media like the internet, computer games and mobile telephony may have little influence in bringing an end to these evils. In any study of media influence on children or on the influence of children's interests and needs on the media, the age group is an important variable. Other equally important variables are social class, religious and cultural background, linguistic background, and community. It has been found from research by Jean Piaget and others that the pre-operational child (aged 5 years and below) responds differently from the child belonging to the concrete operations stage (6 to 11 years) or to the formal operations stage (11 to 12 years). To illustrate, young children aged five and below see a series of separate and fragmentary incidents rather than the story of a film. They do not invariably recognize the identities of the principal character throughout the film and they tend to believe implicitly what they see on TV to be real. And, interestingly, they sometimes read incidents into the plot from their own imaginations or add incidents and events that they think should have occurred. The 6 to 11year old child, however, understands the story of a film, but still understands only the concrete physical behaviour of film performers. Only at the age of 10 or 11, does he usually understand the feelings and motivations and put himself in the shoes of a character. The 11- to 12-year-old comprehends films as efficiently as adults and comes to realize the make-believe fantasy world of films. He also gradually begins to understand the emotional relationships in films and to appreciate some and dislike other aspects of films. Besides, he can imagine hypothetically the sorts of relationships

which may exist between film characters even if the relationships are not presented on the screen.

Recent ethnographic and semiotic studies of children's interaction with television suggests that children make for a 'lively audience' and are highly discriminating and critical viewers. Children and Indian Television Children below the age of 16 comprise about 40% of the population of India. Yet barely 5% of total telecast time on GEC channels (General Entertainment Channels) is directly aimed at children; this is equally true of other mass media too: radio, fiction and documentary cinema and the press.

In the mid-1980s when there was not a single children's channel, the Joshi Committee warned against this 'cultural invasion', but Doordarshan and later the private channels paid no heed to the warning. The Joshi Committee Report also observed that 'reviews of children's reaction to film and television in India have indicated that animation is not always successful with Indian child audiences. Unfamiliarity with the technique sometimes makes it difficult for Indian children to identify the characters and objects. For Indian children to comprehend them it is necessary to keep the drawings in animation films simple and realistic and the message needs to be conveyed in a direct manner. It therefore urged that research-based software be produced so that programmes are appropriate in terms of the child's level of development as well as his or her life situation. The Joshi Committee Report (1984) learned from its extensive analysis of television software that 'most of our children's programmes seem to have been designed for the upper-class child. This is somewhat paradoxical: the ultimate objective is to use television for education purposes and it is the urban child who least needs additional educational inputs. Instead, television programmes should be directed primarily towards disadvantaged children in rural and urban areas. The irony is that 'disadvantaged children' do not possess or have access to television receivers. The Joshi Report also noted that children's programmes are among the most substandard of all programmes produced. Indeed, children's programmes are considered child's play; producers who are under-utilized at other work are allocated the children's programme section. Further, the time slotted for telecasting children's programmes is generally at the beginning of the evening's transmission, when most children should be playing outdoors. Except for SITE studies of children's response to educational programmes and a few other studies, we have little significant research on children's use of or interaction with, the mass media.

The comic strips that daily newspapers, Sunday newspapers and magazines publish regularly for young readers are mostly 'syndicated' comics from the United States. Columns for children frequently include quizzes, contests, comic strips and stories. Children's magazines like Chandamama (in several Indian languages), Champak and JAM are few and far between. While there are a National Film Foundation for Children and Young People and children's film festivals are organized sporadically, very little attention is in fact paid to the production of films for children on

a regular basis. The Films Division, on the other hand, is the foremost producer of short animation films, either directly educational in nature or for telling popular stories from the Panchatantra or the wealth of Indian folktale tradition. The digital era has ushered in new forms of education and entertainment for India's children. While content for children has proliferated on television, it is the new social media like Instagram, TikTok and YouTube that have thrown up numerous opportunities for endless creation, consumption and participation and sharing of content. Several children have turned 'influencers' in the social media with their own YouTube shows (on cooking, unboxing, toys, make-up, etc.) and their endorsements of products, people and institutions in the various social media. It's no surprise that child-influencers are the most sought after 'stars' in digital marketing today. Perhaps the biggest success story in the social media has been that of ChuChu TV (on YouTube), targeted at young Indian children at home and overseas; it turns out that English nursery rhymes sung by Indian children have a global appeal. The Chennai-based ChuChu TV now offers its vast inventory of short episodes of songs and stories to over 31 million subscribers around the world, not only in English, Hindi, and Tamil but also in Spanish and Brazilian Portuguese.

2.12 QUESTIONS

What is spiral of silence theory?

Write a detailed note on Agenda setting theory.

What is Catharsis and Narcosis effects of media?

Write a detailed note on Joshi Committee.

2.13 LET'S SUM IT UP

- The creation of the content is the policy and managerial functions of media which follow the objectives and agenda of any communication strategy/campaign or initiatives.
- Agenda-setting states that media guide us "What to think about" and agenda-setting tells us "How to think about it" by highlighting convinced characteristics of issues.
- Social learning theory intended merely at confirmative that those may learn through perceiving the behaviours of others, relatively solitary via recompense or penalty for their own behaviours.
- Cultivation theory is a cognitive-focused aide to social intellectual theory, stipulating that experience to arbitrated imageries of the world that are recurrent and reliable will encourage the interpretation that such descriptions reproduce the actual world.
- Elisabeth Noelle-Neumann's (political scientist), spiral of silence theory (1974) tried to clarify why people in her innate West Germany

would incline to endure silent once they supposed that they seized a marginal/minority opinion. She theorized that distress of separation (a lack of conformity) and fear of retaliations were likely clarifications.

- The 'critical' theorists, on the other hand, believe that the social class/group struggles for power are at the core of society and that the dominant class consistently uses the media to spread its ideology.
- Narcosis idea of media effects state that audiences are lulled into inactivity and a sensation of elation by the mainstream media, which has an addictive impact like that of drugs.
- The media have a 'cathartic' effect on people that somehow purges them of many anti-social and unfulfilled desires, frustrations, and feelings of hostility.
- Uses and Gratifications theory highlights on how audiences used the media to live out their fantasy lives and to seek out other gratifications or even to inform and educate themselves about the world and its people.
- Media literacy precedes or is simultaneous with the skill to learn from the media.
- The Joshi Committee Report (1984) learned from its extensive analysis of television software that 'most of our children's programmes seem to have been designed for the upper-class child. The irony is that 'disadvantaged children' do not possess or have access to television receivers.

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3

PROPAGANDA AND PUBLICITY WITH THE REFERENCE TO WORLD WARS, EFFECTS OF MEDIA VIOLENCE, SEXUAL CONTENT IN MEDIA, MEDIA THAT STIR EMOTIONS

Unit Structure

3.0 OBJECTIVES

In this chapter we are going to understand the:

- Types of Propaganda
- Propaganda and publicity during world wars
- Effects of media violence
- Sexual Content in media
- Women's Glorified, Domesticated, Objectified and Sexist Portrayal
- How Social Media Has Made Women Vulnerable To Abuse
- Media that stir emotions

3.1 INTRODUCTION

Propaganda and Publicity with the Reference to World Wars

Propaganda is simply defined as the "manipulation of information to influence public opinion." This definition works well for this discussion because the study and use of Propaganda has had an enormous influence on the role of persuasion in modern mass media. The United States in contrast to other nations where media are held in check has encouraged an independent commercial press and thus given the powers of Propaganda and persuasion to the public.

Propaganda is not inherently good or bad. Whether Propaganda has a Positive or negative effect on society and culture depends on the motivations of those who use it and the understandings of those who receive it. People promoting movements as wide ranging as Christianity, the American Revolution, and the communist revolutions of the 20th century have all used Propaganda to disseminate their messages. Newspapers and pamphlets that glorified the sacrifices at Lexington and Concord and trumpeted the victories of George Washington's army greatly aided the American Revolution. e.g., Benjamin Franklin's famous illustration of a severed snake with the caption "Join, or Die" serves as an early testament to the power and use of print Propaganda.

Magazines adopted a similar format later in the 19th century, and print media's political and social power rose. In an infamous example of the new power of print media, some newspapers encouraged the Spanish-American War of 1898 by fabricating stories of Spanish atrocities and sabotage. For example, after the USS Maine sunk off the coast of Havana, Cuba, some newspapers blamed the Spanish even though there was no evidence fuelling the public's desire for war with Spain.

The present-day, pejorative connotation of Propaganda recalls the utilization of mass media by World War I era governments to motivate the citizenry of many countries to go to war. Some media outlets characterized that war as a global fight between Anglo civilization and Prussian barbarism. Although some of those fighting the war had little understanding of the political motivations behind it, wartime Propaganda convinced them to enlist. Mark Crispin Miller, introduction to Propaganda, by Edward Bernays. World War I legitimized the advertising profession in the minds of government and corporate leaders because its techniques were useful in patriotic Propaganda campaigns. Corporations quickly adapted to this development and created an advertising boom in the 1920s by using World War I Propaganda techniques to sell products. Mark Crispin Miller, introduction to Propaganda, by Edward Bernays.

Propaganda Examples

Governments, corporations, non-profit organizations, and political campaigns rely on both new and old media to create messages and to send them to the general public. During and since the 2008 Presidential election, there has been constant scrutiny over Barack Obama's birthplace and citizenship; the reports are discredited, but the questions resurface.

3.2 PROPAGANDA USE THESE MEDIUMS INCLUDE:

(1) Visual and Audio Media

(2) Internet

(3) Arts and SocialMedia

(4) Social Media

(5) Speeches

In response to the rise of Propaganda and concern that the general public did not know how to critically analyze information, the Institute of Propaganda Analysis was established in 1937 by Edward Filene, Kirtley Mather, and Clyde R. Miller. The purpose of the Institute was to provide the general public information about the types of Propaganda, the tactics used in Propaganda, and strategies to analyze it in order to combat the psychological effects and success of such information. It operated until 1942, and it classified Propaganda into seven key categories.

3.2.1 Types of Propaganda

3.3 PROPAGANDA AND PUBLICITY DURING WORLD WARS

President Woodrow Wilson certainly recognized the potential of newspaper men like Hearst to influence public opinion. He appointed one of those men, George Creel, to lead the Committee on Public Information. This committee helped to advise President Wilson on how public relations could be used to influence public opinion about the war. As one scholar in mass communication noted, "It [the Committee on Public Information] engaged in public relations on a scale never before seen, using movies, public speakers, articles in newspapers and magazines, and posters." The use of wartime Propaganda sensitized the public to the fact that mass media might be used to influence public opinion on a large scale.

3.3.1 Effects of media violence

A few studies have verified certain connections between violent video games and violent behaviors in young people. E.g, studies have found that some young people who play violent video games reported angry thoughts and aggressive feelings immediately after playing. Other studies, such as one conducted by Dr. Chris Anderson and colleagues, point to correlations between the amount of time spent playing violent video games and increased incidence of aggression. However, these studies do not prove that video games cause violence. Video game defenders argue that violent people can be drawn to violent games, and they point to lower overall incidence of youth violence in recent years compared to past decades. Other researchers admit that individuals prone to violent acts are indeed drawn to violent media; however, they claim that by keeping these individuals in a movie theatre or at home, violent media have contributed to a reduction in violent social acts.

The 1999 Columbine High School shooting led to greater debate and criticism over violent video game.

Although it's unclear if violent media actually contribute to violence, there's no denying that these media channels convey an emotional message to viewers that gets them to react. Media communications can also use feelings like fear, love, happiness, and depression. Media messages are not just explicit statements. The overwhelming influence of media on our culture can be partially attributed to these emotional responses.

3.4 SEXUAL CONTENT IN MEDIA

The highly suggestive dancing techniques included in MTV and VH1 music videos, which advertise artists and their music, draw viewers in. These moves are frequently executed by women wearing scantily clad outfits. Just a few examples of recent music videos are those by Lady Gaga, Beyoncé, Rihanna, Jennifer Lopez, and Rihanna. Movie trailers may briefly show nudity or passionate kissing to hint that there will be more in the actual film. Female video game characters include Tomb Raider's Lara Croft, whose form-fitting outfits show off all her Barbie-doll figure's contours. magazines for men and women like Maxim, Cosmopolitan, and Vogue feature fully clothed and partially clothed models on their covers, promising titillating suggestions, gossip, and instruction on bed manners.

American filmmakers used what was regarded as scandalous content to entice viewers to the silver screen in the 1920s and 1930s. A trend later followed by Bollywood filmmakers as well. Films featured sensuous dances, male and female nudity, references to homosexuality, and sexual violence prior to the 1934 Hays Code, which imposed prohibitions on "indecent" content in films. With grades like G, PG, and R, the MPAA rating system took the role of the Hays Code in the 1960s. The rating system, intended to alert parents to possibly problematic content in films, allows creators to insert sexually explicit material without worrying about

backlash from the general public. Sexual content has appeared in films far more frequently since the Hays Code was replaced.

The issue is not that sex is becoming more prevalent, but rather that it is virtually always portrayed inaccurately in the media. Due to the mainstream media's significant role as socialisation agents—means by which people learn about the standards, expectations, and values of their society—this can be detrimental. These media hardly ever discuss the possible mental and physical effects of sexual behaviour. Only 15% of sexually explicit television content, according to research, depicts sex that may involve dangers like pregnancy or sexually transmitted illnesses. In sexual relationships portrayed in the media, actors and models are thinner, younger, and more attractive than the typical adult. As a result, people develop irrational expectations about what constitutes a satisfying sexual relationship.

Given that women's bodies are the main vehicle for conveying sexual content into media aimed at both men and women, social psychologists are especially worried about the damaging consequences these unrealistic images have on women. Media campaigner Jean Kilbourne notes that "women's bodies are often dismembered into legs, breasts or thighs, reinforcing the message that women are objects rather than whole human beings." Many experts also point out that women are frequently given the idea that attracting and sexually gratifying men should be their priority in women's periodicals, advertisements, and music videos. Media Awareness Network, "Sex and Additionally, several research suggest that the current rise in entertainment that glorifies sexual violence may have a detrimental effect on how young men treat women.

Teenage girls and boys are particularly susceptible to the effects of sexuality representation in the media. Psychologists have long observed that media such as television, films, and the internet have a significant role in how adolescents and children learn about sex and shape their beliefs. In fact, two-thirds of teenagers look to the media first for information on sexuality. Teenage and adolescent views towards sex may be influenced by the media, but they can also influence young people to engage in sexual behaviour before they are ready to face the repercussions.

3.4.1 Women's Glorified, Domesticated, Objectified and Sexist Portrayal

These representations affect how people view and treat women in society. In the family structure, gender dynamics are reinforced by the constant attribution of women to decorative roles or as domestic carers of the family. These electronic media, which include news programmes, can have a significant impact on how society views women through influencing gender norms, socio-cultural values, and perceptions. However, more serious issues affecting women are not covered; instead, dramatic events like rape and violence against women receives most of the

attention. Women are frequently sexually objectified and made into commodities in films and commercials. Advertisements portray their idea of the ideal woman as slender, fair-skinned, and attractive, which creates a negative stereotype among young girls and women. The gendered perspective of society is reflected in advertisements, particularly for home, culinary, jewellery, sanitation, and hygiene items. In those advertisements, women are primarily shown as housewives who are exclusively interested in looking well and caring for their families.

Women's movement leaders in India have been crucial in bringing attention to the sexism in marketing. Despite some recent advancements in how businesses and product manufacturers portray women, there has always been a tendency to reinforce archaic, backward-looking gender stereotypes. The gender discrimination of women is exacerbated by the fashion and cosmetics industries. Unattainable demands of physical perfection and body shape are placed on women. The fashion industry and beauty pageants quietly encourage objectification of women's bodies, which undermines women's equality. Instead of being valued for their brains, competence, character, and contributions, women are treated like trophies and lauded for their appearance. In opposition to beauty pageants and the prejudices they perpetuate, there have been movements for women's rights across the world.

CHECK YOUR PROGRESS

1. Write two examples of media violence.

2. Write two examples of sexual content of India.

3.5 HOW SOCIAL MEDIA HAS MADE WOMEN VULNERABLE TO ABUSE

With the development of the internet and social media platforms, women now have more social space to voice their concerns, connect with others, network, and work together for shared goals. Women's platforms, NGO websites, and women bloggers have increased the technological empowerment of women. Inequalities in digital media are also caused by the gender digital gap. Lack of textual literacy, salary disparity, lack of context in local languages, gender-based labour division that places time limits on women, and other factors are some of the causes of this gender gap. Women's Rights Online Network reports that they are 50% less likely than males to use the internet. The same platforms also foster gendered online habits and sex-role norms at the same time.

Strongly held beliefs on women's issues are met with verbal abuse and violent threats against women. By emphasising obsession with celebrity culture, physical perfection, and beauty, social media also has a tendency to promote poor body image and low self-esteem. The Broadband Commission for Digital Development of the UN estimates that 73% of women had already been victims of cyber abuse. For expressing their thoughts online, women face rape, death threats, and gender-based abuse.

According to a UN Women poll, 28% of Indian women who experienced online abuse cut back on their online activity and ceased blogging about particular topics. Women's voices and discussions about women's issues are effectively silenced by these gendered internet abuses.

Women are increasingly the targets of cybercrime. Women are abused on social media in a variety of ways, including online stalking, sending unwanted and persistent messages via WhatsApp and emails, creating sexual content, and using modified images specifically to target women. Women also lack the knowledge on where and how to report these problems. Women who experience such cybercrimes and troubles are more prone to mental health problems such emotional stress, depression, and hypertension, which can further negatively impact their lives. Another harmful tendency that needs to be noted is the trolling of women on social media who reject discrimination and gender bias.

Then, what is the answer, and how can we develop a safe, welcoming, and gender-neutral media? The topics covered here go beyond 'women's issues. It involves making sure that the material respects diversity, which accounts for close to 50% of the world's population, and is gender-balanced. We must ensure that more women hold administrative positions in the newsroom and more senior jobs in print journalism, television, web journalism, and publications. Female media professionals should receive equal compensation, and there should be development programmes to help them become more skilled and capable of taking on leadership roles. Last but not least, it is possible for males to address gender issues effectively; nevertheless, he must be sensitive to and aware of the needs and viewpoints of women.

3.6 MEDIA THAT STIR EMOTIONS

Emotions are crucial for the creation, reception, appropriation, and interaction of media, from films to emojis, love letters to flame wars, alarming television news to engrossing video games. They direct their users' sensory perception and sense-making, imprint media experiences on their memories, and help to shape societal identities, values, and ways of acting. Since emotions are the foundation of aesthetic experience, enjoyment, and amusement, emotions serve as the primary driving force behind media use in the first place. These days, media interfaces and algorithms even track and affect the emotions of their consumers. Four categories of generic inquiries might be made to classify the confusing diversity of relationships between media and emotions:

Emotion representation is how different emotions represented and expressed in media, and through what means.

Emotion elicitation is which emotions do media evoke in users, and by what forms and structures; which user dispositions and contexts underlie affective reactions.

Emotion practice is in which practices are emotions integrated, and how are they interwoven with media uses and functions.

Emotion culture is Which socio-cultural causes and effects do media emotions have in certain cultures and epochs; How are they linked to power, ethics and politics, and how do they change over time.

3.7 MEDIA AND THE AFFECTIVE FIELD

A more intense obsession with the topic didn't start until the 1970s, and since the 1990s it has seen a real surge. Numerous research strands have developed, many of which are opposed to one another. These conflicts partially arise from the fact that film and media researchers work with extremely diverse conceptions of media and emotions. The sensory and semiotic modalities, technology and materiality, spatial and temporal range, practical purposes, sociocultural settings, and several other aspects that can affect the emotive potential of media are all different. Most of the prior study has focused on traditional mass media, and this issue continues in that vein with the aim that many findings might be applied to other media.

Conflicting conceptualizations of affective phenomena are passed down to film and media studies from disciplines as diverse as psychoanalysis, cognitive science, phenomenology, cultural studies, or affect studies. Generic words for the entirety of affective phenomena vary across these many techniques and concepts: some use "emotion," while others choose "affect" in a wide sense. Numerous meanings that are more precise exist for both phrases, and many similar notions, like "empathy," are just as confusing. The premise that affective events are complex dynamic processes including an interplay of physical reactions, action tendencies, and expressive impulses, which go hand in hand, is what many theories have in common.

3.7.1 What is specific about media emotions?

Media theories also differ in terms of how much they recognise differences between emotions experienced in daily life and those experienced while viewing media. Media situations have certain affective affordances and gratifications to offer their users, creating affective niches

that allow for media-specific emotionality. For instance, print media emphasises delineation and imagination more than audio-visual media, video games assume involvement, and social media encourages conversation. Media emotions frequently emerge in voluntarily chosen, secure contexts (such as a movie theatre), which remove the pressure of action and centre attention on the media texts.

Collective and shared emotions: frequently, media emotions are collective emotions. Processes of shared attention, group emotion, and bodily contagion can emerge during media consumption with others. Think of social feelings like shame or group laughing. In contrast, the same media outputs may also arouse conflicting emotions in scattered audiences with various attitudes, as is the case with political web videos, for instance.

Witness emotions: They are witness feelings, frequently involving empathy or pity, that neither require nor permit the user to act. Many emotions in the media are not directed towards the users' own position, but rather at the circumstances of witnessed actors. This can lead to both the strain of being unable to intervene and the certainty of safety. Consider the Hitchcockian plot device of the bomb beneath the table that the audience is aware of but the characters are not.

3.7.2 Awareness of Fictionality and Factuality

Media experiences might be made up of fact or fantasy. My feelings undoubtedly alter depending on whether I see a fictional character on television or assume an avatar in an augmented reality experience that is related to a documentary. and viewers of fictional media are typically aware that the events being watched are entirely made up. The so-called paradox of fiction, a concept from earlier aesthetic theories, has been used to analyse how viewers still experience emotions. Most contemporary theories resolve this apparent paradox by, among other things, accounting for pre-conscious stimulus reactions as well as simulation and imagination processes.

Pre-focused emotionality

Most crucially, media use narrative, rhetorical, audio-visual, or other techniques to guide and manipulate how emotions are represented and elicited. They offer "critically pre-focused" writings that encourage readers to experience emotions of a specific nature, strength, length, etc. They mostly use media-specific methods to accomplish this. For instance, print media may use in-depth explanations instead of close-ups in films to draw emphasis to emotive facial expressions.

Awareness of communication:

Finally, the media are conscious of their role in meaning transmission. They not only depict something, but also the experience that person had with it. Additionally, viewers of media frequently look for broader meanings and envisage a situation in which someone (such as a

filmmaker) is speaking to someone else (such as a particular target audience) with specific aims and outcomes. This also implies that media-specific dispositions, such as familiarity with genres, actors, or narrative patterns, have an impact on media use and affective responses to media texts. Aesthetic emotions or meta-emotions occur as audiences utilise this information to reflect on the style of media texts or on their own experiences. Theoretical arguments have started to expand with the explosion of digital, networked, and mobile media. Their affectivity is deeply shaped by features like interactivity, participation, social networking, or artificial intelligence, which provide challenging concerns for media studies.

3.8 QUESTIONS

1. Why should media refrain from showing sexual content?
2. How does media stir emotions?
3. How social media spaces are used to abuse women?
4. What is specific about media emotions?

3.9 LET'S SUM IT UP

- A few studies have verified certain connections between violent video games and violent behaviour in young people. Video game defenders argue that violent people can be drawn to violent games, and they point to lower overall incidence of youth violence in recent years.
- American filmmakers used what was regarded as scandalous content to entice viewers to the silver screen in the 1920s and 1930s.compared to past decades.
- The issue is not that sex is becoming more prevalent, but rather that it is virtually always portrayed inaccurately in the media.
- Many experts also point out that women are frequently given the idea that attracting and sexually gratifying men should be their priority in women's periodicals, advertisements, and music videos.
- Psychologists have long observed that media such as television, films, and the internet have a significant role in how adolescents and children learn about sex and shape their beliefs.
- Strongly held beliefs on women's issues are met with verbal abuse and violent threats against women. By emphasising obsession with celebrity culture, physical perfection, and beauty, social media also has a tendency to promote poor body image and low self-esteem.
- Emotions are crucial for the creation, reception, appropriation, and interaction of media, from films to emojis, love letters to flame wars, alarming television news to engrossing video games. They direct their

users' sensory perception and sense-making, imprint media experiences on their memories, and help to shape societal identities, values, and ways of acting.

- Media theories also differ in terms of how much they recognise differences between emotions experienced in daily life and those experienced while viewing media.

Propaganda and publicity with the reference to world wars, Effects of media violence, Sexual content in media, Media that stir emotions

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4

EFFECTS OF MEDIA STEREOTYPES, INFLUENCE OF MARSHALL MCLUHAN, PERSUASIVE EFFECTS OF MEDIA

Unit Structure

4.0 OBJECTIVES

In this chapter we are going to understand the:

- Functions of media
- Media Stereotypes
- Indian Stereotypes In Western Films And TV
- Marshall McLuhan and his influence
- Power of media- education and entertainment
- The Effect on Communication and Connection
- Effect of media on youth

4.1 INTRODUCTION

Mass Media and Communication:

The functions of media are:

(1) Persuade

(2) Inform

(3) Entertain

The term mass media is especially used by academics and media-professionals. Mass media could be a term that wants to denote, as a class, that section of the media specifically conceived and designed to succeed in a really large audience. Once we see "the media" it's usually a relevance to the mass media, or to the print media, which may be a section of the mass media. it had been coined within the 1920s with the appearance of nationwide radio networks and of mass-circulation newspapers and magazines. The mass-media audience has been viewed by some commentators as forming a mass society with special characteristics, notably atomization or lack of social connections, which render it especially prone to the influence of contemporary mass media techniques like advertising and propaganda. The mass media system has controls: media monitors who make sure that bad messages are slowed down or eliminated. These include regulators (such because the FCC), pressure groups, and gatekeepers, like editors, directors, and company moguls. Another control is perceived belief.

4.2 MASS MEDIA AND STEREOTYPES:

The most common stereotypes that tend to be negative include:

- Cultural stereotypes.
- Social stereotypes.
- Racial stereotypes.
- Gender stereotypes.
- Religious stereotypes.

Mass media have huge reach in society and are a key filter through which individuals study one another, yet countless studies demonstrate that these media still reproduce ethnic and racial stereotypes, with often harmful effects. In various mediums – news, drama, and gaming – ethnic group groups are typically marginalised and overlooked. Very often, after they are represented, they're shown only in narrowly stereotyped roles, like the model Asian migrant or the exotic Latina, or depicted negatively because

the problematic "other," disproportionately represented as violent or criminal, and "less than" dominant groups (i.e., less intelligent, less wealthy, less powerful). ethnic group media – that's, media produced by and for ethnos groups – generally offer more positive representations and a counter narrative to mainstream stereotypes but may also be susceptible to narrow type casting and stereotypes. The resulting pervasiveness of stereotyped representations across media formats and kinds is partly the result of complex media production processes, norms and values, commercial drivers, and a scarcity of ethnic group media producers. Nonetheless, their impact, though hard to live, is potentially significant. Mass media play a task in shaping collective identities and intergroup attitudes and, by typecasting certain groups, distort the image that audiences see of various groups. There's evidence to suggest these skewed media representations cannot only promote public hostility toward other ethnic groups but also lower ethnos individuals' self-esteem. As a result, research into ways to combat stereotypes and promote more positive representations within the media is critical.

4.3 INDIAN STEREOTYPES IN WESTERN FILMS AND TV

4.3.1 Poverty

Some films, like Lion, have attempted to portray a protagonist who is struggling financially in a realistic and sympathetic manner. But aside from that, foreign films frequently depict "poverty" or portray India as a primitive country lacking in modern infrastructure. The Darjeeling Limited, Million Dollar Arm, and numerous other films make fun of and generalise Indian cities; Indian directors set their scenes against backgrounds of collapsed structures, congested streets, and cows in the middle of the road, but they portray the context as coming from a specific region of India rather than painting the entire nation as an undeveloped urban jungle.

4.3.2 Exoticism And Mysticism

Cults like those depicted in Indiana Jones and The Temple of Doom and the spiritual adventures in India depicted in Eat, Pray, Love paint India as a highly "exotic" country full of superstition and mysticism. Once more, the counterargument to this stereotype can be used to support India's multireligious identity. Not many Indians blindly adore gurus and mystics with beards. About 2.9 million Indians identified as atheists as of the previous year, however some still identify as religious people but see themselves as rationalists. In contrast to an exotic, antiquated, and divine fantasy-world, India is a diversified country all on its own.

4.3.3 Purposely Complicated Names

The majority citizen groups in the nations where immigrants settle make fun of immigrants with difficult-to-pronounce names, including Indians, Arabs, Koreans, and many others. For the ease of Westerners, some even

have to anglicise or abbreviate their names. Maybe the Hollywood narrative might try to appropriately depict some Indian names rather than mispronouncing or modifying the names of the people from this diaspora. Sometimes, it's not that difficult. There used to be Indian characters with names that were absurdly convoluted and overblown, even though foreign films today do endeavour to reflect Indian people and their names appropriately. Older films were even more careless in christening their Indian characters. In Annie (1978), an Indian bodyguard was simply named Punjab (an Indian state, hardly ever used as a person's name).

4.3.4 Supporting Characters For Comic Roles

Indian-Americans were frequently portrayed as waiters, drivers, doctors, or any other kind of supporting role. They were frequently made into stereotypes with the accents and seldom ever given room for character or backstory development.

With significantly more representation now though, this mindset is shifting. Indian-origin American and British performers are benefiting from examples like Aziz Ansari's major part in Master of None and Rahul Kohli's in The Haunting of Bly Manor, which help to give them a more nuanced and multi-layered representation.

CHECK YOUR PROGRESS

1. Write examples of media gender stereotypes.
2. What are the functions of media?

4.4 MARSHALL MCLUHAN AND HIS INFLUENCE:

Two works that Professor McLuhan wrote in the early 1960s had a profound impact on the history of media studies. The Gutenberg Galaxy and Understanding Media, books that were published in 1962 and 1964, respectively, chronicled the development of media technology and showed how it had influenced both popular culture and individual behaviour. A quote from McLuhan that was first used in Understanding Media is "The medium is that the message." This idea embodied a distinct perspective on media that the media play a significant role in influencing the way people think and behave. Both admirers and detractors of McLuhan's idealistic ideas about how the media may change 20th-century living were swayed by his outspoken pronouncements about the media.

McLuhan's theory was that a medium affects the society during which it plays employment not by the content delivered over the medium, but by the characteristics of the medium itself. McLuhan pointed to the sunshine bulb as a transparent demonstration of this idea. a light-weight bulb does not have content within the way that a newspaper has articles or a television has programs, yet it is a medium that comes with a social effect; that's, a light-weight bulb enables people to make spaces during night-time which is ready to preferably be enveloped by darkness. He describes the

lightbulb as a medium with no content. McLuhan states that "a light bulb creates an environment by its mere presence." More controversially, he postulated that content had little effect on society—in other words, it did not matter if television broadcasts children's shows or violent programming, as one example—the effect of television on society would be identical. He noted that everyone media have characteristics that engage the viewer in numerous ways; as an example, a passage during a book is reread at will, but a movie had to be screened again in its entirety so on check anyone a component of it. McLuhan also claimed within the primary a component of Understanding Media, that different media invite different degrees of participation on a component of a non-public who chooses to consume a medium. Some media, a little amount a tiny low amount almost just like the flicks, enhance one single sense, during this case vision, in such the foremost effective way that somebody should not exert much effort in filling within the limited print of a movie image. McLuhan contrasted this with television, which he claimed requires more effort on a component of the viewer to work out meaning; and with comics, which because of their minimal presentation of visual detail require a high degree of effort to fill in details that the cartoonist may have intended to portray. A movie is thus said by McLuhan to be "hot," intensifying one single sense "high definition," demanding a viewer's attention, and a comic book to be "cool" and "low definition," requiring rather more conscious participation by the reader to extract value. McLuhan stresses the importance of awareness of a medium's cognitive effects. He argues that, if we aren't vigilant to the implications of media's impact, the globe village has the potential to become a tiny low amount where totalitarianism and terror rule. In the early 1960s, McLuhan wrote that the visual, individualistic print culture would soon be dropped at an end by what he called "electronic interdependence": when electronic media replaced visual culture with aural/oral culture. During this new age, humankind will move from individualism and fragmentation to a collective identity, with a "tribal base." McLuhan's coinage for this new system is that of the worldwide village. Though the world Wide Web was invented 30 years after The Gutenberg Galaxy was published, McLuhan may have coined and positively popularised the usage of the term "surfing" to test with rapid, irregular, and multidirectional movement through a heterogeneous body of documents or knowledge, e.g., statements like "Heidegger surf-boards along on the electronic wave as triumphantly as Descartes rode the mechanical wave.

4.5 POWER OF MEDIA:

We all know media refers to the tools of mass communication consisting of television, radio, newspapers, magazines and therefore the internet like: Facebook, Twitter, YouTube, Instagram, Google, and other Social Networking Sites. Broadcasting, Advertising, Visual Representations, Pictures or Images, Graphics, Videos, or maybe Movies are sorts of social media where people can use and see. It simply means the media features a power to present information and supply a simple means of communication especially in long distance where people are going to be

ready to contact one another. The influence of the media has become so powerful today because it can easily influence people positively and or negatively. Now, we live under the ability of the media as a source of knowledge and entertainment that enhances the knowledge of the users through the various kinds of news or events in our society or environment.

Media like television are often a robust educational tool especially for youths because as we will see, there are TV programs that incorporates a positive influence for the kids to speak well and taught them on the way to sing Alphabet song, a way to read, how to spell correctly, the way to choose healthy foods and taught them the correct values. Because of these, it provides a decent relationship with the users especially the children. In magazines, it influences the readers deeply, especially female teenagers thanks to the style trends nowadays. These magazines have an enormous impact on society.

Another example are Newspapers. After we prefer to read this stuff, we receive lots of data and we also discover the problems especially associated with politics, environmental problems, rate of teenage pregnancies and other vital issues in our society. If there is a positive side of the media, it also includes a negative side. Remember on Advertisements, they always introduce the physical fantastic thing about the merchandise to encourage the purchasers to shop for. However, they do not show or tell the viewers that these products might not be good for health only for them to earn money.

As users, we should always use the media well and wisely. Now could be the time for us to be practical. Yes, the media's power is to create our lifestyle easier but let us remember that an excessive amount of use of media isn't good. We should be cautious of using different types of media for us to be safe and conscious of negativity. Media is the main source of data. It creates awareness among the folk and makes them enlightened citizens. It creates vox populi about the burning problems with the country, exposes scandals and built the arrogance of individuals. We find out about the working plans and programmes that the govt. is undertaking. There are successful implementations or failures.

4.6 THE EFFECT ON COMMUNICATION AND CONNECTION

Even with the ability of the internet a decade ago, it had been quite challenging to locate and contact with people you had once known in high school or college. The people lost touch with you forever as soon as you moved away. Even after having been apart for decades, social media platforms like Facebook and Google+ are making it much simpler for people to find one another and reconnect. The websites are a great way to stay up to date on what is happening in the lives of your friends and family as well as meet new people who share your interests and worldview.

4.6.1 The Youth

Globally youth are frequently able to adopt and learn to use new technology, and they are unquestionably at the vanguard of social media of all kinds. Compared to many previous generations, they are more dependent on technology. As a result, social media is having a negative and long-lasting impact on their daily lives. Social media addiction, cyber bullying, marketing scams are some of the negative effects of using social media.

However, many businesses are genuinely seeking to integrate themselves into the marketing and consumer environment. This makes it possible for customers to communicate with businesses more effectively, which could result in better service and higher-quality goods. Most users don't mind advertisements and promotion if businesses aren't too overt about it. Most of the time, people must first become subscribers to the material.

4.6.2 Entertainment

Social networking websites are a good kind of entertainment, which is another reason why people spend as much time on them as they do. View photographs, read stories, view the videos that others post on their timelines, and even play games. More and more individuals are using social media in their daily lives, whether they are using a smartphone, tablet, or regular computer. The websites undoubtedly represent a step towards internationalisation. One should undoubtedly be prepared to locate something that fits their wants and lifestyle among the many different social media sources that are currently available. Everyone wanting connect can find something on Twitter, Facebook, and Google+.

4.7 QUESTIONS

1. Why media uses stereotypes?
2. What is the effect on media on youth?
3. How is media used as a source of entertainment?
4. Why media is called as powerful tool in changing people's lives?

4.8 LET'S SUM IT UP

- The functions of media are: Persuade, Inform and Entertain.
- The most common stereotypes that tend to be negative include: Cultural stereotypes, Social stereotypes, Racial stereotypes, Gender stereotypes, and Religious stereotypes.
- Media play a significant role in influencing the way people think and behave. The media features a power to present information and supply a simple means of communication especially in long distance where people are going to be ready to contact one another.

- Social media is having a negative and long-lasting impact on youth. Social media addiction, cyber bullying, marketing scams are some of the negative effects of using social media.

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5

EFFECTS OF NEWS AND POLITICAL CONTENT, IMPACT OF NEW MEDIA TECHNOLOGIES

Unit Structure

5.0 OBJECTIVES

In this chapter we are going to understand the:

- News dissemination via mass media tools
- The positive and negative effects of newspaper
- Effect of radio on society
- Effect of TV news
- New media as a tool of news dissemination
- Blogging as a tool for political communication

5.1 INTRODUCTION

Mass communication plays a very important role in our society. Its purpose is to tell the general public about current and past events. Mass communication is defined in " Mass Media, Mass Culture" because the process whereby professional communicators use technological devices to share messages over great distances to influence large audiences. Within this process, the media (a newspaper, book, broadcast, etc) takes control of the data we see or hear. The media then uses gatekeeping and agenda-setting to "control our access to news, information, and entertainment". Gatekeeping could be a series of checkpoints that the news needs to undergo before it gets to the general public. Through this process, many of

us need to decide whether or not the news is to be seen or heard. Some gatekeepers include reporters, writers and editors. After gatekeeping comes agenda-setting. one in every of the foremost critical aspects within the concept of an agenda-setting role of mass communication is that the timeframe for this phenomenon. additionally, different media have different agenda-setting potential.

The media we consume daily has an impression on our thinking, behavior, and emotions; And while staying up to this point on local and national news, especially because it relates to mandates and health updates, is critical during now, experts say over-consumption of the news can take a toll on your physical, emotional, and psychological state.

5.2 TYPES OF MASS COMMUNICATION

5.2.1 Newspaper

The newspaper is the most common sort of media. Newspapers of general interest often feature articles on crime, business, entertainment, society, sports, and local and national political issues and personalities. Newspapers have been essential in allowing people to express themselves freely. Whistle-blowers and those who "leak" information about political corruption frequently prefer to do it through newspapers rather than other forms of media, counting on the reputation of newspaper editors to expose the truths and lies that concern the general public.

However, there are numerous situations where newspapers' political independence is restricted.

5.2.1.1 Positive effects of newspaper:

Make knowledgeable

Newspapers offer a wide range of information about business, politics, social issues, and economics. A critical reading of the newspaper provides essential global knowledge while improving understanding of various societies. In addition to academic thinking, it offers the cognitive capacity to evaluate various situations. The vast amount of information available in every profession inspires people to improve society. A person is motivated

to lead society for improvement by the numerous societal and religious conflicts that are reported in the media, which also make him aware of wrongdoings and charitable endeavours.

- **Keep up to date:** the newspaper's coverage of current events keeps one up to date, which aids in future decision-making. A businessman can make an investment in a field that appears to be leading the field in the upcoming years. For instance, hybrid and electric cars have recently taken the auto industry by storm. And the best place to get this kind of information is through a newspaper.

- **Increase learning and reading abilities**: The additional learning regarding anything during this world makes someone a far better person. and therefore, the newspaper may be a god of vast learning. Everyday newspaper reading increases concentration, which further helps in academic studies. Repeated mentioning of states, leaders, business companies, social and economic policies find a stable place in a very brain and one needn't cram everything up.

5.2.1.2 Negative effects of newspaper:

Being a mixture of words written from one person's perspective, a newspaper might lose its motive.

- **Negative impression:** Today, newspapers became a typical source of defaming someone, company, or a product. the explanation may well be compensation from the alternative party or the negligence of field researchers themselves. and, the fact, that readers believe what they read, creates worry among the victims. this may produce a long-term damage to an individual's life.

- **Political control:** On numerous incidents, different parties blame the opposition for controlling a voter's decision through newspapers. At present, several newspaper companies are allies of politicians and organizations. due to the weak policing and judiciary, these companies achieve taking a hide-out if caught.

- **Wrong advertisements:** Other than spreading negative impression, newspapers are often agents of evil. Many newspapers glorify organizations, people, and products without mentioning any negative consequences and promote them to a gullible mass against huge compensation with a sole objective of profit-making. during this way, newspapers betray readers and fail in achieving their prime objective of reporting the reality.

5.2.2 EFFECTS OF RADIO ON SOCIETY

- **Entertainment** As was already noted, radio gave individuals a unique entertainment option, particularly for those who could not afford the luxury of travelling to locations where entertainment was only offered to the wealthy. Radio programmes allow listeners to take in music while also keeping up with current happenings. But the radio's initial popularity

was unquestionably fueled by its entertainment. Very quickly, entertainment began expanding beyond music. People became obsessed with radio entertainment thanks to comedy shows, gossip conversation, and responding to listener letters.

- **Information** The human need to understand what is happening nearby and in other countries was greatly aided by radio. The radio delivered news from the interior and from across the oceans. Daily news listeners would experience a sense that the world has shrunk, something that was unimaginable in the 400 years before to the invention of radio. The news aired regularly from different stations were followed by views and a way spicy discussion among experts to get more interest in events from social and political life. The announcements about weather, and trains/flights schedule has been one more advantage to radio listeners.

- **Education** As radio continued to possess its impression on the cultural outlook of the societies by pouring in more opinions of experts in several fields of social life, it started special services to teach people on scores of issues foremost among those are the healthcare matters. No other source have proved handier than radio programs to coach mothers particularly on providing primary health points for babies and college going children.

CHECK YOUR PROGRESS

1. Write positive and negative effects of newspapers.
2. What is the effect of radio on society?

5.2.3 Television news

Television news refers to disseminating current events via the medium of television. A "news bulletin" or a "newscast" are television programs lasting from seconds to hours that provide updates on world, national, regional, or local news events. newscast is incredibly image-based, showing video of the many of the events that are reported. Television channels may provide news bulletins as a part of a frequently scheduled program. Less often, television shows could also be interrupted or replaced by breaking news ("news flashes") to supply news updates on current or sudden events of great importance.

5.2.3.1 Structure, content and style

Newscasts, also referred to as bulletins or news programs, differ in content, tone, and presentation style reckoning on the format of the channel on which they seem in addition as their timeslot. In most parts of the globe, national television networks will have network bulletins featuring national and international news. the highest rating shows will often be within the evening at "prime time", but there are often mealtime newscasts of two to a few hours long. Rolling news channels broadcast news 24 hours every day. Local news could also be presented by stand-alone local TV stations, local stations affiliated with national networks, or by local studios which "opt-out" of national schedule at specified times.

Different news programming is also geared toward different audiences, reckoning on age, socio-economic group, or demographic. "Magazine-style" television shows may mix news coverage with topical lifestyle issues, debates, or entertainment content.

Newscasts encompass several reporters or guest commentators being interviewed by an anchor, referred to as a "two-way. " There can also be breaking news stories which can present live rolling coverage.

5.3 MEDIA AND POLITICS

Over the past ten years, the media landscape in India has seen substantial upheaval. With technological advancements, the media sector has grown like never before and increased the number of its outlets, whether in television, radio, or newspapers. While this has established a strong trend for market expansion, the underlying effects of this quickly expanding media ecosystem have also created significant difficulties. By holding a portion of the ownership of these sources and indirectly influencing how news is delivered, those with access to the corridors of power are successful in influencing the diffusion of information through media organisations.

It is obvious that media ownership has a considerable impact on the viewpoints expressed in the reporting, and bias is inescapable in such situations. Politicians' actions is directly impacted by the fact that social media, and by extension the Internet, inform voters about their governments in nations where there are few other sources of information; as a result, politicians are understandably concerned with how they come across on social media. The question is whether this variance in behaviour increases political accountability for the electorate. According to research, politicians utilise social media to connect with voters, and the rise of social media has an impact on their offline activity.

5.3.1 Political Sophistication

One's level of political sophistication is a function of knowledge and political ideology. A person who knows very little and does not have a well-developed political ideology has a low level of sophistication. In contrast, a person who knows a great deal and has definite political views has a high level of sophistication. Researchers have found that after exposure to news stories about health care reform and a mayoral election campaign, those viewers who were politically sophisticated had learned more and had higher quality arguments about the issues when they were given a chance to write about their own views.

The studies that link need for cognition with a preference for viewing news seem to suggest that the news media may naturally tend to appeal to those with a disposition to think about ideas, concepts, or implications. The research on political sophistication seems to suggest the same kind of news effect on certain individuals. But is there any hard evidence that exposure to news in the media has a definite impact on what people are thinking?

For the answer to that question, we need to investigate the theory and research associated with the notion of agenda setting.

5.3.2 Agenda -Setting Theory

Agenda-setting theory describes the "ability [of the news media] to influence the salience of topics on the general public agenda. " That is, if a item is roofed frequently, the audience will regard the difficulty as more important. Mass media only shows the audience what it comprehends as a very important issue. Print or broadcast news will then remove the audience's ability to think for themselves. Agenda-setting is that the media's ability to transfer salience issues through their new agenda. This way, the general public agenda can form an understanding of the salience issues.

Two basic assumptions underlie most research on agenda-setting:

(1) The press and therefore the media don't reflect reality; they filter and shape it;

(2) Media concentration on some issues and subjects leads the general public to perceive those issues as more important than other issues.

5.3.2 The Cognitive Effects of Agenda-Setting

Agenda-setting occurs through "accessibility. " Accessibility implies that the more frequently and prominently the journalism cover a difficulty, the more instances that issue becomes accessible within the audience's memories. When respondents are asked about the foremost important problem facing the country, they answer with the foremost accessible news issue in memory, which is usually the difficulty the print media concentrate on the foremost. The agenda-setting effect isn't the results of receiving one or some messages, but is thanks to the combination impact of awfully sizable number of messages all handling the identical general issue. Mass-media coverage normally and agenda-setting specifically even have a strong impact on what individuals think that people are thinking, and hence tend to allocate more importance to issues that are extensively covered by mass media.

5.4 ADVERSARIAL JOURNALISM

Adversarial journalism is a form of journalism that seeks to uncover wrongdoings of public officials. This type of journalism is always premeditated and used to defame or discredit interviewees by portraying them as self-contradictory, malevolent, unqualified, or immoral. This effect is also achieved by replaying selected quotes from public speeches, followed by hand-picked footage or images that appear to reinforce negative images of the interviewee.

5.5 NEW MEDIA

The "democratisation" of media content production, publication, distribution, and consumption is a key promise of new media. On-demand access to content is referred to as "new media" together with interactive user input, creative involvement, and community building around media content. This can happen anytime, anywhere, on any digital device. The "democratisation" of the production, publication, distribution, and consumption of media material is another significant promise of contemporary media. shows the interactive communication style that will be present in new social media. The majority of "new media" technologies are digital, frequently manipulable, networkable, dense, compressible, and interactive. The internet, websites, computer multimedia, video games, CD-ROMs, and DVDs are some examples. Social media platforms like Facebook and Twitter are few other examples.

There is growing consensus that new media will:

- Alter the meaning of geographic distance.
- Allow for a huge increase in the volume of communication.
- Provide the possibility of increasing the speed of communication.
- Provide opportunities for interactive communication.
- Allow forms of communication that were previously separate to overlap

5.6 BLOGS

A blog is a conversation or informational website that is published on the internet and that include articles that are typically arranged in reverse chronological order. Before 2009, blogs were often written by a single person, occasionally by a small group, and infrequently had a single focus. "Multi-author blogs" (MABs) have emerged more lately. Blog traffic is increasingly being driven by MABs from publications including newspapers, other media, universities, think tanks, interest groups, and similar organisations. The popularity of "micro-blogging" platforms like Twitter and others makes it easier to include single-author blogs and MABs into social news streams.

The majority of high-quality blogs are interactive, allowing readers to leave comments and even communicate one another on the blogs, though this is not a necessary. They stand out from other static websites due to their interactivity. In fact, bloggers cultivate social connections with their readers and other bloggers in addition to creating content to put on their blogs. Many blogs offer comments on a particular topic, while others serve as online diaries or as personal journals, while still others serve more as online billboards for a certain person or business. A typical blog consists of text, pictures, and links to related Web pages, blogs, and other media. Another type of blogging that uses very brief posts is

microblogging. Blogs are employed as educational resources in the classroom.

5.6.1 Blogs and Politics

By 2004, the role of blogs became increasingly mainstream, as political consultants, news services, and candidates began using them as tools for outreach and opinion forming. Blogging was established by politicians and political candidates to precise opinions on war and other issues and cemented blogs' role as news sources. The rise of latest media has increased communication between people everywhere the globe and the Internet. it is allowed people to precise themselves through blogs, websites, pictures, and other user-generated media.

"Virtual communities" are being established online and transcend geographical boundaries, eliminating social restrictions. While this attitude suggests that the technology drives – and thus may be a determining factor – within the process of globalization, arguments involving technological determinism are generally frowned upon by mainstream media studies. Instead, academics specialize in the multiplicity of processes by which technology is funded, researched, and produced, forming a feedback circuit when the technologies are used and sometimes transformed by their users, which then feeds into the method of guiding their future development. And interconnect.

The electronic accessibility of new media in database format, which enables speedy retrieval and reverse engineering by national governments, has recently drawn the attention of the world's espionage community. Facebook and Twitter, two websites where users freely provide personal information that may later be combed through and preserved for the automated development of dossiers on both people of interest and therefore the common citizen, are of particular interest to the espionage community. As a result of user involvement, developing technologies, and cultural shifts, new media is continually being altered and reinvented.

5.7 QUESTIONS

1. What are newscasts?
2. How are media and politics interdependent?
3. What is adversarial journalism?
4. How are new media emerging as a platform for news dissemination?
5. Write a detailed note on role of blogging in political communication.

5.8 LET'S SUM IT UP

- The media then uses gatekeeping and agenda-setting to "control our access to news, information, and entertainment". Gatekeeping could be a series of checkpoints that the news needs to undergo before it gets to the general public.

- The newspaper is the most common sort of media. Newspapers of general interest often feature articles on crime, business, entertainment, society, sports, and local and national political issues and personalities.

- The news media may naturally tend to appeal to those with a disposition to think about ideas, concepts, or implications. The research on political sophistication seems to suggest the same kind of news effect on certain individuals.

- An important promise of new media is that the "democratization" of the creation, publishing, distribution, and consumption of media content. New media refers to on-demand access to content anytime, anywhere, on any digital device, similarly because the interactive user feedback, creative participation, and community formation round the media content.

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6

NATURE SCOPE AND LIMITATIONS OF STATISTICS, PARAMETRIC AND NONPARAMETRIC TESTS, DESCRIPTIVE AND INFERENTIAL STATISTICS.

Unit Structure

6.0 OBJECTIVES

In this chapter we are going to understand the:

- Nature, scope and limitations of statistics
- Statistics is science or art?
- Limitations of statistics
- Parametric and non-parametric statistical tests
- What is hypothesis?
- Inferential and descriptive statistics: definition, types, examples

6.1 INTRODUCTION

The term "Statistics" is used in two senses:

1. In plural sense meaning a collection of numerical facts or estimates—the figure themselves. It is in this sense that the public usually think of statistics, e.g., figures relating to population, profits of different units in an industry etc.

2. As a singular noun, the term statistics' denotes the various methods adopted for the collection, analysis and interpretation of the fact numerically represented. In singular sense, the term ‘statistics’ is better described as statistical methods. In our study of the subject, we shall be more concerned with the second meaning of the word ‘statistics’.

6.2 SCOPE OF STATISTICS

- Subject Matter of Statistics
- Nature of Statistics
- Limitations of Statistics.

6.2.1 Subject Matter of Statistics:

(i) Statistical Methods:

Data are collected with the help of statistical methods, they are made simple and informative, and with the help of proper conclusions are obtained. There are many methods to get help to collect data and make them eligible for use. These methods are called statistical methods.

- Collection of Data
- Organization
- Condensation
- Interpretation
- Analysis
- Forecasting.

(ii) Applied Statistics:

The statistics described above give us the knowledge of the theory but how to bring those policies into practice is studied under practical or applied statistics. It can be divided into the following three categories: -

- Descriptive Applied Statistics
- Scientific Applied Statistics
- Business Statistics.

6.2.2 Nature of Statistics

1. Statistics is a Science:

Statistics is a script in which we get orderly or systematic knowledge. From the point of view of the prescribed conditions of science, statistics can be called science on the following aspects:-

(i) Statistics is the rule of knowledge and is developing at a very rapid pace.

(ii) Its various policies are widely used in all areas. Law of statistical regularity, Law of Inertia of Large Numbers, Theory of Probability, etc are universal rules.

(iii)Based on the facts of the past and present, future trends are predicted by many statistical methods.

In this way, we can say that it is appropriate to say science to statistics.

2. Statistics is an Art:

If science is knowledge, then art is action i.e., art refers to the branch of knowledge which changes the best methods for solving various problems and the measures for achieving the facts are also suggested. Statistics is also an art because of-

(i) Statistics presents solutions, methods, and conclusions for solving the problem of various questions.

(ii) How to use different statistical methods and rules to solve various problems? This thing is also studied mainly in statistics. e.g., , statistics tell us where the use of the arithmetic mean is best and in which direction the median will be best used? How to create an index and what median should be used?

(iii)For the behaviour of statistical methods, special skills and experience, and self-restraint are required in the person, which is very necessary for art to say a subject.

3. Statistics is a Scientific Method:

It should be understood in the context of general scientific methods of acquiring knowledge. There are four aspects to this research;

(i) Observation

(ii) Hypothesis

(iii) Prediction

(iv) Verification

6.2.3 Limitations of statistics

1. The use of statistics is limited to numerical studies: Statistical methods cannot be applied to study the nature of all types of phenomena. Statistics deal with only such phenomena as are capable of being quantitatively measured and numerically expressed. e.g. health, poverty, and intelligence of a group of individuals, cannot be quantitatively measured, and thus are not suitable subjects for statistical study.

2. Statistical methods deal with population or aggregate of individuals rather than with individuals. When we say that the average height of an Indian is 1 meter 80 centimetres, it shows the height not of an individual but as found by the study of all individuals.

3. **Statistical relies on estimates and approximations:** Statistical laws are not exact laws like mathematical or chemical laws. They are derived by taking most cases and are not true for every individual. Thus, the statistical inferences are uncertain.

4. Statistical results might lead to fallacious conclusions by deliberate manipulation of figures and unscientific handling. This is so because statistical results are represented by figures, which are liable to be manipulated. Also, the data placed in the hands of an expert may lead to fallacious results. The figures may be stated without their context or may be applied to a fact other than the one to which they really relate.

CHECK YOUR PROGRESS

1. Write limitations of statistics.

2. Statistics is both science and arts. Critically comment.

6.3 PARAMETRIC AND NON-PARAMETRIC TESTS

A hypothesis may be defined as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts. Quite often a research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable. E.g., consider statements like the following ones:

"Students who receive counselling will show a greater increase in creativity than students not receiving counselling" Or "the automobile A is performing as well as automobile B."

These are hypotheses capable of being objectively verified and tested. Thus, we may conclude that a hypothesis states what we are looking for and it is a proposition which can be put to a test to determine its validity.

6.4 CHARACTERISTICS OF HYPOTHESIS IN RESEARCH METHODOLOGY

1. Hypothesis should be clear and precise. If the hypothesis is not clear and precise, the inferences drawn on its basis cannot be taken as reliable.

2. Hypothesis should be capable of being tested. In a swamp of untestable hypotheses, many a time the research programmes have bogged down. Some prior study may be done by researchers in order

to make hypot6heses a testable one. A hypothesis "is testable if other deductions can be made from it which, in turn, can be confirmed or disproved by observation."

3. Hypothesis should state the relationship between variables, if it happens to be a relational hypothesis.

4. Hypothesis should be limited in scope and must be specific. A researcher must remember that narrower hypotheses are generally more testable and he should develop such hypotheses.

5. Hypothesis should be stated as far as possible in most simple terms so that the same is easily understandable by all concerned. But one must remember that the simplicity of the hypothesis has nothing to do with its significance.

6. Hypothesis should be consistent with most known facts i.e., it must be consistent with a substantial body of established facts. In other words, it should be one which judge accept as being the most likely.

7. Hypothesis should be amenable to testing within a reasonable time. One should not use even an excellent hypothesis, if the same cannot be tested in reasonable time for one cannot spend a life-time collecting data to test it.

8. Hypothesis must explain the facts that gave rise to the need for explanation. This means that by using the hypothesis plus other known and accepted generalizations, one should be able to deduce the original problem condition. Thus the hypothesis must actually explain what it claims to explain; it should have empirical reference.

6.5 PARAMETRIC TESTS

The basic principle behind the parametric tests is that we have a fixed set of parameters that are used to determine a probabilistic model that may be used in Machine Learning as well.

Parametric tests are those tests for which we have prior knowledge of the population distribution (i.e, normal), or if not then we can easily approximate it to a normal distribution which is possible with the help of the Central Limit Theorem.

Parameters for using the normal distribution:

- Mean
- Standard Deviation

Eventually, the classification of a test to be parametric is completely dependent on the population assumptions. There are many parametric tests available from which some of them are as follows:

- To find the confidence interval for the population means with the help of known standard deviation.

- To determine the confidence interval for population means along with the unknown standard deviation.
- To find the confidence interval for the population variance.
- To find the confidence interval for the difference of two means, with an unknown value of standard deviation.

6.5.1 Importance of Parametric test in Research Methodology

1. Parametric tests can provide trustworthy results with distributions that are skewed and non-normal

Parametric analyses can produce reliable results even when your continuous data are non-normally distributed. You just have to be sure that your sample size meets the requirements for each analysis in the table below. Simulation studies have identified these requirements. Read here for more information about these studies. You can use these parametric tests with non-normally distributed data thanks to the central limit theorem.

2. Parametric tests can provide trustworthy results when the groups have different amounts of variability

Nonparametric tests don't require data that are normally distributed. However, nonparametric tests have the disadvantage of an additional requirement that can be very hard to satisfy. The groups in a nonparametric analysis typically must all have the same variability (dispersion). Nonparametric analyses might not provide accurate results when variability differs between groups

Conversely, parametric analyses, like the 2-sample t-test or one-way ANOVA, allow you to analyse groups with unequal variances. In most statistical software, it is as easy as checking the correct box! You don't have to worry about groups having different amounts of variability when you use a parametric analysis.

3. Parametric tests have greater statistical power

In most cases, parametric tests have more power. If an effect exists, a parametric analysis is more likely to detect it.

6.5.2 Important parametric tests:

1. z-test;
2. t-test;
3. χ2-test, and
4. F-test.

z-test is based on the normal probability distribution and is used for judging the significance of several statistical measures,

$$z = \frac{\bar{X} - \mu}{\sigma / \sqrt{n}}$$

$\bar{x}$ = sample mean

μ = population mean

σ = population standard deviation

n = sample size

particularly the mean. The relevant test statistic, z, is worked out and compared with its probable value (to be read from a table showing area under normal curve) at a specified level of significance for judging the significance of the measure concerned. This is a most frequently used test in research studies. This test is used even when binomial distribution or t-distribution is applicable on the presumption that such a distribution tends to approximate normal distribution as 'n' becomes larger. z-test is generally used for comparing the mean of a sample to some hypothesized mean for the population in case of large sample, or when population variance is known. z-test is also used for judging the significance of difference between means of two independent samples in case of large samples, or when population variance is known. z-test is also used for comparing the sample proportion to a theoretical value of population proportion or for judging the difference in proportions of two independent samples when n happens to be large. Besides, this test may be used for judging the significance of median, mode, coefficient of correlation and several other measures.

$$t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

t-test is based on t-distribution and is considered an appropriate test for judging the significance of a sample mean or for judging the significance of difference between the means of two samples in case of small sample(s) when population variance is not known (in which case we use variance of the sample as an estimate of the population variance). In case two samples are related, we use paired t-test (or what is known as difference test) for judging the significance of the mean of difference between the two related samples. It can also be used for judging the significance of the coefficients of simple and partial correlations. The relevant test statistic, t, is calculated from the sample data and then compared with its probable value based on t-distribution (to be read from the table that gives probable values of t for different levels of significance for different degrees of freedom) at a specified level of significance for concerning degrees of freedom for accepting or rejecting the null hypothesis. It may be noted that t-test applies only in case of small sample(s) when population variance is unknown.

χ2-test is based on chi-square distribution and as a parametric test is used for comparing a sample variance to a theoretical population variance.

$$s^2 = \frac{\sum_{i=1}^{n} \left(x_i - \bar{X}\right)^2}{n-1}$$

F-test is based on F-distribution and is used to compare the variance of the two-independent samples. This test is also used in the context of analysis of variance (ANOVA) for judging the significance of more than two sample means at one and the same time. It is also used for judging the significance of multiple correlation coefficients. Test statistic, F, is calculated and compared with its probable value (to be seen in the F-ratio tables for different degrees of freedom for greater and smaller variances at specified

level of significance) for accepting or rejecting the null hypothesis. It is calculated as:

F = s12/s22

6.6 NON-PARAMETRIC TESTS

In Non-Parametric tests, we don't make any assumption about the parameters for the given population or the population we are studying. In fact, these tests don't depend on the population.

In modern days, non-parametric tests are gaining popularity and an impact of influence some reasons behind this fame is –

- The main reason is that there is no need to be mannered while using parametric tests.
- The second reason is that we do not require to make assumptions about the population given (or taken) on which we are doing the analysis.
- Most of the nonparametric tests available are very easy to apply and to understand also i.e., the complexity is very low.

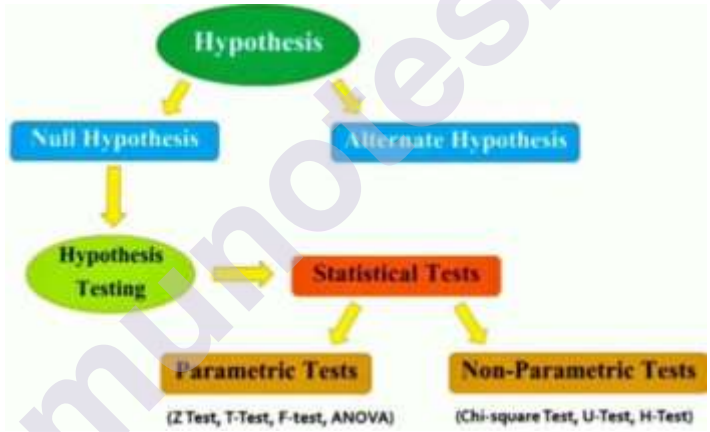


Image Source: Google Images

6.6.1 Chi-Square Test

1. It is a non-parametric test of hypothesis testing.

2. As a non-parametric test, chi-square can be used:

- test of goodness of fit.
- as a test of independence of two variables.

3. It helps in assessing the goodness of fit between a set of observed and those expected theoretically.

4. It makes a comparison between the expected frequencies and the observed frequencies.

5. Greater the difference, the greater is the value of chi-square.

6. If there is no difference between the expected and observed frequencies, then the value of chi-square is equal to zero.

Chi-square test

$$\chi^2 = \frac{\sigma s^2}{\sigma p^2}(n-1)$$

$$\chi^2 = \sum \frac{(Oij - Eij)^2}{Eij}$$

Degree of Freedom	Probability of Exceeding the Critical Value								
	0.99	0.95	0.90	0.75	0.50	0.25	0.10	0.05	0.01
1	0.000	0.004	0.016	0.102	0.455	1.32	2.71	3.84	6.63
2	0.020	0.103	0.211	0.575	1.386	2.77	4.61	5.99	9.21
3	0.115	0.352	0.584	1.212	2.366	4.11	6.25	7.81	11.34
4	0.297	0.711	1.064	1.923	3.357	5.39	7.78	9.49	13.28
5	0.554	1.145	1.610	2.675	4.351	6.63	9.24	11.07	15.09
6	0.872	1.635	2.204	3.455	5.348	7.84	10.64	12.59	16.81
7	1.239	2.167	2.833	4.255	6.346	9.04	12.02	14.07	18.48
8	1.647	2.733	3.490	5.071	7.344	10.22	13.36	15.51	20.09
9	2.088	3.325	4.168	5.899	8.343	11.39	14.68	16.92	21.67
10	2.558	3.940	4.865	6.737	9.342	12.55	15.99	18.31	23.21
11	3.053	4.575	5.578	7.584	10.341	13.70	17.28	19.68	24.72
12	3.571	5.226	6.304	8.438	11.340	14.85	18.55	21.03	26.22
13	4.107	5.892	7.042	9.299	12.340	15.98	19.81	22.36	27.69
14	4.660	6.571	7.790	10.165	13.339	17.12	21.06	23.68	29.14
15	5.229	7.261	8.547	11.037	14.339	18.25	22.31	25.00	30.58
16	5.812	7.962	9.312	11.912	15.338	19.37	23.54	26.30	32.00
17	6.408	8.672	10.085	12.792	16.338	20.49	24.77	27.59	33.41
18	7.015	9.390	10.865	13.675	17.338	21.60	25.99	28.87	34.80
19	7.633	10.117	11.651	14.562	18.338	22.72	27.20	30.14	36.19
20	8.260	10.851	12.443	15.452	19.337	23.83	28.41	31.41	37.57
22	9.542	12.338	14.041	17.240	21.337	26.04	30.81	33.92	40.29
24	10.856	13.848	15.659	19.037	23.337	28.24	33.20	36.42	42.98
26	12.198	15.379	17.292	20.843	25.336	30.43	35.56	38.89	45.64
28	13.565	16.928	18.939	22.657	27.336	32.62	37.92	41.34	48.28
30	14.953	18.493	20.599	24.478	29.336	34.80	40.26	43.77	50.89
40	22.164	26.509	29.051	33.660	39.335	45.62	51.80	55.76	63.69
50	27.707	34.764	37.689	42.942	49.335	56.33	63.17	67.50	76.15
60	37.485	43.188	46.459	52.294	59.335	66.98	74.40	79.08	88.38
	Not Significant							Significant	

7. It is also known as the "Goodness of fit test" which determines whether a particular distribution fits the observed data or not.

8. It is calculated as:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

O = the frequencies observed

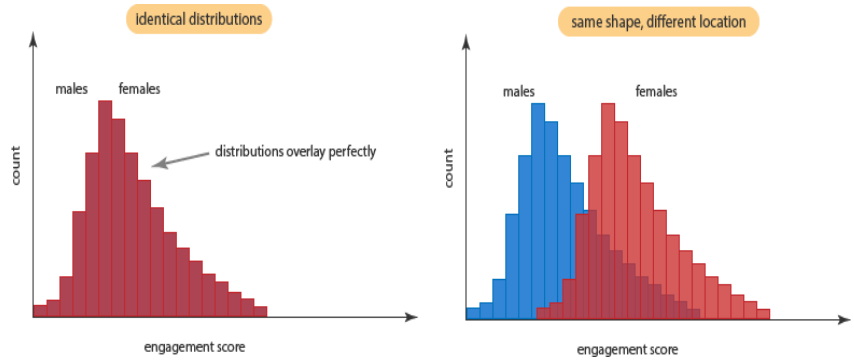
E = the frequencies expected

$\sum$ = ***the 'sum of'***

9. Chi-square is also used to test the independence of two variables.

11. Chi-square as a parametric test is used as a test for population variance based on sample variance.

6.6.2 Mann-Whitney U-Test



1. It is a non-parametric test of hypothesis testing.
2. This test is used to investigate whether two independent samples were selected from a population having the same distribution.
3. It is a true nonparametric counterpart of the T-test and gives the most accurate estimates of significance especially when sample sizes are small and the population is not normally distributed.
4. It is based on the comparison of every observation in the first sample with every observation in the other sample.
5. The test statistic used here is "U".
6. Maximum value of "U" is 'n1*n2'and the minimum value is zero.
7. It is also known as:

- Mann-Whitney Wilcoxon Test.
- Mann-Whitney Wilcoxon Rank Test.

8. Mathematically, U is given by:

$U1 = R1 - n1(n1+1)/2$

where n1 is the sample size for sample 1, and R1 is the sum of ranks in Sample 1.

$U2 = R2 - n2(n2+1)/2$

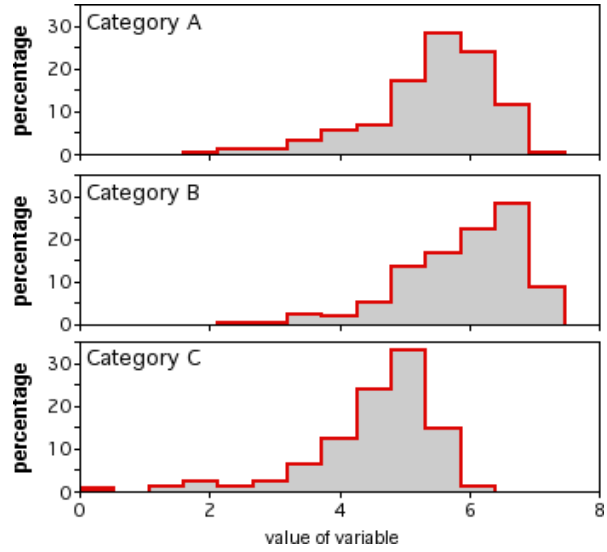
When consulting the significance tables, the smaller values of U1 and U2 are used. The sum of two values is given by,

$U1 + U2 = \{ R1 - n1(n1+1)/2 \} + \{ R2 - n2(n2+1)/2 \}$

Knowing that $R1+R2 = N(N+1)/2$ and $N=n1+n2$, and doing some algebra, we find that the sum is:

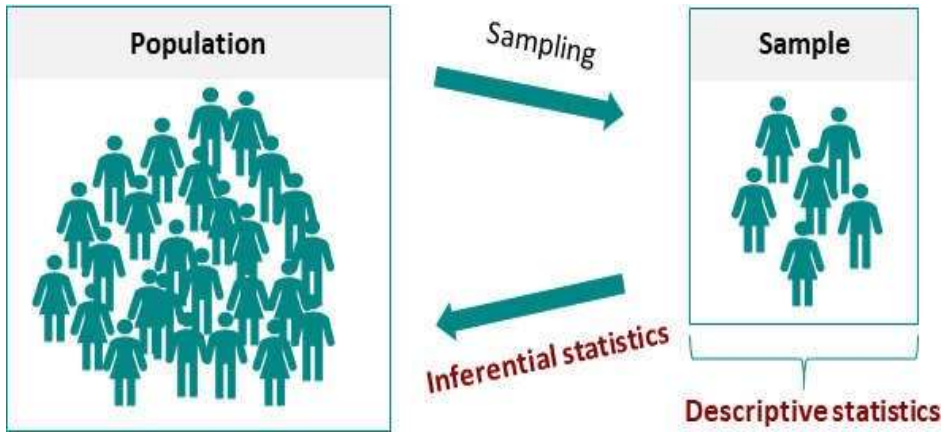
$U1 + U2 = n1*n2$

6.6.3 Kruskal-Wallis H-test



1. It is a non-parametric test of hypothesis testing.
2. This test is used for comparing two or more independent samples of equal or different sample sizes.
3. It extends the Mann-Whitney-U-Test which is used to compare only two groups.
4. One-Way ANOVA is the parametric equivalent of this test. and that's why it is also known as 'One-Way ANOVA on ranks.
5. It uses ranks instead of actual data.
6. It does not assume the population to be normally distributed.
7. The test statistic used here is "H".

6.7 DESCRIPTIVE AND INFERENTIAL STATISTICS



6.7.1 What is Descriptive Statistics?

A graphical representation of data is another method of descriptive statistics. Examples of this visual representation are histograms, bar graphs and pie graphs, to name a few. Using these methods, the data is described by compiling it into a graph, table or other visual representation.

This provides a quick method to make comparisons between different data sets and to spot the smallest and largest values and trends or changes over a period. If the pet shop owner wanted to know what type of pet was purchased most in the summer, a graph might be a good medium to compare the number of each type of pet sold and the months of the year.

Common tools of descriptive statistics

Central tendency: Use the mean or the median to locate the centre of the dataset. This measure tells you where most values fall.

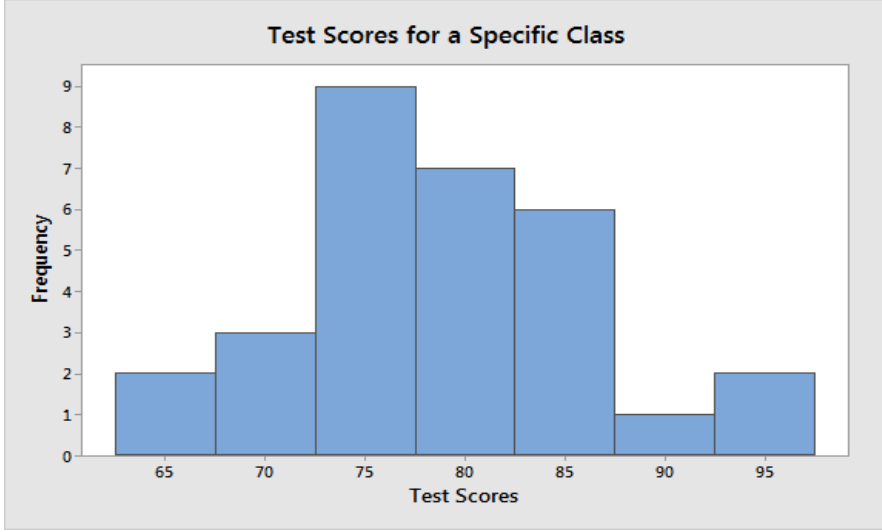
Dispersion: How far out from the centre do the data extend? You can use the range or standard deviation to measure the dispersion. A low dispersion indicates that the values cluster more tightly around the centre. Higher dispersion signifies that data points fall further away from the centre. We can also graph the frequency distribution.

Skewness: The measure tells you whether the distribution of values is symmetric or skewed.

You can present this summary information using both numbers and graphs. These are the standard descriptive statistics, but there are other descriptive analyses you can perform, such as assessing the relationships of paired data using correlation and scatter plots.

Example:

Suppose we want to describe the test scores in a specific class of 30 students. We record all of the test scores and calculate the summary statistics and produce graphs.



Statistic	Class value
Mean	79.18
Range	66.21 – 96.53
Proportion >= 70	86.7%

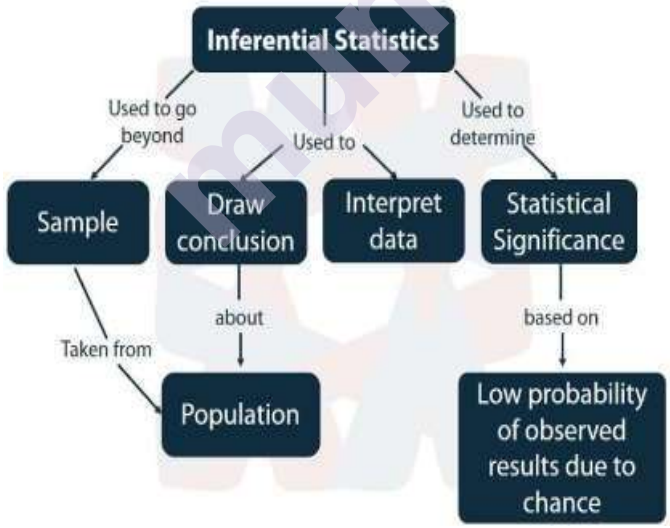
These results indicate that the mean score of this class is 79.18. The scores range from 66.21 to 96.53, and the distribution is symmetrically centered around the mean. A score of at least 70 on the test is acceptable. The data show that 86.7% of the students have acceptable scores.

Collectively, this information gives us a pretty good picture of this specific class. There is no uncertainty surrounding these statistics because we gathered the scores for everyone in the class. However, we cannot take these results and extrapolate to a larger population of students.

A good exploratory tool for descriptive statistics is the five-number summary, which presents a set of distributional properties for your sample.

6.7.2 Inferential Statistics

Now, suppose you need to collect data on a very large population. e.g.,, suppose you want to know the average height of all the men in a city with a population of so many million residents. It isn't very practical to try and get the height of each man.



This is where inferential statistics come into play. Inferential statistics makes inferences about populations using data drawn from the population. Instead of using the entire population to gather the data, the statistician will collect a sample or samples from the millions of residents and make inferences about the entire population using the sample.

The sample is a set of data taken from the population to represent the population. Probability distributions, hypothesis testing, correlation testing and regression analysis all fall under the category of inferential statistics.

Inferential statistics takes data from a sample and makes inferences about the larger population from which the sample was drawn. Because the goal of inferential statistics is to draw conclusions from a sample and generalize them to a population, we need to have confidence that our sample accurately reflects the population.

This requirement affects our process. At a broad level, we must do the following:

1. Define the population we are studying.
2. Draw a representative sample from that population.
3. Use analyses that incorporate the sampling error.

We do not get to pick a convenient group. Instead, random sampling allows us to have confidence that the sample represents the population. This process is a primary method for obtaining samples that mirrors the population on average. Random sampling produces statistics, such as the mean, that do not tend to be too high or too low. Using a random sample, we can generalize from the sample to the broader population. Unfortunately, gathering a truly random sample can be a complicated process.

Following are the methods to collect a representative sample:

- Simple random sampling
- Stratified sampling
- Cluster sampling
- Systematic sampling

In contrast, convenience sampling doesn't tend to obtain representative samples. These samples are easier to collect but the results are minimally useful.

Standard analysis tools of inferential statistics

The most common methodologies in inferential statistics are hypothesis tests, confidence intervals, and regression analysis. Interestingly, these inferential methods can produce similar summary values as descriptive statistics, such as the mean and standard deviation. However, we use them very differently when making inferences.

Hypothesis tests

Hypothesis tests use sample data answer questions like the following:

- Does the population mean greater than or less than a particular value?
- Are the means of two or more populations different from each other?

e.g., if we study the effectiveness of a new medication by comparing the outcomes in a treatment and control group, hypothesis tests can tell us whether the drug's effect that we observe in the sample is likely to exist in the population. After all, we don't want to use the medication if it is effective only in our specific sample. Instead, we need evidence that it'll be useful in the entire population of patients. Hypothesis tests allow us to draw these types of conclusions about entire populations.

Confidence intervals (CIs)

In inferential statistics, a primary goal is to estimate population parameters. These parameters are the unknown values for the entire population, such as the population mean and standard deviation. These parameter values are not only unknown but almost always unknowable. Typically, it's impossible to measure an entire population. The sampling error I mentioned earlier produces uncertainty, or a margin of error, around our estimates.

Suppose we define our population as all high school basketball players. Then, we draw a random sample from this population and calculate the mean height of 181 cm. This sample estimate of 181 cm is the best estimate of the mean height of the population. However, it's virtually guaranteed that our estimate of the population parameter is not exactly correct.

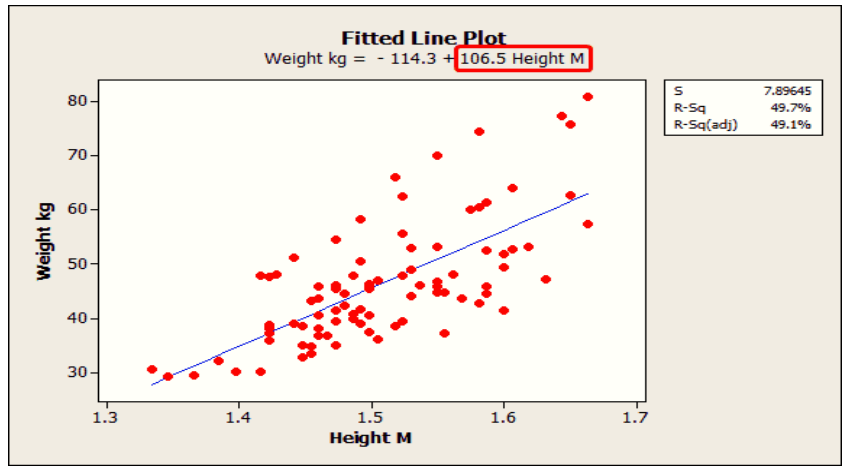
Confidence intervals incorporate the uncertainty and sample error to create a range of values the actual population value is like to fall within. e.g., a confidence interval of [176 186] indicates that we can be confident that the real population mean falls within this range.

Regression analysis

Regression analysis describes the relationship between a set of independent variables and a dependent variable. This analysis incorporates hypothesis tests that help determine whether the relationships observed in the sample data actually exist in the population.

e.g., the fitted line plot below displays the relationship in the regression model between height and weight in adolescent girls. Because the relationship is statistically significant, we have sufficient evidence to conclude that this relationship exists in the population rather than just our sample.

Example of inferential statistics



In descriptive statistics, we picked the specific class that we wanted to describe and recorded all of the test scores for that class. Nice and simple. For inferential statistics, we need to define the population and then draw a random sample from that population.

Let's define our population as 8th-grade students in public schools in the State of Maharashtra. We need to devise a random sampling plan to help ensure a representative sample. This process can be arduous. For the sake of this example, assume that we are provided a list of names for the entire population and draw a random sample of 100 students from it and obtain their test scores. Note that these students will not be in one class, but from many different classes in different schools across the state.

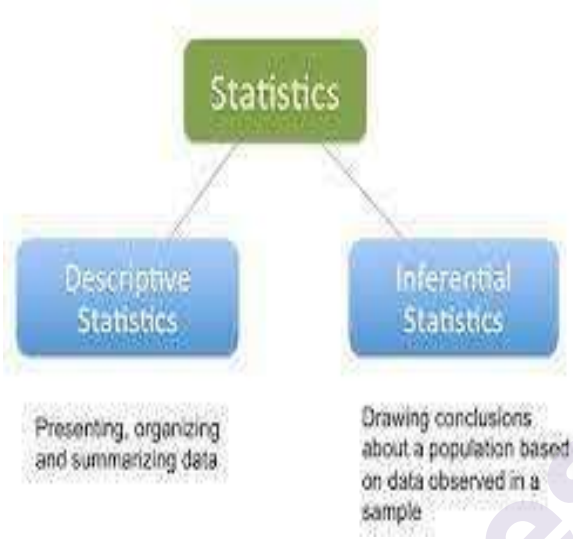
Inferential statistics results

For inferential statistics, we can calculate the point estimate for the mean, standard deviation, and proportion for our random sample. However, it is staggeringly improbable that any of these point estimates are correct, and there is no way to know for sure anyway. Because we can't measure all subjects in this population, there is a margin of error around these statistics. Consequently, here in this example the confidence intervals for the mean, standard deviation, and the proportion of satisfactory scores (>=70).

Statistic	Population Parameter Estimate (CIs)
Mean	77.4 – 80.9
Standard deviation	7.7 – 10.1
Proportion scores >= 70	77% – 92%

Given the uncertainty associated with these estimates, we can be 95% confident that the population mean is between 77.4 and 80.9. The population standard deviation (a measure of dispersion) is likely to fall between 7.7 and 10.1. And, the population proportion of satisfactory scores is expected to be between 77% and 92%.

6.7.3 Differences between Descriptive and Inferential Statistics



As you can see, the difference between descriptive and inferential statistics lies in the process as much as it does the statistics that you report.

For descriptive statistics, we choose a group that we want to describe and then measure all subjects in that group. The statistical summary describes this group with complete certainty (outside of measurement error).

6.8 QUESTIONS

1. What is inferential and descriptive statistics?
2. Write one example each of parametric and non-parametric tests.
3. What are the characteristics of hypothesis?
4. What do you mean by Regression analysis?
5. What do you mean by confidence intervals.

6.9 LET'S SUM IT UP

- The term statistics denotes the various methods adopted for the collection, analysis and interpretation of the fact numerically represented.
- Parametric tests are those tests for which we have prior knowledge of the population distribution (i.e, normal), or if not then we can easily

approximate it to a normal distribution which is possible with the help of the Central Limit Theorem.

- In Non-Parametric tests, we don't make any assumption about the parameters for the given population or the population we are studying. In fact, these tests don't depend on the population.

- A graphical representation of data is another method of descriptive statistics. Examples of this visual representation are histograms, bar graphs and pie graphs, to name a few. Using these methods, the data is described by compiling it into a graph, table or other visual representation.

- Inferential statistics makes inferences about populations using data drawn from the population. Instead of using the entire population to gather the data, the statistician will collect a sample or samples from the millions of residents and make inferences about the entire population using the sample.

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7

MEASURE OF CENTRAL TENDENCY

Unit Structure

7.0 OBJECTIVES

In this chapter we are going to understand the:

- Mean
- Median
- Mode
- Variance
- Standard Deviation

7.1 INTRODUCTION

In this chapter you will study the measures of central tendency, which covers mean median mode. We will also understand the concept of variance, covariance, standard deviation correlation and regression.

7.2 MEAN

Let's start with Mean, to understand mean, refer to the below example:

Suppose Mr. Ravi has 5 sons and their monthly income is Rs. 8000, Rs. 10900, Rs. 23000, Rs. 12000 and Rs. 16500 and you are required to calculate the average monthly income of the family. So you will

Mean (x) = (8000 + 10900 + 23000 + 12000 + 16500) / 5 = 70400 / 5 = 14080

So, the average monthly income of Mr. Ravi's Family is Rs. 14,080.

In the adobe example, in order to get the mean or average income of the family we simply added the income from the 5 sons and as there were 5 sons whose income was added we then divided the total income by 5.

When we compute the mean, we sum the given data. There is a convenient notation to indicate the sum. Let x represent any value in the data set. Then the notation ∑x (read "the sum of all given x values") means that we are to sum all the data values.

In other words, we are to sum all the entries in the distribution. The summation symbol ∑ means sum the following and is capital sigma, the S of the Greek alphabet. The symbol for the mean of a sample distribution of x values is denoted by X (read "x bar"). If your data comprise the entire population, we use the symbol μ (lowercase Greek letter mu, pronounced "mew") to represent the mean.

So, while computing mean is nothing but, an average that uses all the exact values of the given data and then adds them to divide with the number of entries is mean.

Mean = Sum of all data / No of data.

Example:

Neha has scored differently in the last 10 tests conducted round the year. In order to qualify for the same subject next year, she must at least have a "A" grade. Help Neha understand whether she will be able to qualify for same subject next year. The grades are computed as A+ = above 80, A = 70 – 80. B+ = 50 – 70, C+ = 60 – 70, C = below 60. Her marks in the last 10 tests are 78, 87, 79, 56, 45, 39, 80, 91, 88 and 78.

Solution:

The data can be represented as follows

Test	**Marks (X)**	
1	78	So here the total of 10 tests is 721 Marks. Now the mean will be calculated as **X = ∑X / n = 721 / 10 = 72.1** Therefore, the mean is 72.1 and Neha will get "A" grade. Hence, she qualifies for the same subject next year.
2	87	
3	79	
4	56	
5	45	
6	39	
7	80	
8	91	
9	88	
10	78	
Total	**∑X = 721**	

Sums for Practise:

1. Find mean of the Following data

a. 23, 24, 25, 32, 45, 46, 56, 51, 33, 23	b. 35, 34, 56, 56, 67, 78, 88
c. 10, 20, 30, 40, 50, 60, 70, 80. 90	d. 11, 21, 31, 41, 51, 61, 71, 8, 91
e. 123, 324, 456, 675, 786	f. 1, 8, 7, 6, 9, 2, 3, 1, 5, 2, 4, 3, 6, 7, 8,
g. 66, 45, 34, 45, 77, 66, 88, 12, 23, 90	h. 99, 68, 67, 66, 23
i. 123, 345, 456, 567	j. 73, 67, 57, 78

2. Solve the following

1. Reema's salary for the last 8 months is as follows: 65456, 56454, 87656, 87334, 67345, 45656, 78656 and 88767. She wants you to find out what is her monthly average salary and whether she can say her monthly average salary is more than 70000 or less than 70000?

2. The marks of five students are given below. The marks are for last 10 tests conducted around the year. Now they have a final exam approaching, before which you are supposed to grade the performance of five students on the following category on the basis of mean:

   O = Above 90, A+ = 80 – 90, A = 70 – 80, B = 60 – 70, C = 50 – 60, D = 35 – 50, F = Below 35

Tests	Reema	Sanjay	Sujay	Manjiri	Om
1	56	45	88	91	56
2	65	44	97	89	67
3	67	56	79	88	78
4	66	56	88	90	87
5	54	57	89	92	92
6	56	58	80	93	90
7	78	67	90	94	91
8	89	78	92	96	92
9	88	78	93	89	99
10	39	89	94	98	59

Mean is the best measure of central tendency when,
The data distribution is continuous and symmetrical, such as when your data is normally distributed. But still, it all depends on what you are trying to infer from your data.

3. Calculate the mean age of the kabaddi players in India based on the following data:

23	20	21	22	23	20	23	20	21	23
23	20	21	20	21	20	19	20	21	22

4. Compute Mean for the following data sets

   a. The Following Data set is of a monthly crop yield production from thirty pieces of land in one region. Find the mean production of the area. (Figures given are in tonnes per hectares)

12	23	12	23	11	10	11	12	13	15
10	9	11	12	13	10	11	13	15	12
12	13	14	15	10	11	19	15	11	12

   b. The data set represents the weight of a class of 20 students.

56	55	45	57	67	68	54	56	45	49
51	65	76	65	64	60	49	55	59	65

7.3 MEDIAN

Another method of Central tendency is Median. It focusses on the position than the value itself. The median is the centremost score if the number of scores is odd. If the number is even, the median is taken as the average of the two centremost scores. The median uses the position rather than the specific value of each data entry. If the extreme values of a data set change, the median usually does not change.

Example 1:

City College has appointed you to make a report of the student's average credit hour load a full-time student carry. (A 12-credit-hour load is the minimum requirement for full-time status. For the same, students may take up to 20 credit hours.) A random sample of 40 students yielded the following information (in credit hours):

12	13	14	15	16	12	17	19	18	12
14	16	18	12	14	5	13	16	16	17
15	18	19	13	14	15	16	17	18	15
14	15	13	12	16	17	18	19	12	16

Solution:

Step 1: Arrange the data in the order from lowest to highest

12	12	12	12	12	12	13	13	13	13
14	14	14	14	14	15	15	15	15	**15**
15	16	16	16	16	16	16	16	17	17
17	17	18	18	18	18	18	19	19	19

Step 2: Since the data set has 40 students (Even Number) so we will take the middle numbers to be the 20^{th} and 21^{st} entry (here 15) and then take average of the same

Median = (15 + 15) / 2 = 15

Example 2:

Calculate the median of the following data

89	88	87	89	89	87	87	89	88
88	87	88	89	85	86	89	87	

Solution:

Arrange the data set from lowest to highest

85	86	87	87	87	87	87	88	88
88	88	89	89	89	89	89	89	

From the above 19 values get the centre point value will be the 9^{th} value.

Therefore, the median value is 88.

Properties of the median

Effect of Extreme Scores on mean and median

Sr. No.	Scores	Mean	Median
1	23, 24, 25, 34, 34, 78, 900, 990	263.5	34
2	1, 3, 4, 34, 56, 78, 800	139.43	34
3	30, 30, 32, 32, 33, 33, 34, 45, 89, 100, 120, 999, 10110	899	34
4	11, 11, 12, 13, 34, 56, 788, 877, 919	302.33	34

There are two properties of the median worth noting.

First, the median is **less sensitive** than the mean to extreme scores. To illustrate this property, consider the scores shown in the first column of Table. The three distributions shown are the same except for the last score. In the second distribution, the score of 800 is very different in value from the other scores. In the third distribution, the score of 10110 is even more extreme. Note what happens to the mean in the second and third distributions. Since the mean is sensitive to extreme scores, it changes considerably with the extreme scores. How about the median? Does it change too? As we see from the third column, the answer is no! The median stays the same. Since the median is not responsive to each individual score but rather divides the distribution in half, it is not as sensitive to extreme scores as is the mean. For this reason, when the distribution is strongly skewed, it is probably better to represent the central tendency with the median rather than the mean.

The second property of the median involves its sampling stability. It states that, under usual circumstances, the median is more subject to sampling variability than the mean but less subject to sampling variability than the mode. Because the median is usually less stable than the mean from sample to sample, it is not as useful in inferential statistics.

Sums for Practise:

1. Find Median of the following numbers

1	23, 34, 45, 56, 67, 78, 78, 89, 12, 23, 34, 34, 56, 67, 78
2	12, 34, 56, 76, 21, 23, 32, 67, 78, 12, 34, 23, 55, 66, 22, 12, 54, 67
3	23, 34, 34, 33, 32, 45, 56, 67, 78, 89, 22, 12, 29, 98, 90, 64, 45
4	2, 4, 5, 6, 7, 12, 1, 23, 65, 3, 4, 3, 2, 76, 87, 12, 22, 33, 88
5	12, 34, 45, 66, 1, 5, 6, 7, 12, 33, 77, 12, 22, 23, 2, 3, 4, 4, 5, 55

CHECK YOUR PROGRESS

1. Define median. Explain with the help of an example.
2. Define mean. Explain with the help of an example.

7.4 MODE

In research, sometimes it is important to know the most frequently repetitive value of the data set. In other words, mode enables to find the value around which maximum concentration exists. The mode is defi ned as the most frequent score in the distribution. So, while calculating the mode it is important to find out the most frequent entry. Therefore, mode of a data set is the value that occurs most frequently.

The word mode has been derived from the French word "la Mode" which signifies the most fashionable values of a distribution, because it is repeated the highest number of times in the series. Mode is the most frequently observed data value. It is denoted by M_o.

For Example:

1. Count the Count the letters in each word of this sentence and give the mode.

Once upon a time there was a little girl. Her name was Goldilocks. She had golden hair.

Solution:

Step 1: Count the letters in the above sentence

4 4 1 4 5 3 1 6 4 3 4 3 10 3 3 6 4

Step 2: Now mention the frequency of each number count in the above sentence

Number of letters (Data)	1	3	**4**	5	6	10
Number of times in sentence (Frequency)	2	5	**6**	1	2	1

As you can see in the above table, the letters with count 4 have come 6 times hence the most frequently repeated number is 4 and the mode is 6.

Mode can be very useful to determine the consumer demand as it will give the most demanded item by giving it the highest frequency. It is also easy to determine in large number of data where only the frequency of the data set is to be calculated and becomes a variable of decision. Although the mode is the easiest measure of central tendency to determine, it is not used very much in the behavioral sciences because it is not very stable from sample to sample and often there is more than one mode for a given set of scores.

7.5 VARIANCE AND STANDARD DEVIATION

The variance (S2) is the average squared deviation from the mean. It is also known as the square of the standard deviation. Both measures are interchangeable. These means that the standard deviation is the square root of the variance. In simple words, Variance is square of standard deviation or otherwise Standard Deviation is square root of Variance. For the data, sample data helps find variance and then variance enables find standard deviation.

$$s^2 = \frac{\sum(x-\mu)^2}{k-1}$$

Where s = standard deviation

x = sample data

μ = mean of sample data

n = no. of sample data

Alternatively Standard deviation is described as just the square root of the above formula

$$s = \sqrt{\frac{\sum(x-\mu)^2}{k-1}}$$

There is one another way also of representing variance and standard deviation

Variance, $s^2 = \frac{\sum S^2 - \frac{\sum x^2}{n}}{n-1}$ and Standard deviation, $s = \sqrt{\frac{\sum S^2 - \frac{\sum x^2}{n}}{n-1}}$

Above given formulas are used interchangeably. The formula given later is mostly used as its computation friendly. Hence, the first formula given is known as definition formula and the later is known as Computation formula.

Example 1:

Calculate the variance and standard deviation of the following data

n	1	2	3	4	5	6	7	8	9	10
x	23	34	32	35	37	29	28	33	36	24

Solution:

n	x	x – μ	$(x-\mu)^2$	Applying formula
1	23	23 – 31 = –8	64	For Variance, $s^2 = \frac{\sum(x-\mu)^2}{k-1}$
2	34	34 – 31 = 3	9	
3	32	32 – 31 = 1	1	
4	35	35 – 31 = 4	16	$s^2 = \frac{224}{10-1} = \frac{224}{9} = 24.89$
5	37	37 – 31 = 6	36	
6	29	29 – 31 = –2	4	Now for Standard Deviation:
7	27	27 – 31 = –4	16	
8	33	33 – 31 = 2	4	$s = \sqrt{24.89} = 4.99$
9	36	36 – 31 = 5	25	
10	24	24 – 31 = –7	49	
	$\sum x = 310$		$\sum(x-\mu)^2 = 224$	
	$\mu = 310/10 = 31$			

n	x	x^2	Applying formula
1	23	529	For Variance, $s^2 = \frac{\sum x^2 - \frac{(\sum S)^2}{n}}{k-1}$
2	34	1156	
3	32	1024	For the above formula
4	35	1225	$s^2 = \frac{9834-9610}{10-1} = \frac{224}{9} = 24.89$
5	37	1369	
6	29	841	Now for Standard Deviation:
7	27	729	
8	33	1089	$s = \sqrt{24.89} = 4.99$
9	36	1296	
10	24	576	
	$\sum x = 310$	$\sum x^2 = 9834$	
	$\frac{(\sum S)^2}{n} = \frac{310*310}{10} = 9610$		

Example 2:

Calculate the variance and standard deviation of the following data

n	1	2	3	4	5	6	7	8	9	10
x	10	9	8	7	6	5	4	3	2	1

Solution: Method 1

n	x	x – μ	$(x-\mu)^2$	Applying formula
1	10	10 – 5.5 = 4.5	20.25	μ = 55 /10 = 5.5 For Variance, $s^2 = \frac{\sum(x-\mu)^2}{k-1}$ $s^2 = \frac{82.5}{10-1} = \frac{82.5}{9} = 9.17$ Now for Standard Deviation: $s = \sqrt{9.17} = 3.03$
2	9	9 – 5.5 = 3.5	12.25	
3	8	8 – 5.5 = 2.5	6.25	
4	7	7 – 5.5 = 1.5	2.25	
5	6	6 – 5.5 = 0.5	0.25	
6	5	5 – 5.5 = –0.5	0.25	
7	4	4 – 5.5 = –1.5	2.25	
8	3	3 – 5.5 = –2.5	6.25	
9	2	2 – 5.5 = –3.5	12.25	
10	1	1 – 5.5 = –4.5	20.25	
	∑x = 55		$\sum(x-\mu)^2$ = 82.5	

Method 2

n	x	x^2	Applying formula
1	10	100	$\frac{(\sum S)^2}{n} = \frac{55*55}{10} = 302.5$ For Variance, $s^2 = \frac{\sum x^2 - \frac{(\sum S)^2}{n}}{k-1}$ For the above formula $s^2 = \frac{385-302.5}{10-1} = \frac{82.5}{9} = 9.17$ Now for Standard Deviation: $s = \sqrt{9.17} = 3.03$
2	9	81	
3	8	64	
4	7	49	
5	6	36	
6	5	25	
7	4	16	
8	3	9	
9	2	4	
10	1	1	
	∑x = 55	$\sum x^2$ = 385	

Sums for Practise:

1.Find the variance and standard deviation of the following data

a.	n	1	2	3	4	5
	x	12	23	34	45	56
b.	n	1	2	3	4	5
	x	22	12	32	9	24
	n	6	7	8		
	x	7	11	25		
c.	Following is the data received from a region of crop cultivation received in a particular year. (The data given below is in '00 kg)					
	n	January	February	March	April	May
	x	10	13	9	6	5
	n	June	July	August	September	October
	x	11	7	9	10	7
	n	November	December			
	x	13	11			
d.	Following is the data received from Nav Bharat Times about newspaper subscription in a region for a financial year 2021-2022. The figure is no of households in a given locality.					
	n	April	May	June	July	August
	x	12	23	13	19	11
	n	September	October	November	December	January
	x	14	13	24	12	11
	n	February	March			
	x	17	18			

Sr. No.	Quantity	Description
1	x	The variable x represents a data value or outcome
2	Mean $\mu = \frac{\sum x}{k}$	This is the average of the data values, or what you ”expect” to happen the next time you conduct the statistical experiment. Note that n is the sample size
3	$x - \mu$	This is the difference between what happened and what you expected to happen. This represents a “deviation” away from what you “expect” and is a measure of risk.
4	$(x - \mu)^2$	The expression is called the sum of squares. The quantity is squared to make it nonnegative. The sum is over all the data. If you don’t square , then the sum is equal to 0 because the negative values cancel the positive values. This occurs even if some values are large, indicating a large deviation or risk.
5	Sum of squares $\sum(x - \mu)^2$ Or $\sum x^2 - \frac{(\sum x)^2}{k}$	This is an algebraic simplification of the sum of squares that is easier to compute. The defining formula for the sum of squares is the upper one. The computation formula for the sum of squares is the lower one. Both formulas give the same result.
6	Sample variance $s^2 = \frac{\sum(x - \mu)^2}{k - 1}$ Or $s^2 = \frac{\sum x^2 - \frac{\sum S^2}{n}}{k - 1}$	The sample variance is s^2. The variance can be thought of as a kind of average of the values. However, for technical reasons, we divide the sum by the quantity rather than n. This gives us the best mathematical estimate for the sample variance. The defining formula for the variance is the upper one. The computation formula for the variance is the lower one. Both formulas give the same result.

7	Sample Standard Deviation $s = \sqrt{\frac{\sum(x-\mu)^2}{k-1}}$ Or $s = \sqrt{\frac{\sum x^2 - \frac{\sum S^2}{n}}{k-1}}$	This is the sample standard deviations. Why do we take the square root? Well, if the original x units were, say, days or dollars, then the s^2 units would be days squared or dollars squared (wow, what's that?).We take the square root to return to the original units of the data measurements. The standard deviation can be thought of as a measure of variability or risk. Larger values of s imply greater variability in the data. The defining formula for the standard deviation is the upper one. The computation formula for the standard deviation is the lower one. Both formulas give the same result.

While summing it up,

The above table is originally from Brase and Brase Understandable statistics Concepts and Methods, Third edition.

7.6 COVARIANCE AND CORELATION

Adapted from: https://www.simplilearn.com/covariance-vs-correlation-article\ Students often confuse with these two terms and they think it is used interchangeably. Whereas, they are opposite of each other. In covariance, you understand the difference between two variables, whereas correlation helps you understand the relationship between the two variables. Let's discuss the terms in detail to understand the difference between the term and also its application in statistics.

7.6.1 Understanding Covariance

Covariance is a statistical term used to highlight the systematic relationship between two random variables. The relationship is simple, where the change in one variable causes the change in another variable. The covariance value can range from -∞ to +∞, with a negative value indicating a negative relationship and a positive value indicating a positive relationship. The value of the covariance also indicates inferential points. Higher the number, reliance of the relationship is more. Also, positive covariance indicates a direct relationship and is denoted by positive number. On the other hand, a negative number indicates an inverse relationship and is denoted by a negative sign. Covariance is great for defining the type of relationship, but a researcher should refrain himself from using it to define the magnitude.

Let Σ(X) and Σ(Y) be the expected values of the variables, the covariance formula can be represented as:

Covariance (x,y) = $\frac{1}{n}\sum_{i=1}^{S} (x_i - \bar{x})(y_i - \bar{y})$

Where,

xi = data value of x

yi = data value of y

$\bar{x}$ = mean of x

$\bar{y}$ = mean of y

N = number of data values

Understanding Correlation

Correlation helps to determine the degree to which the variables in the research are related and or dependent on each other. In other words, it helps a researcher to understand the way two or more random variables move in sequence. In simpler words, if movement of one variable causes other variables to move and vice versa they are said to be correlated.

The formula for correlation is:

$$\rho_{xy} = Correlation\ (x,y) = \frac{cov(x,y)}{\sqrt{var(x)}\sqrt{var(y).}}$$

Where,

var(X) = standard deviation of X

var(Y) = standard deviation of Y

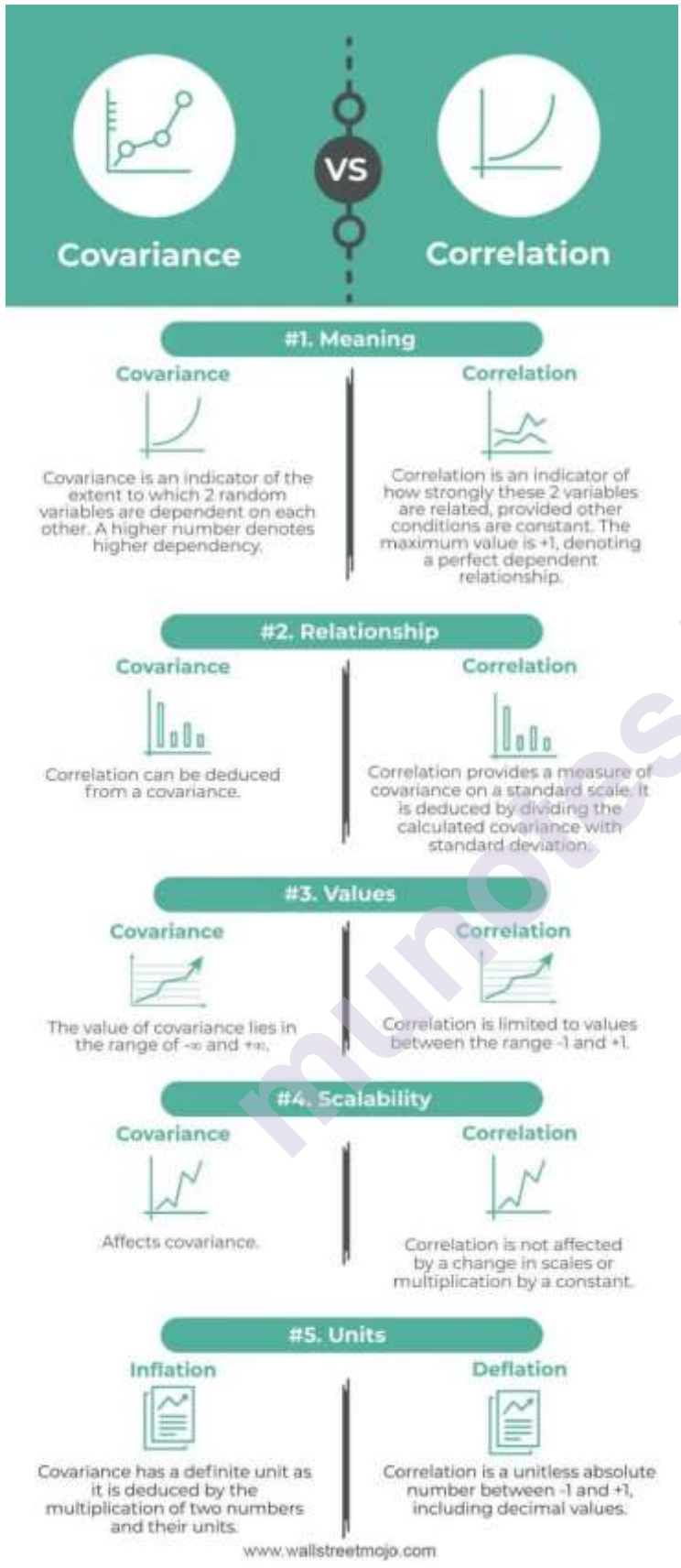
Positive correlation occurs when two variables move in the same direction. When variables move in the opposite direction, they are said to be negatively correlated.

Correlation is of three types:

1. Simple Correlation: In simple correlation, a single number expresses the degree to which two variables are related.

2. Partial Correlation: When one variable's effects are removed, the correlation between two variables is revealed in partial correlation.

3. Multiple correlation: A statistical technique that uses two or more variables to predict the value of one variable.



Source: **Covariance vs Correlation** (wallstreetmojo.com)

7.7 QUESTIONS

1. Define mode. Explain with the help of an example.
2. What do you mean by measures of central tendency?
3. What is the significance of standard deviation?
4. Explain the concept of covariance.

7.8 LET'S SUM IT UP

- Measures of central tendency covers mean median mode.
- Mean is the best measure of central tendency when, the data distribution is continuous and symmetrical, such as when your data is normally distributed.
- Median focusses on the position than the value itself. The median is the centermost score if the number of scores is odd. If the number is even, the median is taken as the average of the two centermost scores. The median uses the position rather than the specific value of each data entry. If the extreme values of a data set change, the median usually does not change.
- In research, sometimes it is important to know the most frequently repetitive value of the data set. In other words, mode enables to find the value around which maximum concentration exists. The mode is defined as the most frequent score in the distribution.
- The variance (S2) is the average squared deviation from the mean. It is also known as the square of the standard deviation. Both measures are interchangeable. These means that the standard deviation is the square root of the variance.
- Covariance is a statistical term used to highlight the systematic relationship between two random variables. The relationship is simple, where the change in one variable causes the change in another variable.

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8

WHAT IS HYPOTHESIS?

Unit Structure

8.0 OBJECTIVES

In this chapter, you are going to understand:

1. What is hypothesis?
2. Null hypothesis
3. Alternate Hypothesis
4. Steps of Hypothesis Testing
5. Kinds of Variables

8.1 INTRODUCTION

According to the Merriam – webster dictionary,

A hypothesis is **an assumption, an idea** that is proposed for **the sake of argument** so that it can be tested to see if it might **be true**. In the scientific method, the hypothesis is **constructed before any applicable research has been done**, apart from a basic background review. You ask a question, read up on what has been studied before, and then form a hypothesis. A hypothesis is usually **tentative**; it is an assumption or suggestion made strictly for the objective of being tested.

For every research to be applicable in future, it has to have a hypothesis which is put to test and then the result is verified as under. It is very essential to construct the right hypothesis and then put to the right test. There is often a question towards as to how to construct the hypothesis. There lies a very simple method to understand this, as a researcher you need to first study the problem at hand and analyse the already written

material on it. In research language, we call it the literature review. While doing the literature review, you will understand the gap of the research and the problem at hand becomes clearer. Now when you have studied the problem and understood its nuances, construct a statement which built a relationship – causal, inferential, experimental etc.

The relationship thus established here will then enable you to construct the hypothesis and work further on the research project.

8.2 EXAMPLES OF HYPOTHESIS

Mr. Ajit wants to study the spends of a company over advertising and their relationship with sales. He has collected the previous data which indicates that advertising has resulted a positive surge in sales for initial months and again the lull happened. Again, when the advertising was changed and re-launched it showed the same surge. Now he will first ponder to frame a research question.

To construct a research question, we must first understand what a research question is. A research question is "a question that a research project sets out to answer". Choosing a research question is an essential element of both quantitative and qualitative research. In other words, research question becomes the nascent step every researcher will have to take and furnish.

Here in the above case, the research question for Mr. Ajit will be

Is there any impact of advertising on sales of the product?

From the above research question, one can develop hypothesis as follows:

“Advertising has an impact on sales of the product.”

In the above hypothesis, you can see the word impact proves the relationship between one variable advertising and another variable sale of the product.

Now understand the statement well, it is not a conclusion, but just an assumption towards the research process. It is essential for the researcher to design the hypothesis beforehand in order to give a proper direction to research.

In a nutshell, we can develop following steps for Hypothesis:

1. Generate a research question.
2. Conduct a preliminary study (literature review)
3. Propose a statement
4. Refine the statement
5. Finalize the statement (Assumption based)

Some other Examples:

Research question	Hypothesis	Null hypothesis
What are the health benefits of eating an apple a day?	Increasing apple consumption in over-60s will result in decreasing frequency of doctor's visits.	Increasing apple consumption in over-60s will have no effect on frequency of doctor's visits.
Which airlines have the most delays?	Low-cost airlines are more likely to have delays than premium airlines.	Low-cost and premium airlines are equally likely to have delays.
Can flexible work arrangements improve job satisfaction?	Employees who have flexible working hours will report greater job satisfaction than employees who work fixed hours.	There is no relationship between working hour flexibility and job satisfaction.
How effective is high school sex education at reducing teen pregnancies?	Teenagers who received sex education lessons throughout high school will have lower rates of unplanned pregnancy than teenagers who did not receive any sex education.	High school sex education has no effect on teen pregnancy rates.
What effect does daily use of social media have on the attention span of under-16s?	There is a negative correlation between time spent on social media and attention span in under-16s.	There is no relationship between social media use and attention span in under-16s.

Resource: https://www.scribbr.com/methodology/hypotheses/

In general, Hypothesis must possess following characteristics:

1. Based on prior study: Hypothesis statement must be based on the prior study done by the researcher around the topic.

2. To be verified: The statement must be such that can be put to test to verify either its existence or non-existence towards the research.

3. Clear and Precise: The statement must not create doubt or ambiguity towards the research area, but it should be very clear and precise. In other words, it should avoid any further confusions.

4. Specific: The hypothesis constructed must primarily speak about the topic at hand. It must be specific towards the core area of research.

5. Scope for conducting more test: The statement must ensure that further tests can be conducted on the same.

6. Simplicity: The hypothesis must avoid big jargons and must be simple and easy to understand for researchers to proceed on.

8.3 NULL AND ALTERNATE HYPOTHESIS:

Hypothesis are primarily of two types. Null Hypothesis and Alternate Hypothesis. Null Hypothesis is symbolized as H_0or $H_o$and Alternate Hypothesis is symbolized as H_a or H_1.

In research, the null hypothesis is the suggestion that there is no effect or no relationship between phenomena or populations. If the null hypothesis is true, any observed difference in phenomena or populations would be due to sampling error (random chance) or experimental error. If Null hypothesis is not true then there can be a conclusion drawn that there is relationship between the phenomena or populations. Stating the Null Hypothesis is the first step towards drafting a research assignment. Any problem at hand always has variables to study, null hypothesis enables to establish a relationship between the variables. When the hypothesis is put to test, it will ensure a working relationship or no relationship between the variables.

Alternate Hypothesis, as the word suggests is the hypothesis which is alternate to the null hypothesis. As given above, null hypothesis shows no effect or relationship, alternate hypothesis enables relationship. The alternative hypothesis is the one that claims the difference in results between conditions is due to the independent variable. Alternative hypothesis can be directional or non-directional. In case of directional alternate hypothesis, the hypothesis claims to have a direction of effect either increase of decrease on the dependence variable.

While constructing Null Hypothesis, its very important to understand that it is a proposed statement. The statement should not be a conclusion but an assumption in its own. The statement must be tested on statistical measures where it can be proven for either accepted or rejected the hypothesis.

Examples of Null Hypothesis and Alternate Hypothesis		
Research Question	**Null Hypothesis (H_0)**	**Alternate Hypothesis (H_1)**
1. Does Binge watch affect sleep cycle?	There is **no** significant impact of binge watching on sleep cycle.	Binge watching **has a significant impact** on sleep cycle.
2. Is OTT platform used by teens more than adults?	There is **no significant impact** of Age on use of OTT platform.	Age has **a significant impact** on use of OTT platform.
3. Does incidence from Mahabharat have an impact on value development of youth?	Incidence from Mahabharat have **no significant impact** on value development of youth.	Incidence from Mahabharat have **a significant impact** on value development of youth.
4. Does Separated parents have an impact on mental health of kids?	Separated parents have **no significant impact** on mental health of kids.	Separated parents have **a significant impact** on mental health of kids.
5.Does content of newspaper affect the readership of newspaper?	The content of newspaper has **no significant impact** on readership pf newspaper.	The content of newspaper has **a significant impact** on readership of newspaper.
Example for types of Alternate Hypothesis		
Research Question	**Directional Hypothesis**	**Non-Directional Hypothesis**
1. Does Binge watch affect sleep cycle?	Binge watching decreases the sleep cycle.	Binge watching has an impact on sleep cycle.
2. Is OTT platform used by teens more than adults?	Teens use OTT platform more than adults.	Age has a significant impact on use of OTT platform.
3. Does incidence from Mahabharat have an impact on value development of youth?	Incidence from Mahabharat has a positive impact on value development of youth.	Incidence from Mahabharat have a significant impact on value development of youth.
4. Does Separated parents have an impact on mental health of kids?	Separated parents hinder mental growth of the kids.	Separated parents have a significant impact on mental health of kids.
5.Does readership of newspaper vary with content of newspaper?	Readership of newspaper decreases depending on content of newspaper.	The content of newspaper has a significant impact on readership of newspaper.

CHECK YOUR PROGRESS

1. Write in brief about the concept of hypothesis.
2. Why do we always have two null hypothesis?

8.4 RESEARCH VARIABLES

Social science research is an experiment carried on elements of society, largely on people. There are certain characteristics that define or develop a certain experiment. It is very essential to understand the nature of the variables to proceed with the research. Primarily there are two types of variables viz., dependent and independent variable. The variables highlight the cause-and-effect relationship of the variables for causal research.

8.4.1 Independent Variable:

The variable which does not change with the experiment is known as independent variable. It is that variable in the study which changes other values but does not change itself. The reason it is called the independent variable is that the variable is independent to change in the experiment.

Types of independent variables

There are two main types of independent variables.

1. Experimental independent variables can be directly manipulated by researchers.

2. Subject variables cannot be manipulated by researchers, but they can be used to group research subjects categorically.

It is to understand the importance independent variable in research as any change in the independent variable for experimentation will result in change in dependent variable. Experimentation studies involve change in independent variable by the researcher to study its effect on the dependent variable.

An independent variable is a singular characteristic that the other variables in your experiment cannot change. Age is an example of an independent variable. Where someone lives, what they eat or how much they exercise are not going to change their age. Independent variables can, however, change other variables. In studies, researchers often try to find out whether an independent variable causes other variables to change and in what way.

For example:

Research Question: What is the impact of Radio jingles on brand recall of products?

Here the researcher aims to study the effect of jingles on recall of brands. The study lists following variables:

1. Radio Jingles
2. Brand Recall

Here in the above case, radio jingles will be monitored by the researcher. Researcher will introduce the radio jingles in the study to assess the effect on brand recall. Hence in other words, brand recall will change dependent on radio jingles. Therefore, Radio Jingles are the independent variables.

8.4.2 Dependent variable:

A dependent variable relies on and can be changed by other components. A grade on an exam is an example of a dependent variable because it depends on factors such as how much sleep you got and how long you studied. Independent variables can influence dependent variables, but dependent variables cannot influence independent variables. For example, the time you spent studying (dependent) can affect the grade on your test (independent) but the grade on your test does not affect the time you spent studying. When analysing relationships between study objects, researchers often try to determine what makes the dependent variable change and how.

A dependent variable is the variable that changes as a result of the independent variable manipulation. It's the outcome you're interested in measuring, and it "depends" on your independent variable. The dependent variable is what you record after you've manipulated the independent variable. You use this measurement data to check whether and to what extent your independent variable influences the dependent variable by conducting statistical analyses.

Based on your findings, you can estimate the degree to which your independent variable variation drives changes in your dependent variable. You can also predict how much your dependent variable will change as a result of variation in the independent variable.

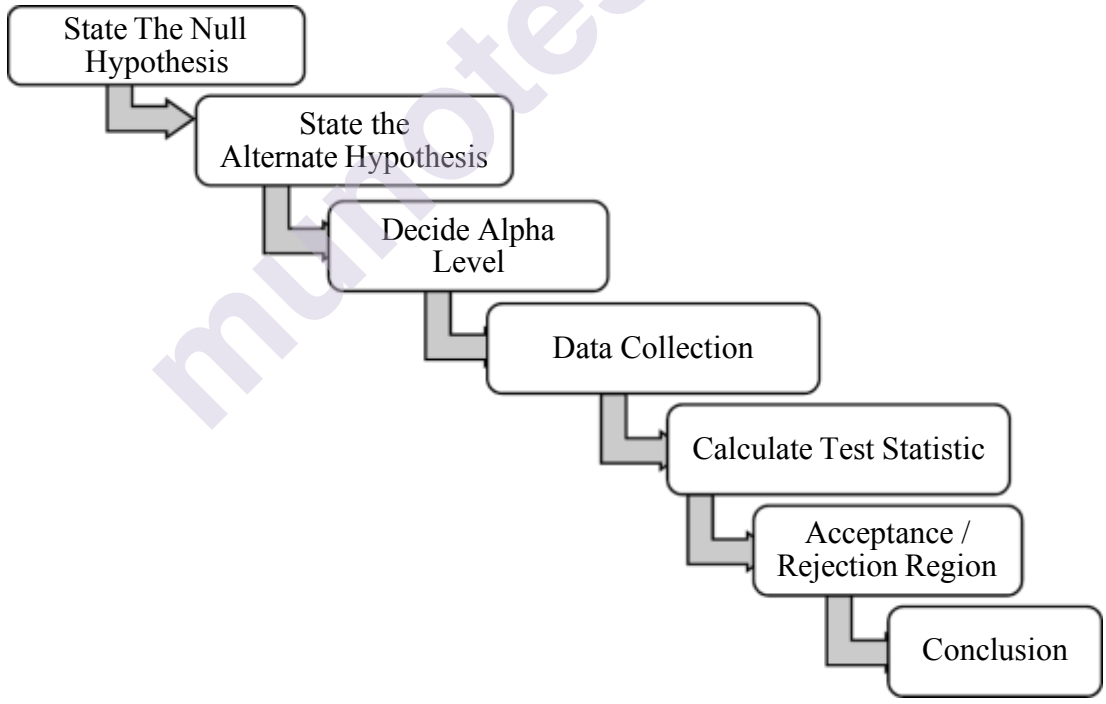
Dependent variables explain the relationship between the cause and effect of the social science experiment and helps understand the nature of hypothesis. Both dependent variable and independent variable define the relationship and establish the hypothesis to be rejected or accepted.

Research Example:

Sr. No.	Research Question	Independent Variable	Dependent Variable
1	Does Binge watch affect sleep cycle?	Binge Watching	Sleep Cycle
2	Is OTT platform used by teens more than adults?	Age of viewers	Utility of OTT Platform
3	Does incidence from Mahabharat have an impact on value development of youth?	Incidence from Mahabharat	Value development of youth
4	Does Separated parents have an impact on mental health of kids?	Separated parents	Mental Health of kids

5	Does readership of newspaper vary with content of newspaper?	Content of newspaper	Readership
6	Does showcasing women in advertising creates negative impact on youth?	Women portrayal ads	Impact on youth
7	Does Advertising of FMCG Products create sales of the product?	Advertising frequency of FMCG product	Sales of FMCG Product
8	Does social media interaction of viewers affect the quality of news?	Social Media interaction	Quality of news
9	Does news on Media affect the image of the company?	New on media	Impact on image
10	Does Journalist views have an impact on creating an image of an individual?	Journalist views	Image of an individual

8.5 STEPS TO HYPOTHESIS TESTING



The above diagram explains the process of Hypothesis testing. Let us understand the steps:

8.4.3 State the Null Hypothesis

In the earlier part of the chapter, we have already read about null hypothesis and understood various examples related to the same. So, the first step to testing the hypothesis is stating one. Null hypothesis needs to be stated first in order to help construct the alternate hypothesis. Null

hypothesis develops the base to study the research. It gives the direction to the study and for some extent can also help to determine the parametric or non-parametric test to be applied to study. (Define H_o)

8.4.4 State the Alternate Hypothesis

Once the null hypothesis is defined, the next task at hand for the researcher is to define the alternate hypothesis. Alternate hypothesis completes the base of assumption, with the alter side being covered. When we say Null hypothesis gives direction to the research, the importance of alternate hypothesis can't be ignored. In the point of null hypothesis being rejected, alternate hypothesis is useful and put to further test. The reason we state the alternative hypothesis this way is that if the null is rejected, there are many possibilities. For example, is one possibility, as is. Many people make the mistake of stating the alternative hypothesis as which says that every mean differs from every other mean. This is a possibility, but only one of many possibilities. To cover all alternative outcomes, we resort to a verbal statement of 'not all equal' and then follow up with mean comparisons to find out where differences among means exist. (Define H_a)

8.4.5 Decide alpha (α level)

Understanding what can happen in hypothesis test, we can construct the type I error and type II error table to define the Alpha (α) level.

Decision	**Applying Hypothesis Test**	
	H_o is true	**H_o is false**
Accept H_o	Correct Decision	**Type II Error** β = probability of Type II Error
Reject H_o	**Type I Error** α = probability of Type I Error	Correct decision

From the above contingency table, it is evident that any hypothesis test results in two types of errors, Type I and Type II. To summarize, Type I Error occurs when you reject the hypothesis that was supposed to be accepted and Type II error occurs when you accept the hypothesis that was supposed to be rejected. Both the errors are hazardous to the experiment, but out of the two errors, Type I is more grievous in nature and hence arrangements have to be made prior the start of the experiment. It is necessary to set the α level of the experiment. In other words, it is the level of confidence. The typical value of α is 0.05, establishing a 95% confidence level. For general purpose, we will assume α =0.05, unless stated otherwise.

8.4.6 Collect the Data

Data collection is the soul of research. Here we are primarily concerned with the Primary data collection. In order to understand, which statistical test has to be applied on the data, it is important to understand the data is collected in which manner. The data primarily gets collected in two of the forms, either Experimental or observational. There are various other methods also of Primary data collection. In Social science experiments, mostly it is questionnaire design, focus group discussion or Expert interview and they fall under observational study.

8.4.7 Calculate Test Statistic (Application of tests)

Depending upon the nature of data collected, various tests can be applied on the data to test the metric of the hypothesis. Every test in statistics has its own merit and demerit as well. The data collected and the quantum of the data collected helps make a decision on which test will be best fit for the study. This is crucial stage, as it is going to define the conclusion and before conducting the test, one has to be very sure as to which test to apply to the study. Observational study have already predefined tests to be applied and any one of them can be considered for study.

8.4.8 Acceptance / Rejection Region

Once you apply the test, depending upon the nature of the test, there is always a region of acceptance or region of rejection of hypothesis. This region basically is the range of values that falls in that region to help researcher whether to reject the hypothesis or accept the hypothesis. Without the conclusion over hypothesis stated earlier, any research is not considered complete.

8.4.9 Conclusion (Hypothesis)

The research study concludes when the researcher either accepts or rejects the null hypothesis. When the hypothesis is rejected, a series of steps follow over the alternate hypothesis and then even that is put to test. The acceptance of null hypothesis ensures the study to complete and a theory over the hypothesis can be generalized. While drafting conclusion, one has to be careful of language. The conclusion should primarily speak only about the hypothesis derived conclusion and any form of personal bias or research error has to be avoided in this.

8.5 QUESTIONS

1. Write one example of dependent and independent variable.
2. What are the steps of hypothesis testing?

8.6 LET'S SUM IT UP

- A hypothesis is **an assumption, an idea** that is proposed for **the sake of argument** so that it can be tested to see if it might **be true**. In the scientific method, the hypothesis is **constructed before any applicable research has been done**, apart from a basic background review.

- Social science research is an experiment carried on elements of society, largely on people. There are certain characteristics that define or develop a certain experiment. It is very essential to understand the nature of the variables to proceed with the research. Primarily there are two types of variables viz., dependent and independent variable. The variables highlight the cause-and-effect relationship of the variables for causal research.

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9

STATISTICAL ERRORS, CORELATION COEFFICIENT

Unit Structure

9.0 OBJECTIVES

In this chapter, you will understand

1. Type I error and Type II error
2. Spearman's rank correlation coefficient
3. Chi-square test
4. Kendall Rank correlation
5. ANOVA

9.1 TYPE I AND TYPE II ERROR

Error is natural but if not known the nature it can cause substantial effect on the research study. It is very important that, a researcher must know the type nature of the error and precaution that can be taken to avoid such errors.

9.1.2 Type I error

A type I error occurs during hypothesis testing when a null hypothesis is rejected, even though it is accurate and should not be rejected. In other words, it is also known as false positive because it refers to the existence of the characteristic that does not exist. It is important to understand that the type I error does not primarily state that we inaccurately accept the alternative hypothesis of an experiment. The probability of committing the type I error is measured by the significance level (α) of a hypothesis test. The significance level indicates the probability of erroneously rejecting the true null hypothesis. For instance, a significance level of 0.05 reveals that there is a 5% probability of rejecting the true null hypothesis. This

means that in your study the findings are significant when in fact they have occurred by chance. It is not possible to completely eliminate the probability of a type I error in hypothesis testing. However, there are opportunities to minimize the risks of obtaining results that contain a type I error. One of the most common approaches to minimizing the probability of getting a false positive error is to minimize the significance level of a hypothesis test. Since the significance level is chosen by a researcher, the level can be changed. For example, the significance level can be minimized to 1% (0.01). This indicates that there is a 1% probability of incorrectly rejecting the null hypothesis. However, lowering the significance level may lead to a situation wherein the results of the hypothesis test may not capture the true parameter or the true difference of the test.

9.1.2.1 Example of a Type I Error

Mr. Arnav is a financial analyst. He wants to study a hypothesis to understand whether there is a difference in the average price changes for large-cap and small-cap stocks.

1. Research Question: Does the average price changes affect the large-cap stocks more than small-cap stocks?

2. Null hypothesis: There is no significant difference in the average price changes between large-cap and small-cap stocks.

3. Alternative Hypothesis: The difference between the average price changes does exist.

For the significance level, Mr. Arnav chooses 5%. This means that there is a 5% probability that his test will reject the null hypothesis when it is actually true. Now if Arnav's test incurs a type I error, the results of the test will indicate that the difference in the average price changes between large-cap and small-cap stocks exists while there is no significant difference among the groups.

9.1.3 Type II Error

A type II error occurs when the researcher accepts the hypothesis that was supposed to be rejected. It is a statistical term used within the context of hypothesis testing that describes the error that occurs when one fails to reject a null hypothesis that is actually false. A type II error produces a false negative, also known as an error of omission or false negative error. A type II error is defined as the probability of incorrectly failing to reject the null hypothesis, when in fact it is not applicable to the entire population. It can be reduced by making more stringent criteria for rejecting a null hypothesis, although this increases the chances of a false positive. Analysts need to weigh the likelihood and impact of type II errors with type I errors. A type II error, also known as an error of the second kind or a beta error, confirms an idea that should have been rejected, such as, for instance, claiming that two observances are the same, despite them being different. A type II error does not reject the null

hypothesis, even though the alternative hypothesis is the true state of nature. In other words, a false finding is accepted as true. Similar to the type I error, it is not possible to completely eliminate the type II error from a hypothesis test. The only available option is to minimize the probability of committing this type of statistical error. Since a type II error is closely related to the power of a statistical test, the probability of the occurrence of the error can be minimized by increasing the power of the test.

1. Increase the sample size

One of the simplest methods to increase the power of the test is to increase the sample size used in a test. The sample size primarily determines the amount of sampling error, which translates into the ability to detect the differences in a hypothesis test. A larger sample size increases the chances to capture the differences in the statistical tests, as well as raises the power of a test.

2. Increase the significance level

Another method is to choose a higher level of significance. For instance, a researcher may choose a significance level of 0.10 instead of the commonly acceptable 0.05 level. The higher significance level implies a higher probability of rejecting the null hypothesis when it is true.

The larger probability of rejecting the null hypothesis decreases the probability of committing a type II error while the probability of committing a type I error increases. Thus, the user should always assess the impact of type I and type II errors on their decision and determine the appropriate level of statistical significance.

9.1.3.1 Example of a Type II Error

Mr. Arindham wants to conduct a study to understand the effect of emotional messages on the retention of the brand.

1. Research Question: Does the emotional messages have an impact on the retention of brand?

2. Null hypothesis: There is no significant impact of the emotional messages on the retention of the brand.
3. Alternative Hypothesis: There is a significant impact of the emotional messages on the retention of the brand.

For the significance level, Mr. Arindham chooses 5%. This means that there is a 5% probability that his test will reject the null hypothesis when it is actually true.

If the test incurs a type II error, then the results of the test will indicate that there is no significant impact of the emotional messages on the retention of the brand. However, in reality, there is an impact of the emotional messages on the retention of the brand.

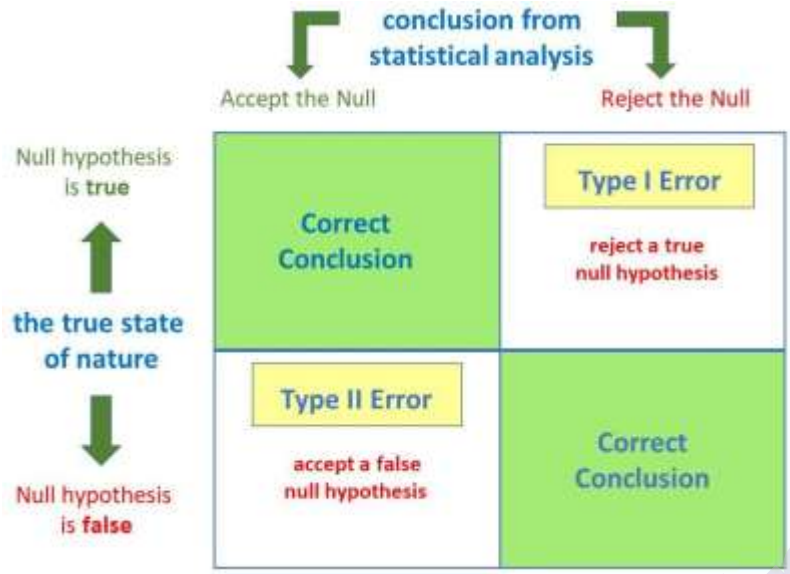


Image source:
https://www.simplypsychology.org/type_I_and_type_II_errors.html

1. The chances of committing these two types of errors are inversely proportional: that is, decreasing type I error rate increases type II error rate, and vice versa.

2. The consequences of making a type I error mean that changes or interventions are made which are unnecessary, and thus waste time, resources, etc.

3. Type II errors typically lead to the preservation of the status quo (i.e. interventions remain the same) when change is needed.

So, Understanding the error and then eliminating it to the minimum remains the goal for the researcher.

CHECK YOUR PROGRESS

1. Explain Type I error with the help of an example.

2. Explain Type II error with the help of an example.

9.2 SPEARMAN'S RANK-ORDER CORRELATION

The Spearman's rank-order correlation is the nonparametric version of the Pearson product-moment correlation. Spearman's correlation coefficient, (ρ, also signified by r_s) measures the strength and direction of association between two ranked variables. The Spearman's Rank Correlation Coefficient is used to discover the strength of a link between two sets of data.

Spearman's rank-order correlation is given by the following formula:

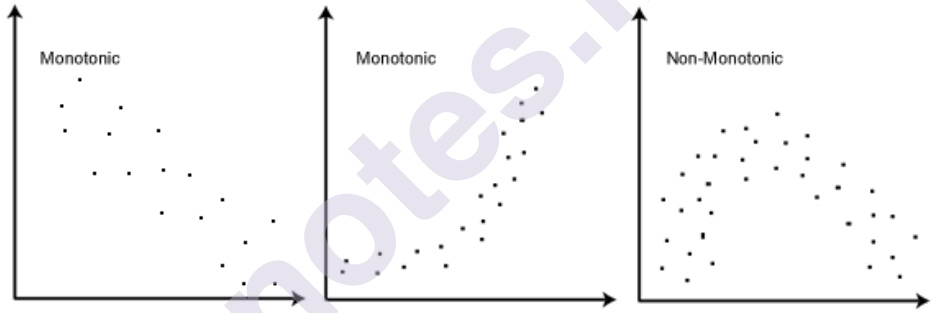
$$R_s = 1 - \left(\frac{6 \Sigma d^2}{n^3 - n} \right)$$

where di = difference in paired ranks and n = number of cases.

Requirements of Application of test

You need two variables that are either ordinal, interval or ratio. Although you would normally hope to use a Pearson product-moment correlation on interval or ratio data, the Spearman correlation can be used when the assumptions of the Pearson correlation are markedly violated. However, Spearman's correlation determines the strength and direction of the monotonic relationship between your two variables rather than the strength and direction of the linear relationship between your two variables, which is what Pearson's correlation determines.

About Monotonic Relationship:



A monotonic relationship is a relationship that does one of the following:

1. As the value of one variable increases, so does the value of the other variable. **OR**

2. As the value of one variable increases, the other variable value decreases.

Just observe the images above, there are two examples shown of monotonic variables but both of them show different relationships. The middle image above shows a relationship that is monotonic, but not linear. Spearman's correlation measures the strength and direction of monotonic association between two variables. Monotonicity is "less restrictive" than that of a linear relationship. A monotonic relationship is not strictly an assumption of Spearman's correlation. That is, you can run a Spearman's correlation on a non-monotonic relationship to determine if there is a monotonic component to the association. However, you would normally pick a measure of association, such as Spearman's correlation, that fits the pattern of the observed data. That is, if a scatterplot shows that the relationship between your two variables looks monotonic you would run a Spearman's correlation because this will then measure the strength and

direction of this monotonic relationship. On the other hand if, for example, the relationship appears linear (assessed via scatterplot) you would run a Pearson's correlation because this will measure the strength and direction of any linear relationship. You will not always be able to visually check whether you have a monotonic relationship, so in this case, you might run a Spearman's correlation anyway.

9.2.1 Research Example 1:

A teacher wants to apply Spearman's Rank Correlation to the marks of 10 students in Advertising and Journalism end semester examination. The below given marks are out of 100.

Roll No.	1	2	3	4	5	6	7	8	9	10
Advertising	87	55	65	45	96	98	67	76	44	39
Journalism	92	49	70	41	95	89	64	80	40	52

Solution:

For calculating Spearman's Rank Correlation, we would need d and d^2. So the following table will be the solution table.

Roll No	Advertising Marks	Journalism Marks	Advertising Rank	Journalism Rank	d	d^2
1	87	92	3	2	1	1
2	55	49	7	8	1	1
3	65	70	6	5	1	1
4	45	41	8	9	1	1
5	96	95	2	1	1	1
6	98	89	1	3	2	4
7	67	64	5	6	1	1
8	76	80	4	4	0	0
9	44	40	9	10	1	1
10	39	52	10	7	3	9
					$\sum d^2$	20

Applying the formula,

$$R_s = 1 - \left(\frac{6\Sigma d^2}{n^3 - n}\right)$$

$$R_s = 1 - \left(\frac{6\Sigma d^2}{n^3 - n}\right)$$

$$R_s = 1 - \left(\frac{6\sum d^2}{n(n^2-1)}\right)$$

$$R_s = 1 - \left(\frac{6*20}{10\ (10^2-1)}\right)$$

$$R_s = 1 - \left(\frac{120}{990}\right)$$

$$R_s = 1 - 0.1212$$

$$R_s = 0.88$$

as n = 10. Hence, we have a ρ (or R_s) of 0.88. This indicates a strong positive relationship between the ranks individuals obtained in the Advertising and Journalism exam. That is, the higher you ranked in Advertising, the higher you ranked in Journalism also, and vice versa.

Therefore, Spearman's Rank Correlation helps you understand the relation between the two sets of data and enables to build either strong / weak positive / negative correlation between set of Data.

Also note, when the data in the data set is same, the rank is to be given by average. Lets look at the next example to understand this.

9.2.2 Research Example 2:

A Product Manager needs your help to apply Spearman's Rank Correlation to the sales of two products namely fan and tube light in 10 regions in the last quarter. The below figure is given in '000.

Region	1	2	3	4	5	6	7	8	9	10
Fan	87	55	67	45	96	98	67	76	44	39
Tube light	92	49	70	41	95	89	64	80	40	52

Solution:

For calculating Spearman's Rank Correlation, we would need d and d^2. So, the following table will be the solution table.

Region	Fan	Tub light	Fan Rank	Tube light Rank	d	d^2
1	87	92	3	2	1	1
2	55	49	7	8	1	1
3	67	70	5.5	5	0.5	0.25
4	45	41	8	9	1	1
5	96	95	2	1	1	1

6	98	89	1	3	2	4
7	67	64	5.5	6	0.5	0.25
8	76	80	4	4	0	0
9	44	40	9	10	1	1
10	39	52	10	7	3	9
					$\sum d^2$	18.50

Applying the formula,

$$R_s = 1-\left(\frac{6\sum d^2}{n^3-n}\right)$$

$$R_s = 1 - \left(\frac{6\sum d^2}{n^3-n}\right)$$

$$R_s = 1 - \left(\frac{6\sum d^2}{n(n^2-1)}\right)$$

$$R_s = 1 - \left(\frac{6*18.5\ 0}{10\ (10^2-1)}\right)$$

$$R_s = 1 - \left(\frac{111}{990}\right)$$

$$R_s = 1 - 0.1121$$

$$R_s = 0.89$$

as n = 10. Hence, we have a ρ (or R_s) of 0.89. This indicates a strong positive relationship between the ranks obtained by the regions for Fan and Tube Light. That is, the higher you ranked in Fan, the higher you ranked in Tube Light also, and vice versa.

Sums for Practise:

Apply Spearman's Rank Correlation method in the following research study.

1. Following is the data collected from sales of two products for a period of 12 months. The company needs to understand the relationship between the sales. (The figures are in '000)

Product A	22	34	31	23	33	45	56	32	30	20
Product B	32	45	32	12	10	13	22	23	47	56

2. Following is the data collected from newspapers for a period of four months. The company needs you understand the relationship between the readership of the two newspapers. (The figures are in '00)

Newspaper 1	23	12	26	33	46
Newspaper 2	10	12	24	50	45

3. Find below the marks of 2 subjects namely biology and physics of ten students for exams conducted in the last year. The marks are out of 100

Student	1	2	3	4	5	6	7	8	9	10
Biology	45	56	65	44	45	39	78	49	78	66
Physics	67	45	40	49	66	78	77	70	80	92

4. Researcher wants to study the effect of a drug on patients with blood pressure issue. He has selected five patients and studied the effect of two drugs on them.

Patient	1	2	3	4	5
Drug 1	120	132	140	136	129
Drug 2	129	128	135	139	124

5. Researcher wants to study the impact of two set of emotional messages on sales of product. (Sales figure in '00)

Month	April	May	June	July	August	September
Emotional Message 1	23	24	33	28	29	40
Emotional Message 2	24	28	30	32	20	39

9.3 CHI-SQUARE TEST

Chi-square test is the most used inference test with nominal data. It is parametric test. The word Chi is a Greek letter denoted by the symbol x, so chi-square is denoted by the symbol χ^2. Because the distribution is of chi-square values, the χ^2 values begin at0 and then are all positive. In the chi-square distribution, chi is pronounced like the first two letters in the word kite. The graph of the x2 distribution is not symmetrical, and it depends on the number of degrees of freedom. As the degrees of freedom increase, the graph of the chi-square distribution becomes more bell-like and begins to look more and more symmetric. A nominal variable is a categorical variable that differs by quality, but whose numerical order could be irrelevant. For instance, asking somebody their favourite actor / actress would produce a nominal variable. Asking somebody's marks, on the other hand, would produce an ordinal set of data. Chi-square can be

best applied to nominal data. Social science experiments are mostly study of behavioural, consumption and / or thinking patterns. Hence Chi-square gives best results. Chi-square is a statistical test used to examine the differences between categorical variables from a random sample in order to judge goodness of fit between expected and observed results. Since chi-square applies to categorical variables, it is most used by researchers who are studying survey response data. This type of research can range from demography to consumer and marketing research to political science and economics.

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

χ^2 = chi square

O_i = observed value

E_i = expected value

Chi-square is applied on test of homogeneity and test of independence.

Test of Homogeneity:

A test of homogeneity tests the claim that different populations share thesame proportions of specified characteristics.

Test of Independence:

A test of independence tests the claim that the variables are independent of each other.

9.3.1 Research example: Test of Independence

There are some players want to learn play football. The coach wants to understand the relationship between the learning time taken by the players to learn football and the physical condition of the players. So, now the researcher will create a null and alternate hypothesis and then examine the data over that.

H_0: Learning time and physical conditions are independent.

H_1: Learning time and physical conditions are not independent.

The coach has collected the following data. Let's understand application of Chi Square test.

Learning Time Physical Conditions	1 Day	1-3 Days	3-5 Days	5-10 Days	Total
Slim Built	32	22	23	33	110

Average Built	24	30	28	15	97
Obese Built	24	22	22	25	93
Total	80	74	73	73	300

The data that is collected by the researcher is known as Observed Frequency. For application of Chi-Square test we need to calculated the expected frequency.

$E_i = \frac{r_m * c_n}{T}$ where E_i = Expected Frequency, r_m= Total Row, c_n = Total Column, T = Grand Total

Let's construct the Contingency Table:

Learning Time	1 Day	1 Day	1-3 Days	1-3 Days	3-5 Days	3-5 Days	5-10 Days	5-10 Days	Total
	Oi	Ei	Oi	Ei	Oi	Ei	Oi	Ei	
Slim Built	32	29.33	22	27.13	23	26.77	33	26.77	110
Average Built	24	25.87	30	23.93	28	23.60	15	23.60	97
Obese Built	24	24.8	22	22.94	22	22.63	25	22.63	93
Total	80		74		73		73		300

Cell No	**Observed Frequency O_i**	**Expected Frequency E_i**	**$O_i - E_i$**	**$(O_i - E_i)^2$**	**$(O_i - E_i)^2 / E_i$**
1	32	29.33	2.67	7.1289	0.243058
2	24	25.87	-1.87	3.4969	0.135172
3	24	24.8	-0.8	0.64	0.025806
4	22	27.13	-5.13	26.3169	0.970029
5	30	23.93	6.07	36.8449	1.539695
6	22	22.94	-0.94	0.8836	0.038518
7	23	26.77	-3.77	14.2129	0.530926
8	28	23.60	4.4	19.36	0.820339
9	22	22.63	-0.63	0.3969	0.017539
10	33	26.77	6.23	38.8129	1.449866
11	15	23.60	-8.6	73.96	3.133898
12	25	22.63	2.37	5.6169	0.248206
Total				**227.6708**	**9.153053**

Applying the formula of Chi-Square

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

$\chi 2 = 9.15$

Then for conclusion we must understand the concept of degree of freedom

Degree of Freedom = (Number of Rows – 1) x (Number of Columns – 1)

d.f. = (R – 1) (C – 1) = (3 – 1) (4 – 1) = 6

Now as per the researcher has defined the level of significance, there will be a table value of chi-square as well. Here we will take level of significance is 1% i.e. 0.01. So the table value for 0.01 level of significance and degree of freedom 6 is 16.812. Now lets write the conclusion from it.

Inference:

From the above, the calculated value of chi-sqaure is smaller than the table value.

i.e. 9.15 < 16.812.

Therefore, we reject the null hypothesis.

So we conclude that, Learning time and physical conditions are not independent.

Sums for Practise:

1. A chocolate vending machine is supposed to vend chocolates at random, as if from an infinite set. In a test, you counted 1600 cards, and observed the following:

Dairymilk	5 Star	Perk	Munch	Bournville
504	320	200	276	300

Could it be that the suits are equally likely? Or are these discrepancies too much to be random?

2. In the garden pea, yellow cotyledon color is dominant to green, and inflated pod shape is dominant to the constricted form. Considering both of these traits jointly in self-fertilized dihybrids, the progeny appeared in the following numbers:

193 green, inflated

184 yellow constricted

556 yellow, inflated

61 green, constricted

Do these genes assort independently? Support your answer using Chi-square analysis.

3. Is gender independent of education level? A random sample of 395 people were surveyed and each person was asked to report the highest education level they obtained. The data that resulted from the survey is summarized in the following table:

	High School		Bachelors	Masters	Ph.d.	Total
Female	60	54	46	41		201
Male	40	44	53	57		194
Total	100	98	99	98		395

Question: Are gender and education level dependent at 5% level of significance? In other words, given the data collected above, is there a relationship between the gender of an individual and the level of education that they have obtained?

ANOVA

Developed by Ronald Fisher, ANOVA stands for Analysis of Variance. One-Way Analysis of Variance tells you if there are any statistical differences between the means of three or more independent groups.Analysis of Variance (ANOVA) is a statistical formula used to compare variances across the means (or average) of different groups. A range of scenarios use it to determine if there is any difference between the means of different groups. An ANOVA test is a way to find out if survey or experiment results are significant. In other words, they help you to figure out if you need to reject the null hypothesis or accept the alternate hypothesis.

Analysis of Variance (ANOVA) is used as a marketer, when you want to test a particular hypothesis. You would use ANOVA to help you understand how your different groups respond, with a null hypothesis for the test that the means of the different groups are equal. If there is a statistically significant result, then it means that the two populations are unequal (or different).

Research Example:

The study has collected two sets of Data for study in order to understand the set to show any difference in characteristics. Some examples in the case are as follows:

1. A researcher wants to study is there any impact of celebrity endorsement on sales of a product. For this he takes three different celebrities in same product but different brand. He will then collect data towards sales of these three brands over a period of time and then analyse.

2. A manufacturer has two different processes to make light bulbs. They want to know if one process is better than the other.

3. Students from different colleges take the same exam. You want to see if one college outperforms the other.

All the above examples are of ANOVA where the variance will be analysed.

Now let's understand how to apply ANOVA to a research Example and then conclude the same study.

For understanding purpose, let's take example one from the above listed case. Now the case will be given the data tabulation and then further analysis will be placed on it.

Research Example:

1. Following is the data of different celebrities over different products across region.

	Sales of the products		
Celebrity	A	B	C
1	6	5	5
2	7	5	4
3	3	3	3
4	8	7	4

Solution through direct method: First we calculate the mean of each of these samples:

	Sales of the products					
Celebrity	A	$(X - X_1)^2$	B	$(X - X_2)^2$	C	$(X - X_2)^2$
1	6	0	5	0	5	1
2	7	1	5	0	4	0
3	3	9	3	4	3	1
4	8	4	7	4	4	0
Total	24	14	20	8	16	2
Mean	$X_1 = 6$		$X_2 = 5$		$X_3 = 4$	
Mean of the Sample means $\bar{x}$			(6+5+4) / 3 = 15 / 3 = 5			
Total of Within Sample			14 + 8 + 2 = 24			

Let's Calculate SS within and SS between Samples

SS Between $= n_1 (X_1 - X)^2 + n_2 (X_2 - X)^2 + n_3 (X_3 - X)^2$

$= 4 (6 - 5)^2 + 4 (5 - 5)^2 + 4 (4 - 5)^2 = 4 + 0 + 4 = 8$

SS Within $= \sum(X - \bar{X}_1)^2 + \sum(X - \bar{X}_2)^2 + \sum(X - \bar{X}_3)^2 = 24$

SS for Total Variance $= \sum (X_{ij} - \bar{x})^2$

$= (6 – 5)^2 + (7 – 5)^2 + (3 – 5)^2 + (8 – 5)^2 + (5 – 5)^2 + (5 – 5)^2 + (3 – 5)^2 + (7 – 5)^2 + (5 – 5)^2 + (4 – 5)^2 + (3 – 5)^2 + (4 – 5)^2 = 1 + 4 + 4 + 9 + 0 + 0 + 4 + 4 + 0 + 1 + 4 + 1 = 32$

Alternatively,

SS total = SS between + SS Within

Therefore, 32 = 8 + 24

We can now set up the ANOVA table for this problem

Source of Variation	SS	d.f.	MS	F-ratio	5% F-Limit (from the F-table)
Between Sample	8	(3 – 1) = 2	8 / 2 = 4	4 / 2.67 = 1.5	F (2,9) = 4.26
Within Sample	24	(12 – 3) = 9	24 / 9 = 2.67		
Total	32	(12 – 1) = 11			

The above table shows that the calculated value of F is 1.5 which is less than the table value of4.26 at 5% level with d.f. being v1 = 2 and v2= 9 and hence could have arisen due to chance. Thisanalysis supports the null-hypothesis of no difference is sample means. We may, therefore, conclude that the difference in sales due to variety of celebrities is insignificant and is just a matter of chance.

Sum for practise:

Four brands of flashlight batteries are to be compared by testing each brand in five flashlights. Twenty flashlights are randomly selected and divided randomly into four groups of five flashlights each. Then each group of flashlights uses a different brand of battery. The lifetimes of the batteries, to the nearest hour, are as follows.

Brand A	Brand B	Brand C	Brand D
42	28	24	20
30	36	36	32
39	31	28	38
28	32	28	28
29	27	33	25

Preliminary data analyses indicate that the independent samples come from normal populations with equal standard deviations. At the 5% significance level, does there appear to be a difference in mean lifetime among the four brands of batteries?

9.4 KENDALL'S RANK CORRELATION

Kendall's rank correlation provides a distribution free test of independence and a measure of the strength of dependence between two variables. Kendall's coefficient of concordance, represented by the symbol W, is an important non-parametric measure of relationship. It is used for determining the degree of association among several (k) sets of ranking of N objects or individuals. When there are only two sets of rankings of N objects, we generally work out Spearman's coefficient of correlation, but Kendall's coefficient of concordance(W) is considered an appropriate measure of studying the degree of association among three or more sets of rankings. This descriptive measure of the agreement has special applications in providing a standard method of ordering objects according to consensus when we do not have an objective order of the objects

The procedure for computing and interpreting Kendall's coefficient of concordance (W) is as follows:

1. All the objects, N, should be ranked by all k judges in the usual fashion and this information may be put in the form of a k by N matrix;

2. For each object determine the sum of ranks (Rj) assigned by all the k judges;

3. Determine Rj and then obtain the value of s as under:
   $s = \sum (R_j - \bar{R}_j)^2$

4. Work out the value of W using the following formula:
   $W = \frac{s}{\frac{1}{12}k^2 N^3 - N}$

Research Example:

Seven individuals have been assigned ranks by four judges at a certain music competition as shown

In the following matrix:

	Individuals						
	A	B	C	D	E	F	G
Judge 1	1	3	2	5	7	4	6
Judge 2	2	4	1	3	7	5	6
Judge 3	3	4	1	2	7	6	5
Judge 4	1	2	5	4	6	3	7

Is there significant agreement in ranking assigned by different judges? Test at 5% level. Also point out the best estimate of the true rankings.

Solution: As there are four sets of rankings, we can work out the coefficient of concordance (W)forjudging significant agreement in ranking by different judges. For this purpose we first develop the given matrix as under:

	Individuals							N = 7
	A	B	C	D	E	F	G	$\bar{R}_j = \sum R_j / N$
Judge 1	1	3	2	5	7	4	6	
Judge 2	2	4	1	3	7	5	6	
Judge 3	3	4	1	2	7	6	5	
Judge 4	1	2	5	4	6	3	7	
Sum of Ranks (Rj)	7	13	9	14	27	18	24	$\sum R_j = 112$
$\bar{R}_j = 16 \mid (Rj - \bar{R}_j)^2$	81	9	49	4	121	4	64	s = 332

Applying Kendall's Correlation Co-efficient

$$W = \frac{s}{\frac{1}{12}k^2 N^3 - N}$$

$$W = \frac{3\ 3\ 2}{\frac{1}{12}4^2(7^3-7)}$$

$$W = \frac{3\ 3\ 2}{\frac{1}{12}6(3\ 3)6}$$

$$W = \frac{3\ 3\ 2}{448} = 0.741$$

To judge the significance of this W, we look into the Table No. 9 given in appendix for finding the value of s at 5% level for k = 4 and N = 7. This value is 217.0 and thus for accepting the null hypothesis (H0) that k sets of rankings are independent) our calculated value of s should be less than217. But the worked out value of s is 332 which is higher than the table value which fact shows that W = 0.741 is significant. Hence, we reject the null hypothesis and infer that the judges are applying essentially the same standard in ranking the N objects i.e., there is significant agreement in ranking by different judges at 5% level in the given case. The lowest value observed amongst Rjis 7 and as such the best estimate of true rankings is in the case of individual A i.e., all judges on the whole place the individual A as first in the said music competition.

9.5 QUESTIONS

1. What is Spearman's rank-order correlation?
2. What is the significance of chi-square test.
3. What is ANOVA?
4. How do you apply Kendall's Correlation Co-efficient?

9.6 LET'S SUM IT UP

- Error is natural but if not known the nature it can cause substantial effect on the research study. It is very important that, a researcher must know the type nature of the error and precaution that can be taken to avoid such errors.

- A type I error occurs during hypothesis testing when a null hypothesis is rejected, even though it is accurate and should not be rejected. In other words, it is also known as false positive because it refers to the existence of the characteristic that does not exist.

- A type II error occurs when the researcher accepts the hypothesis that was supposed to be rejected. It is a statistical term used within the context of hypothesis testing that describes the error that occurs when one fails to reject a null hypothesis that is actually false.

- is parametric test. The word Chi is a Greek letter denoted by the The Spearman's rank-order correlation is the nonparametric version of the Pearson product-moment correlation.

- Chi-square test is the most used inference test with nominal data. It symbol x, so chi-square is denoted by the symbol χ^2.

- Analysis of Variance (ANOVA) is a statistical formula used to compare variances across the means (or average) of different groups.

- Kendall's rank correlation provides a distribution free test of independence and a measure of the strength of dependence between two variables.

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10

PUBLIC RELATIONS TECHNIQUES, ETHICS OF RESEARCH

Unit Structure

10.0 OBJECTIVES

In this chapter we are going to understand the:

- Different techniques of public relations
- Theoretical framework of PR
- Need for PR, Role and responsibilities of PR
- Ethics in research
- Research skills and techniques for journalists

10.1 INTRODUCTION

Relations based on trust. Professional relations are based on mutual benefits. These benefits are dependent on how precisely we keep our words and do the needful to all our stakeholders against certain monetary or nonmonetary benefits.

So, the Public Relations begins with, "What you say, what you do andwhat others say about you."

The concept of public relations has been around as long as individuals have required to convince other individuals to get them to act on something, not to act on something, or keep on acting something. Public

relations developed are cognized profession in America roughly around late1800s and early1900s. In the beginning the public relations methods were used to stimulate settlement. Instead of one-way communication, many corporates and brands have initiated active and communication focusingon interactive modes rather than one way. ."

Primary role of PR is classifying, building, and maintaining relationships amongst an organization and its stake holders, the form of the occupation transformed.

10.2 WHAT IS PUBLIC RELATIONS?

"A strategic communication process that builds mutually beneficial relationships between organizations and their publics".

- The Public Relations Society of America

PR assist to influence an audience's insights by establishing relationships and determining the public discussions about a brand, company, or organization. Such public discussions frequently take place through popular mass media platforms and social media, so the public relations professionals require to know how to perform with and inscribe effective communications for the media for immediate publications.

PR professionals are responsible for an extensiveseries of communication activities which mayincludecumulative brand presence and awareness, initiating events, and drafting media content. Sometimes need to handle unwanted situations with effective crisis communication and assist to recover a brand's honour and status throughout undesirable event/s.

10.2.1 Theoretical Framework of Public Relations

The publicity model, PR and communications specialists utilize the idea of persuasion to form the opinions and views of targeted audiences and stakeholders. As per this model objectivity and accuracy is irrelevant and organizations do not expect the feedback from audience feedback and do not conduct research in the audience analysis. It is considered as a one-way method of communication.

The public information model interchanges away from the scheming strategies conducted in the publicity model and gives more precise and correct information. The communication design is one-way but proposed the accuracy, transparency, and clarity. PR professionals do not depend on the research in audience analysis to direct their plans and strategies.

The two-way asymmetrical model proposed more "Systematically persuasive" way of communicating with key audiences.

The sender/content creators do enough research for better understanding of the audience's approaches, attitudes, and behaviours, which in turn notifies the communication plan and formation. In this model also we practice persuasive communication to advantage the organization ax well as stakeholder too. The model is mainly prevalent in advertising and

customer marketing, arenas that are precisely concerned in cumulative the profits.

One of the most important models of the Public Relations Practice is a two-way symmetrical model. This module claims that the public relations professionals must assist as a connection amongst the group/ company/ organization/ corporate/government and its publics, rather than as an inducer.

The PR practitioners are representatives and utilize communication to guarantee the benefit of all stakeholders. Symmetrical means made up of exactly similar parts facing each other. This model attempts to create a mutually beneficial situation. The interactive symmetrical model is believed the maximum principled model, one that specialists must seek to use in their techniques.

CHECK YOUR PROGRESS

1. Define Public Relations.

2. How PR theories have evolved? Write two PR theory examples.

10.3 Public Relations: Need and Importance

In past many companies did not realize the need and importance of public relations, unless a crisis happened. In contemporary world also some PR professionals face difficulties in believing top management of their valueto the function of the company.

Aa more quality information voluntarily accessible to audience at various verticals, corporates and organizations are extra susceptible than continually to mis information about the brand. An audience's approach and views about a business can critically stimulus its growth. So, the PR expert helps to direct and control talks about a business or client and manage its status in the market. Looking towards PR as an important management activity of a business or an important strategy to achieve one's distinct reputation. This will help to go through vital goals such as creating faith between significant publics, cumulative news, and social media occurrence, and upholding a reliable vibe across communication platforms.

10.3.1 Public Relations: Key roles and Responsibilities

Broadly public relations professionals can be categorized in two segments based on their roles and responsibilities:

1) Communication managers

2) Communication technicians.

The communication managers support in the deliberate scheduling of an organization's communication strategies. The term "Communication manager" comprises numerous comparable public relations standards such as : Professional consultant, problem-solving facilitator, and

communication liaison. Professional consultants create a specific communication plan to help attain organizational objectives. Problem-solving facilitators provide crisis management to an organization during an obstacle. Liaisons speak on behalf of the brand and facilitate communication between the organization and its key publics.

Communication technicians transcribe all sort of media content required to communicate through various media and non-media tools of public relations. Such as, pitches, feature articles, press releases and related communication resources and contribution in event planning. Collectively, managers and technicians play a dynamic role in affiliation building and themanaging of a brand.

10.4 SPECIAL INTEREST GROUP

Special interest groups means "a body of persons, corporation, or industry that seeks or receives benefits or privileged treatment, especially through legislation."

Almond and Powell have distinct the interest groups, and discoursed their part in the broader framework of interest enunciation. In the social order, there is a procedure of awarding people's strains beforehand the policy-makers. According to Almond and Powell, "The process by which individuals and groups make demands upon the political decision-makers we call interest articulation."

As Almond and Powell said the interest articulator may be as diverse as an disorderly crowd or a efficient orderly society. Acknowledging that their description may not be faultless, yet

Almond and Powell say: "By 'interest group' we mean a group of individuals who are linked by particular bonds of concern or advantage, and who have some awareness of these bonds. The structure of interest group may be organized to include continuing role performance by all members of the group, or it may reflect only occasional and intermittent awareness of the group interest on the part of individuals.

So, an interest group is a connotation of public to attain precise aims, and for this determination it may even force the organizations of the government. Deliberating the pressure groups,

David Truman describes them thus, "Pressure groups are attitude groups that make certain claims upon other groups in the society."

The actions of the government have straight effect on the citizens of the state. On the other hand, actions of the people cannot help upsetting the verdicts of the government. This effort can be successfully done only by organized groups of people.

Hitchner and Levine wish the use of the jargon interest groups.

"An interest group is a collection of individuals who try to realize their common objectives by influencing public policy."

Hitchner and Levine claim that interest groups and pressure groups are not the same thing. The concept of pressure groups have a undesirable implication as it suggests use of pressure and force, or unsolicited interfering, by assemblies to attain their purposes. Interest groups as defined as the

"non-state actors, or individuals, or modern states. But, politics alone is not the objective of their activities."

Hitchner and Levine, states that "The interest group system is thus a part of both the general culture and social framework and the political structure of a particular state."

Interest groups are organizations or associations of people for the achievement of certain specific goals, who, if necessary, force and manipulate the state. They are frequently involved in the burden politics, or may at periods include themselves in pressure politics, and at additional eras make other purposes to endorse their benefits.

A unique characteristic of interest or pressure groups is that all of them may pursue to stimulus state and public policy-makers, without endeavouring to take over straight the regulator and hold of the government.

Public Relations plays an important role in understanding their needs and demands and putting them across for the benefit of society or members of the society. On the other hand, political parties are mainly worried with governance – to challenge elections and try to get the maximum of positions in the legislature. Neumann identified the discrepancy amongst political groups and the interest groups thus: Basically, pressure groups are the symbolic representation of consistent interests seeking influence.

10.5 POLITICAL COMMUNICATION

Political communication is a collaborating procedure about the transmission of information amongst political representatives, news media and to the public. The procedure functions descending after central organizations to people, flat in connections amongst political performers, and ascendent from public belief to establishments. Political communication has continuously been vital to the democratic and policymaking procedures but since the early after globalization certain important growths have basically changed this procedure, mainly post-war tendencies in the mass media affecting after the traditional biosphere of mass media including new media as far as news broadcasting is concerned. As PR professionals one need to understand the role and position while dealing with the communication strategy or activity for such groups to attain highest possibilities of goals and objectives.

10.6 ETHICS IN RESEARCH

Most of the people contemplate of ethics (or morals), as a set of rules for positioning between right and wrong. Similarly, while performing

research, we must remember certain does and don'ts. In this chapter we will try to understand ethical perspective of the research. Let's look at the certain ethics and ethical practices in research.

1) **Honesty:** Attempt for morality in all methodical communications. Fairly reported information, outcomes, approaches and actions, and magazine status are always admired and cherished by the research fraternity. Do not construct, fabricate, or parody data. Do not cheat contemporaries, research sponsors, or the public.

2) **Objectivity:** Try to evade prejudice in research, analysis, data explanation, and other features of research where impartiality is anticipated or essential. Avoid or lessen prejudice or self-deceit.

3) **Integrity:** Retain your potentials and contracts; act with honesty; endeavour for reliability of thought and action.

4) **Carefulness:** Avoid uncaring faults and carelessness; prudently and disapprovingly inspect your own effort and the effort of your peers. Retain decent archives of research events, such as data collection, research design, and correspondence with agencies or journals.

5) **Openness:** Segment information, outcomes, notions, tools, references. Be positive about criticism and novel ideas.

6) **Accountability:** Take accountability for your share in research and be ready to stretch an account.

7) **Intellectual Property:** Honour copyrights, patents, and additional systems of intellectual property. Don't use unpublished data, methods, or results without permission.

8) **Confidentiality:** Maintain the confidentiality while doing research and data collection and other related activities.

9) **Publish Responsibly:** Follow the order of research and formats while publishing your work

10) **Legal Aspect:** Beware of all necessary rules and regulations and legal aspects concerned with your research activity and topic you are dealing with.

10.7 RESEARCH SKILLS AND TECHNIQUES FOR JOURNALISTS

The Journalism in based on research. Research starts with curiosity and in journalism curiosity is the source of news. Here are certain skills journalists can adopt while doing an academic and non-academic research.

1) Interview: Collecting authoritative information is the key objectives behind any interview. What to ask and what not to ask is an art one can learn on field but is the objectives behind scheduled interview is fixed then its easier to draft he questionnaire and get the appropriate

responses. Interviews are also useful to verify the collected information from other sources to understand the reliability of the information. Interviews also help to explore the different perspective and report or research can be more inclusive in nature.

2) **Reporting:** Observation is one of the first few qualities any journalists should have. Identification and observations help reporter to find out the context and co-relations of the event with the larger audience. Empathy and compassion also required while reporting.

3) **Ethics:** Public Interest is the highest priority as journalism is accountable to its audience. Ethical practices help us to be objective and transparent about our work and responsibilities.

4) **Writing Skills:** Clarity is the key in writing. These skills help any journalists or researchers to avoid ambiguity, fallacy and polysemy in the writings.

5) **Digital Skills:** Finding sources and grading the accountability of them on internet is a need of highly competent world.

10.8 QUESTIONS

1. How to achieve ethics in research?
2. Why research as a skill is important for the journalists?
3. What do you mean by special interest groups?
4. Write about the need and importance of PR.

10.9 LET'S SUM IT UP

- Public relations developed recognized profession in America roughly around late1800sand early1900s. PRSA defines PR as"A strategic communication process that builds mutually beneficialrelationships between organizations and their publics".

- PR assist to influence an audience's insights by establishing relationships and determining the public discussions about a brand, company, or organization.

- Interest group mean a group of individuals who are linked by particular bonds of concern or advantage, and who have some awareness of these bonds. The structure of interest group may be organized to include continuing role performance by all members of the group, or it may reflect only occasional and intermittent awareness of the group interest on the part of individuals.

- Pressure groups are attitude groups that make certain claims upon other groups in the society.

- Special interest groups means "a body of persons, corporation, or industry that seeks or receives benefits or privileged treatment, especially through legislation."

10.10 REFERENCES

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11

GRAPHS AND DIAGRAMS- HOW TO READ DATA

Unit Structure

11.1 INTRODUCTION

We live in a world of data! From simple to complicated and scattered to neatly arranged based on several factors – we are entirely encapsulated in it. Furthermore, at some point or another, we have all used a graph to represent this aforementioned data in the form of a comparison, a trend, or just a division of the whole (like a pie).

Let us be honest – what a graph is, what are its advantages, and what are its disadvantages have been discussed at length by numerous people, around the globe, over the past decades. Yet, it retains its gravity with the increasing number of settings it can be used in, so much so that a graph generator, free of cost can be used to provide you the most beautiful infographics in half the time. So before we dive into the specifics of their usage in Research Papers, let's take a quick recap, shall we?

11.2 WHAT IS A GRAPH?

A graph, in layman terms, is a pictorial representation of organized data that helps the readers of the same understand complex information more easily. While each kind of visual aid comes with its own pros and cons, some of the main features that underlie each can be summed up as below:

- They provide information in the form of easy-to-understand images.

- Different data types require different graphs.
- They are often unable to display the major assumptions and causes behind the data fluctuations.
- They are easier to manipulate than factual information.

11.2.1 When do you need a chart or graph in the research paper?

A research paper is a resultant report of all the investigations and surveys you conducted, be it through primary or secondary data. However, not everyone can understand those figures or calculations and at times the reader might have to read the entire copy just to get to the numbers.

This calls for a simpler approach to ease the process. You may end up using a chart for any one or multiple reasons mentioned next:

a) To prove your point: It is far easier to attest to your standing when you have a graphical representation alongside the tabulated results. Your reader might be much more comfortable when they don't have to try and understand the calculations just to realize what your final conclusion is.

b) To make your information more comprehensive: The level of your audience's comprehension can be directly related to the ease with which they can make sense of the compiled data. Using a chart can help enhance this ease further.

c) A graph can describe more information with minimum real estate: Conveying more details in the least number of words and space is an art that can be practiced with the help of graphs. A diagram that pictorially represents the entire data collection and its output is also more visually appealing.

d) Deliver complicated points: With illustrations and grids, you can put across the complex data in a simplified version which drives your point home while being easier on the reader's eyes.

e) Compare data: When you are looking to compare two or more sets of data consisting of a whole lot of factors and numbers, it is a good idea to use visual aids like a chart that can help the reader understand the comparative state of each element at a glance.

11.3 HOW TO TELL A STORY WITH CHARTS AND GRAPHS

The main functions of a chart are to display data and invite further exploration of a topic. Charts are used in situations where a simple table won't adequately demonstrate important relationships or patterns between data points. When making your chart, think about the specific information that you want your data to support, or the outcome that you want to achieve .Keep your charts simple – bombarding an audience with data will likely leave them confused and uncertain, so remove any unnecessary elements that could distract them from your central point.

11.4 ASSESS IF YOU ACTUALLY NEED A GRAPH/ CHART

Oftentimes, students and researchers alike tend to use graphs more than needed in their papers to make their point stand out prominently. However, there are cases where you can simply put across your premise as well as results in just a few sentences. In such scenarios, it is advisable to avoid the usage of charts as they can lower the authority of your more important diagrams further in the research.

11.5 SELECT THE RIGHT GRAPH FOR THE MESSAGE

As mentioned earlier, different types of data require different kinds of charts. On one hand, pie charts could be ascertained as perfect for displaying an approximate division of hours of a day and the way they are spent but on the other, a line graph would be more suitable to show a market trend spread over a few months or years. A wrong graph chosen to plot your data might just make it more difficult for the user to make sense of the research rather than simplifying it and that is the absolute last thing you'd want. Using a graph creator online can be a way to go to avoid the same.

Therefore, your understanding of the variety of these diagrams is equally important. Visual representations help us to understand data quickly. When you show an effective graph or chart, your report or presentation gains clarity and authority, whether you're comparing sales figures or highlighting a trend.

But which kind of chart or graph should you choose? If you click on the chart option in your spreadsheet program, you'll likely be presented with many styles. They all look smart, but which one works best for your data, and for your audience?

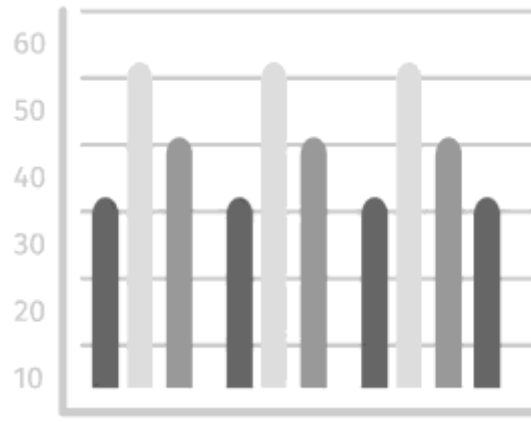
To figure that out, you need a good understanding of how graphs and charts work. Broadly, they can be categorized into the following commontypes: line graphs, bar graphs, pie charts, and Venn diagrams.

CHECK YOUR PROGRESS

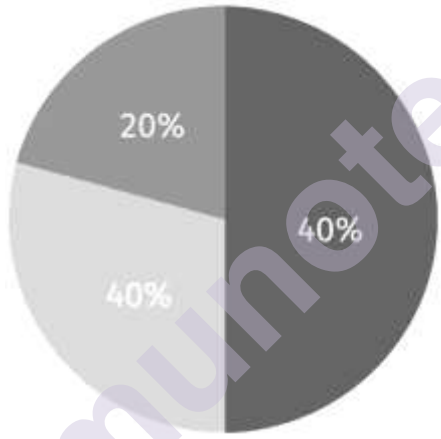
1. Define Graphs. Why do you need them in research.
2. How do you select the right graph for your research?

11.6 TYPES OF GRAPHS AND CHARTS

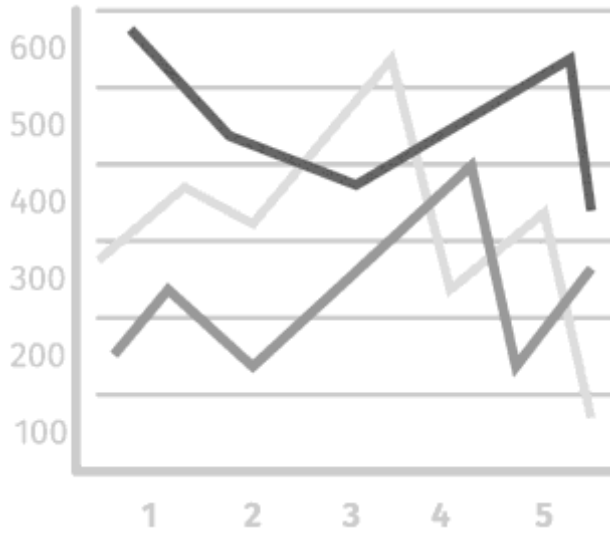
- **Bar Graph**



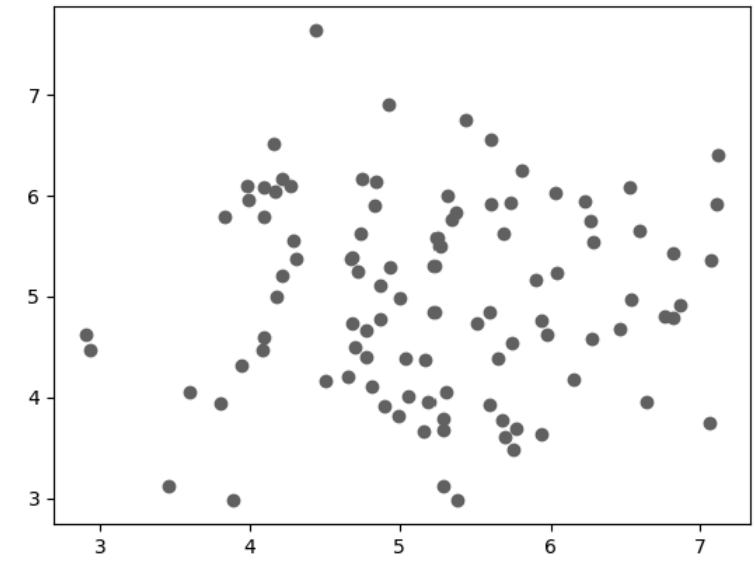
- **Pie Chart**



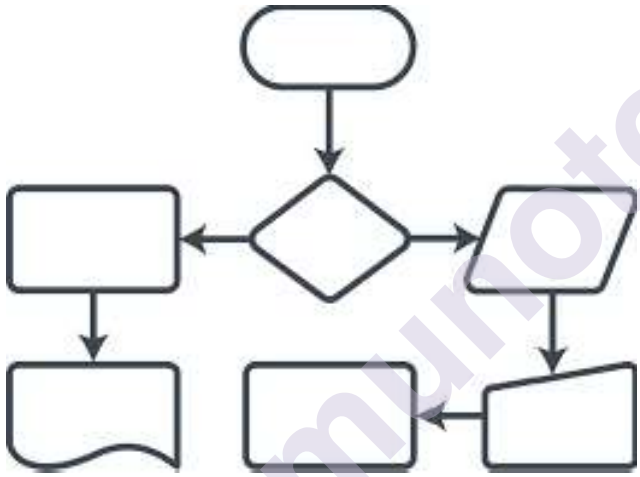
- **Line Chart**



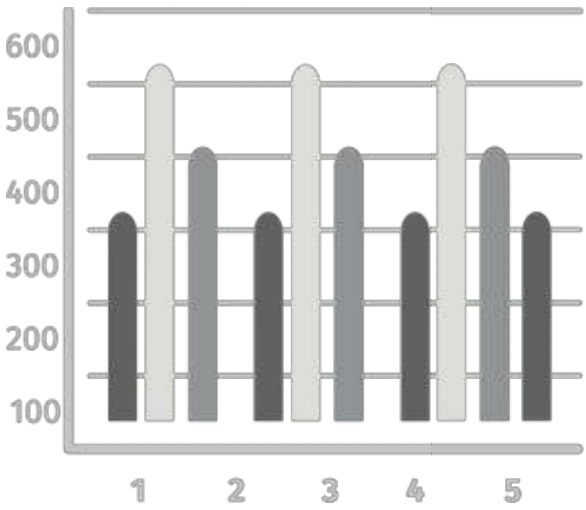
- **Scatter Plot**



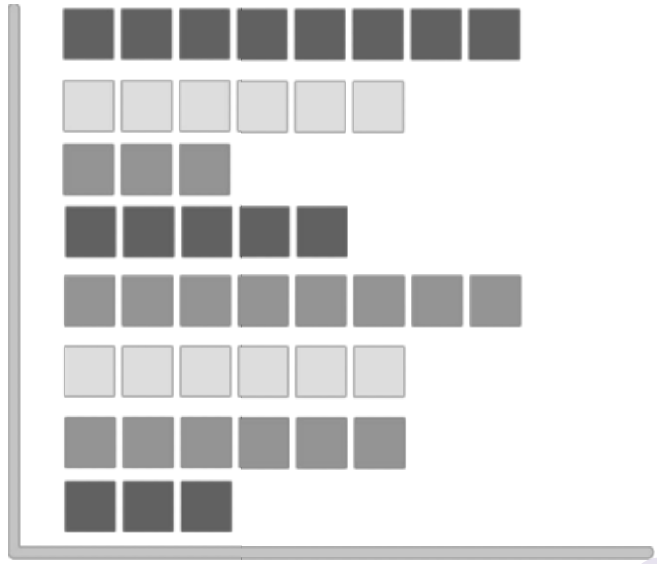
- **Flowchart**



- **Histogram**

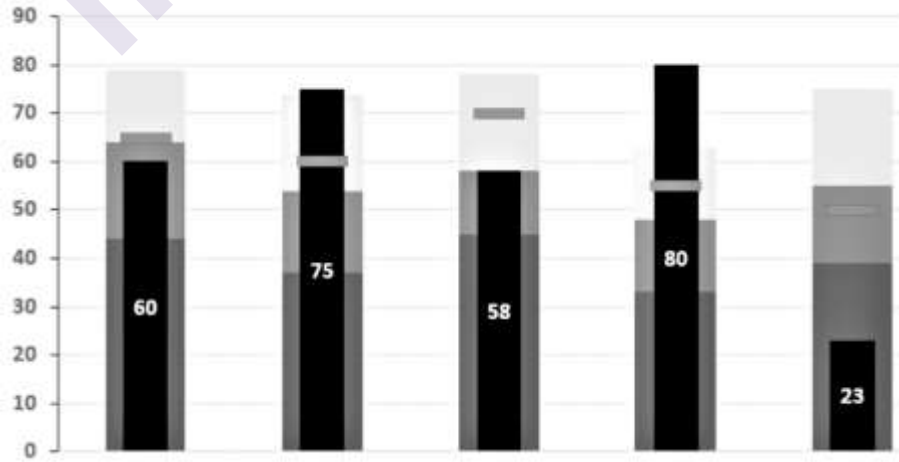


- **Pictograph**



- **Gantt Chart**

- **Bullet Chart**



- **Venn Diagrams**

Venn diagrams show the overlaps between sets of data.

Each set is represented by a circle. The degree of overlap between the sets is depicted by the amount of overlap between the circles.

A Venn diagram is a good choice when you want to convey either the common factors or the differences between distinct groups.

Using Venn Diagrams: An Example

Figure 9 shows sales at Perfect Printing. There are three product lines: stationery printing, newsletter printing, and customized promotional items, such as mugs.

Figure 9: Example of a Venn Diagram

By separating out the customers by the type of product that they buy, it becomes clear that the biggest group of customers (55 percent of the total) are those buying stationery printing. But, most stationery customers are only using Perfect Printing for stationery (40 percent). They may not realize that Perfect Printing could also print their company newsletters and promotional items. Perfect Printing could consider some marketing activity to promote these product lines to its stationery customers.

Newsletter customers, on the other hand, seem to understand the company also offers stationery printing and promotional items – 23 percent of newsletter printing customers also buy other products.

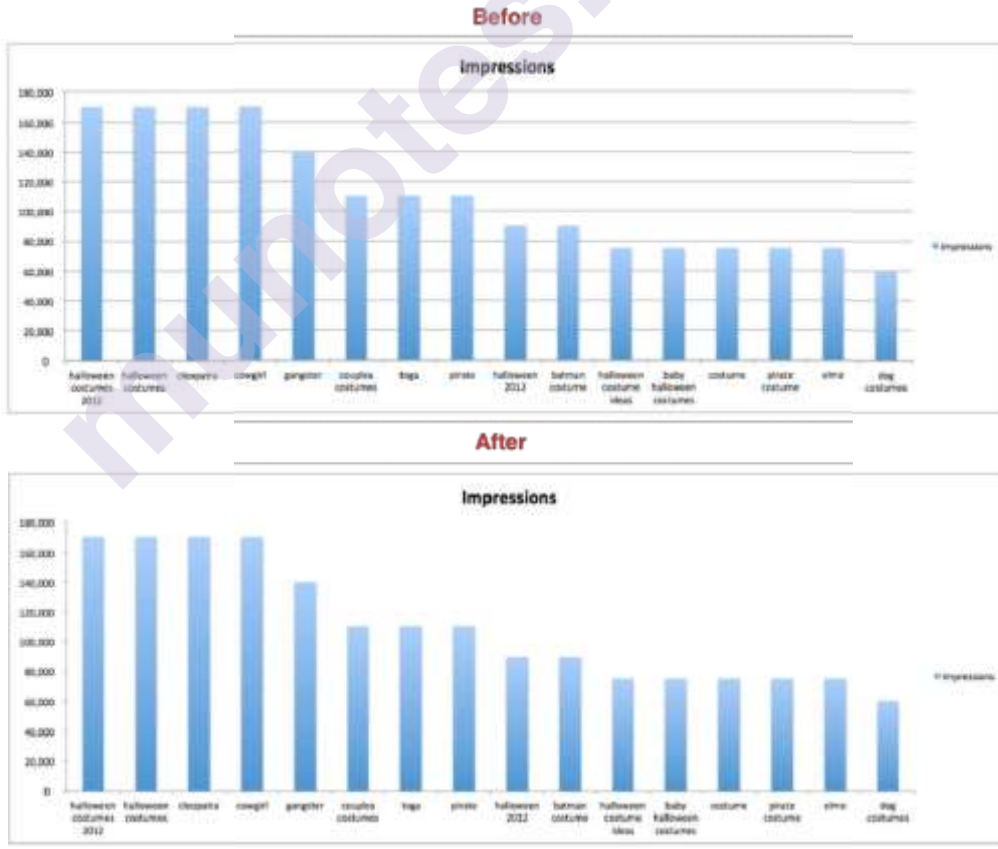
11.7 FOCUS ON READABILITY

The most important function of a chart is to bring to the forefront the crux of a topic, that can be understood by anyone reading it, even without a

firm grasp of the subject at hand. Having said that, we would like to strongly emphasize the need for a legible diagram.

If your reader cannot decipher the diagrams you've used, its presence is as good as none. Per our observation, several students, researchers, and even scientists make this error of integrating so much data in one graph that it becomes unintelligible. An incomprehensible illustration is viewed by most as nothing more than an image, thus hampering their reading experience of your report. To ensure your chart is readable, formatting it optimally is a crucial step. It includes not just the font type, font size, and symbols used therein but also elements like the colours used, caption and title given to the graph, names used for each axis as well as an index or data field for reference. Some useful considerations regarding readability:

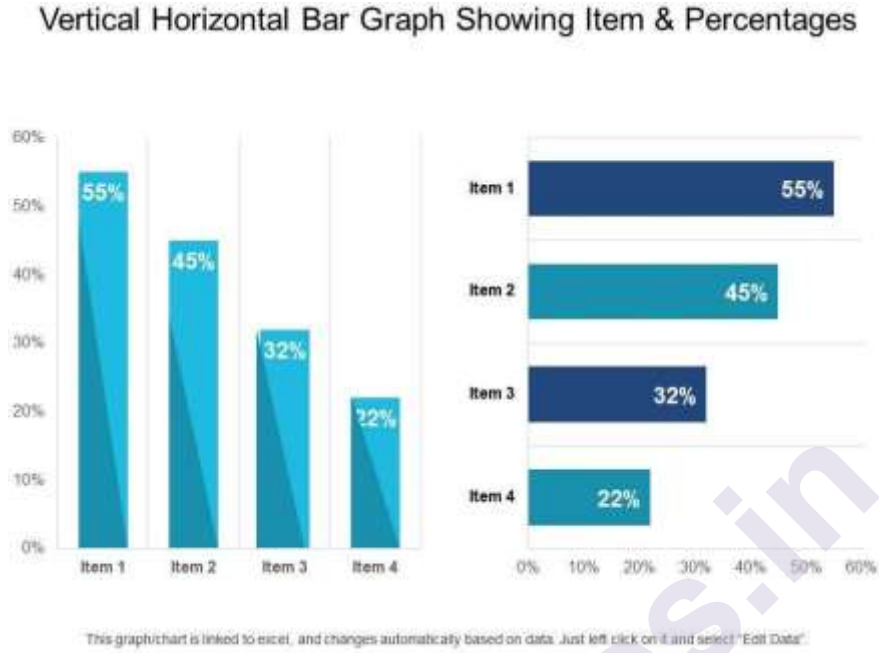
- The text used on a diagram should always be kept to a minimum while making sure the message is not being lost.
- Symbols used should be distinct so as to avoid confusion.
- De-clutter the figure by removing all non-essential data and elements from the grid and adding it to the footnote instead.



Reference 1.

- The background of the chart should be in good contrast to the chart itself, to make certain that the data stands out prominently.

- The axes should not be named simply “temperature” and “time” for instance unless it provides a complete clarification of the segments.
- Choose the graph’s layout to maximize readability.



Reference 2.

11.8 MAINTAIN THE LOOK-AND-FEEL

A chart’s visual appeal is just as important as the data it is representing, if not more. An attractive diagram compels the reader to stop and go through the information it is rendering instead of glimpsing it once and moving ahead. You can ensure this step by simply keeping in mind the following tips.

a) Informative Title: The heading you give to your graph is of significant importance because it lets the reader know what is it that the picture is portraying. It should be self-explanatory and clear because based on that the user will be making a decision to read or not read the chart.

b) Acknowledge the Source: Adding a small footnote recognizing and pointing to the source of the information being displayed lends credibility and authority to your data.

c) Brand Integration: If you are doing the research under a specific college, university or company, remember to use their mandatory colors and logos.

d) Accurate Dimensions: Give the first preference to a 2D chart as it is simpler to understand. Nevertheless, if you find yourself in a position to use a 3D graph, see to it that the same is comprehensible and includes only the truly important elements on the grid.

e) Indexing: Do not, under any circumstances, forget to add a relevant key to the diagram that gives clarity to the presented data.

11.8.1 Keep all The Junk and Fluff Aside

As we mentioned above, a clean chart is the need of the hour. Clearing up your figures of all the unnecessary elements helps the most important information stand out, giving the reader exactly what he/ she came for.

- Use the minimum amount of text on your chart. You can add any notes you wish to in the footnote of the same.
- Use short forms and abbreviations wherever possible.
- Avoid using too many colours or the graph might become too loud and noisy for the reader.

11.8.2 Avoid Using 3D Graphs

If at all feasible, we would highly recommend you avoid the use of 3D Graphs. While at a glance they may make an attractive picture, but in actuality, they can often be misleading.

A three-dimensional chart, be it in the form of a pie chart or a bar graph can be difficult to interpret due to the differences in perspectives. When viewed from different angles, the figure could point to different results due to a distorted visual relationship. This also affects the information being derived from it. Moreover, 3D spacing makes a comparison between the values and volumes of each factor challenging.

11.8.3 Make Graphs with No Grid Lines:

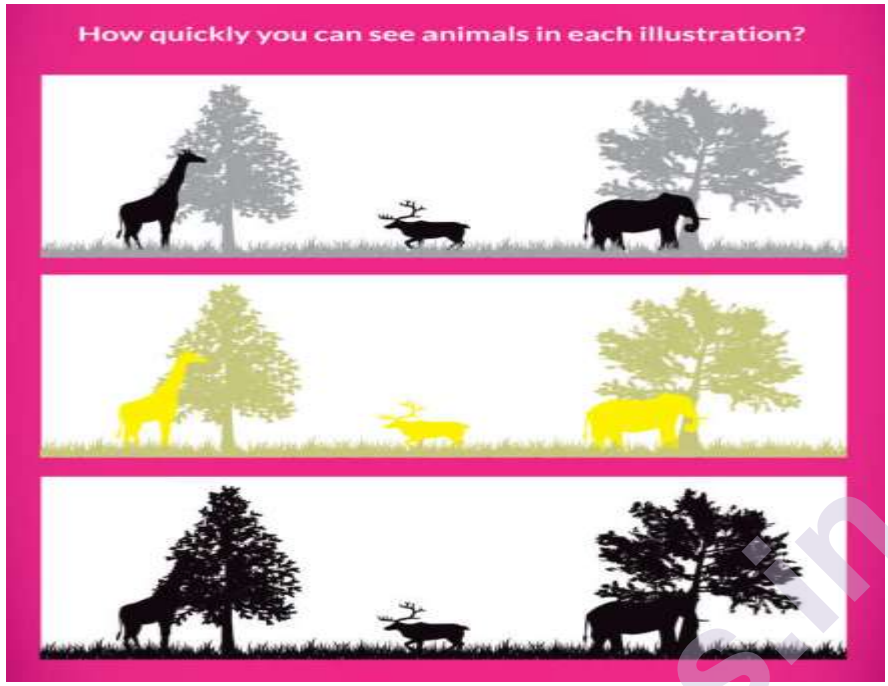
Illustrated above under our 'Focus on Readability' section, you can find the perfect example of why using grid lines can sometimes be a bad idea. Remember, if the reader is looking for incremental differences with exact data points, they can always refer to your tabulated facts and figures. However, what they are indeed looking for in the graph is a general trend. Thus, eliminating the grid lines might be a good proposition.

11.8.4 Our Brain Focuses on What Stands Out

While designing an infographic one of the most essential things to keep in mind is that you have a lot of data and not all of it is as highly significant. Always ensure that you are highlighting the important parts in a way that they are vividly noticeable and attract attention. You would not want your readers to miss out on those bits in a sea of data and the only way to make certain that they don't is by creating the graph accordingly.

11.8.5 People Comprehend Visually Elegant Data

Take a quick look at the picture below.



While spotting the animals in the first two images would have been simple, it would have taken a little more effort for your brain to process its presence in the third one. This happened because where in the first two,
contrasting colours were used for the animal and the trees behind, there was no such differentiation in the last picture.This is to illustrate our simple point that your mind, just like your reader's, is programmed to comprehend information that is visually refined. Therefore, using colours that aren't too loud and similar is the right choice to make.

11.9 HOW TO READ GRAPHS AND DIAGRAMS EASILY

#1 Read the labels and units

You do not want to spend too much time looking at a table or a graph before you get to the questions; to save time, read the labels and units. When you come across a graph or table, read the title as well as any additional labels like on the x- or y-axis or column headers. As you are reading, note the units used. When you get to the questions, knowing the basic labels and units on the graphs/tables can help you quickly decide on an answer choice. For example, maybe you are not sure exactly which table or graph has the information you need to answer a question, or you are not sure what the correct unit is. Well, if a quick look at the answers choices shows, say, kilogram per cubic meter, then all you must find is find the table or graph that has values with the unit kilogram per cubic meter and you are well on your way to the answer. So, pay attention to those units!

#2 Pay attention to types of change

Pay attention to whether a table or graph is showing independent amounts or cumulative amounts of change. For example, you could see cumulative change in a stacked bar graph, and independent change in a line graph. Also pay attention to how much the amounts are changing. Often you will be asked which of something changed the least or the most. Keep in mind that a horizontal line – even with a higher y-value – can show that something is remaining constant, or not changing, even compared to a line or curve with a lower y-value.

When a line or curve increases or decreases rapidly – there is a greater slope or steepness to the line or curve – then this indicates that something has changed significantly. Keep in mind that if the question asks which of something changed the most, this could be an increase or decrease in change, so don't ignore lines, curves, or values in a table that are decreasing; these could represent the greatest amount of change.

3 Compare tables and graphs

Remember #1… the reason you need to pay attention to the labels on the tables and graphs is because sometimes you need to compare the information found in various tables and graphs.Note what makes the tables the same and what makes them different. Think about each as a paragraph: when you read, you should check in with yourself and make sure that you understand the main idea of each paragraph. Well, the same is true with data representation. You look at it and ask yourself, "What is this showing me?"

Maybe you come across two graphs, one for experiment 1 and the next graph for experiment 2. So then you ask yourself, "What is different and the same from experiment 1 to experiment 2?" Keep the questions broad – main idea, changes in variable or units – and keep your answers simple as well. Just like I say you should only return to a Reading passage with a clear purpose, well, the same is true for a table and graph. You can stare at it all day long, but the information is not going to jump out at you. You need to be looking for something!

#4 Connect information in a table with what is in the passage

So maybe you are not so sure what the "something" is that you are looking for in the table or graph. You do not have a purpose. Well, then you need to figure out how the table or graph is connected to the passage. Is it supporting an argument in the passage with some data? Is it offering data for an experiment described in the passage… perhaps setting you up so that you can draw a conclusion? In order to understand the tables and graph, you need to understand the passage itself and understand how they relate to the passage.

#5 Make inferences – what can you conclude?

So how do you know what you can conclude? Again, remember #1- first you must know what the table or graph is showing. Then (#4) consider how it relates to what is described or discussed in the passage. Based on both of these strategies, ask yourself: is there a pattern or trend in the data that will allow you to infer or make a prediction? Does the data support what you're being asked to conclude or infer?

For example, there was a passage that discusses public transportation. The passage included a circle graph showing the various reasons why the people who were surveyed rode public transportation – things like, for work, when the car doesn't work, because it is less expensive, or because it is good for the environment.

But the question asked you to infer whether the percentages would change for various reasons if the survey took place on a weekend instead of a weekday. Neither the passage nor the graph discussed how public transportation riding habits would change or stay the same from a weekday to the weekend. Thus, the graph did not support any ability to conclude or infer about weekend public transportation riding. You need to keep a critical eye and be sure that you're inferring a conclusion that is aligned with what the data will support.

11.10 QUESTIONS

1. How many types of graphs are there?
2. Why different types of graphs are needed?
3. Readability of graphs is very crucial. Explain.
4. Graphs must also be visually appealing. Do you agree? Give reasons.
5. What is a Venn diagram?

11.11 LET'S SUM IT UP

- A graph, in layman terms, is a pictorial representation of organized data that helps the readers of the same understand complex information more easily.

- A research paper is a resultant report of all the investigations and surveys you conducted, be it through primary or secondary data.

- The most important function of a chart is to bring to the forefront the crux of a topic, that can be understood by anyone reading it, even without a firm grasp of the subject at hand.

- A chart's visual appeal is just as important as the data it is representing, if not more. An attractive diagram compels the reader to stop and go through the information it is rendering instead of glimpsing it once and moving ahead.

- Research papers are some of the most important documents you write and publish in your entire life and good statistical and scientific visualizations are the key to making them that much better. Your charts will always be dependent on the kind of data you wish to represent, but these tips are going to help you across all domains.

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12

DEVELOPMENT OF COMMUNICATION IN INDIA: PROSPECT, ISSUES AND TRENDS

Unit Structure

12.0 OBJECTIVES

In this chapter we are going to understand the:

- Communication in India Tracing its history
- Expansion of media in India
- Significance of communication and media research
- Research methodologies: Quantitative and Qualitative methodology, Mixed methodology, Rhetorical research
- What is media research?
- Parameters in Media Research

12.1 INTRODUCTION:

Development and communication are two terms heavily loaded with different conceptions and have various theoretical underpinnings. The communication media, within the context of development, are generally accustomed support development initiatives by the dissemination of messages that encourage the general public to support development-oriented projects. Although development strategies in developing countries diverge widely, the same old pattern for broadcasting and therefore the press has been predominantly the same: informing the

population about projects, illustrating the benefits of those projects, and recommending that they be supported.

Communication becomes a vital catalyst for change, but not its cause. Local folk media, for instance, is utilized to reduces media's bias toward literacy and supply information during a traditional, familiar form. Development journalism provides people with information on change in their society, and works at the local level to advocate change. Where mass media is now employed in developing societies, community newspapers and radio prove way more accessible and useful than television. The rapid spread of entertainment television within the developing world is proving to be more an interruption to traditional social structures than an agent of progress. Development

12.2 COMMUNICATION IN INDIA TRACING ITS HISTORY

We've to travel back to communities who listened to rural radio broadcasts within the 1940s, the Indian school of development communication. One distinguishing element of these early programs was that they focused on the employment of indigenous languages –Marathi, Gujarati and Kannada. India's earliest organized experiments in development communication were held within the 1960s, sponsored by India's universities and other educational institutions, and by the Bretton Woods-school institutions.

Educational institutions that played a crucial part during this effort include the University of Poona (now Pune), the Centre for the Study of Developing Societies, Delhi University, the Christian Institute for the Study of faith and Society and therefore the University of Kerala. India could be a developing country with lot of achievements all told the fields of recent day life including that of science and technology, agriculture and industry.

Now development communication is such a tool of development that it's highly necessary for a developing nation like us. it's therefore been increasingly recognized that people's active participation is a necessary component of sustainable development. Any intervention with the intent of achieving a true and sustainable improvement within the living conditions of individuals is doomed to failure unless the intended beneficiaries are actively involved within the process. Unless people participate altogether phases of an intervention, from problem identification to research and implementation of solutions, the likelihood that sustainable change will occur is slim.

Development communication is at the very heart of this challenge: it's the method by which individuals become leading actors in their own development. Communication enables people to travel from being recipients of external development interventions to generators of their own development. The 20th century has witnessed the immense impact of communication technologies, from the spread of audio recording, motion pictures and radio as world-wide phenomena to the emergence of

television as a dominant influence in nearly every institution, to the explosion of the net at the turn of the new century. The digital revolution is way from over, as new inventions repeatedly challenge assumptions that were themselves formed only yesterday. this can be an exciting and critically important moment for communication scholars to contribute to understanding, and shaping the parameters of our changing technological and academic environment. Because it's communication with a social conscience, development communication is heavily oriented towards man, that is, towards the human aspects of development. although it's primarily related to rural development, it's also concerned with urban, particularly suburban problems. It plays two broad roles. the primary could be a transformational role through which it seeks social change within the direction of upper quality of life and social justice. The second may be a socialization role through which it strives to keep up a number of the established values of society that are consonant with development. In playing these roles, development communication creates an enhancing atmosphere for the exchange of ideas that produce a contented balance in social and economic advancement between physical output and human relationships.

12.3 EXPANSION OF MEDIA IN INDIA

Indian media is expanding in the areas like newspaper, radio, cinema, web portal, online newspapers, mobile news, event management, social media, advertising, promotion etc.. Besides, job opportunities are created within the field of Media Research, External Media, Publishing, Documentary and Film, promotion, Education, Information and promotion of presidency of India and various State Governments, Corporate Sector, Government Offices.

It is also enlightening to work out how research interests change over time and interact with the technologies that are available. A solid understanding of any research area must include an understanding of its development over time. because it seems, the history of media effects research could be a fascinating field of study in its title. An understanding of that history will offer an appreciation of the scholarly tradition reflected in later chapters of this book. The questions that you just will raise about the study of media effects will almost certainly differ as a results of knowing a number of the his tory behind the subject.

Examples of media effects extend back to the 19th century, when the impact of newspapers on political beliefs seemed obvious. With the Payne Fund studies, the research community generated the primary systematic try to investigate the impact of media. These studies revealed that exposure to movies did have various effects on children. These results, combined with the apparent impact of the infamous "War of the Worlds" broadcast, introduced the "legacy of fear"-the concept that media were extremely powerful and will bring on effects that were often harmful. The research on comic books within the 1950s cared-for reinforce the legacy of fear and therefore the curative model of mass communication. A study of voting behaviour, The People's Choice, revealed a way more limited

impact of mass media and ushered within the limited-effects perspective. As this angle took hold within the 1950s, television exploded on the scene and attracted research attention within the 1960s and 1970s. This early research led to a more sophisticated view of media effects that prevails to the current day. a part of that sophistication is reflected within the number and differing types of media effects that students now recognize.

Significance of Communication and Media Research in India

Mass media plays a job in shaping people's preferences and shaping how they give some thought to a situation, incident, product, or idea. There are various psychological, physical, and social effects of mass media on people everywhere India. So, there's a robust must study the connection between mass media channels and their audiences and analyse how they convey with one another. it's a handy tool to know how different types of mass media, like television, cinema, newspapers, magazines, and radio, meet the requirements of individuals and entertain them.

It also causes to gauge what proportion time someone is spending on a selected media form and the way that media channel affects society. So, media research results play a large role in helping various kinds of media forms with their significant decisions. Moreover, there's an enhanced demand for brand new and transparent information nowadays, as people long for transparency, which has actually enhanced the importance of media research and made it absolutely necessary for both the general public and personal sectors. Here are certain factors that reflect on the importance of media research in today's world:

1) **Gives useful information:** As one of the leading marketing research firms in India, the US, the UK, and other parts of the planet, we believe that media research helps you understand and determine new trends and obtain valuable insights into the sphere of mass media and communication, which further enables you to see how you'll be able to reach bent on more people within a brief span of your time.

2) **Helps you frame news better:** A thorough media research study helps you understand how you can frame news better and make it more accessible to your target audience. It helps you with the analysis and composition of views, news, and data.

3) **Makes your story better and more accurate:** Thorough media research also helps you create more accurate and objectively apt stories. it's impossible to try and do so if your efforts don't seem to be directed towards investigating each aspect of a story.

Communication media refers to the means of delivering and receiving data or information. Communication matters because connection matters. In telecommunication, these means are transmission and storage tools or channels for data storage and transmission. The study of communication and media enables us to grasp the globe around us; it prepares us to be future leaders and problem-solvers, and it challenges us to be curious and passionate critical thinkers.

CHECK YOUR PROGRESS

1. Write a brief note tracing history of communication in India.
2. Why communication and media research is important?

12.4 COMMUNICATION RESEARCH METHODS

In the field of communication, there are three main research methodologies: quantitative, qualitative, and rhetorical. As communication students' progress in their careers, they will likely find themselves using one of these far more often than the others.

12.4.1 Quantitative Research

Quantitative research seeks to establish knowledge using numbers and measurement. Within the overarching area of quantitative research, there are a variety of different methodologies. The most used methodologies are experiments, surveys, content analysis, and meta-analysis. To better understand these research methods, you can explore the following examples:

(1) Experiments: Experiments are an empirical form of research that enable the researcher to study communication in a controlled environment. For example, a researcher might know that there are typical responses people use when they are interrupted during a conversation. However, it might be unknown as to how frequency of interruption provokes those different responses (e.g., do communicators use different responses when interrupted once every 10 minutes versus once per minute?). An experiment would allow a researcher to create these two environments to test a hypothesis or answer a specific research question. As you can imagine, it would be very time consuming — and probably impossible — to view this and measure it in the real world. For that reason, an experiment would be perfect for this research inquiry.

(2) Surveys: Surveys are often used to collect information from large groups of people using scales that have been tested for validity and reliability. A researcher might be curious about how a supervisor sharing personal information with his or her subordinate affects way the subordinate perceives his or her supervisor. The researcher could create a survey where respondents answer questions about a) the information their supervisors self-disclose and b) their perceptions of their supervisors. The data collected about these two variables could offer interesting insights about this communication. As you would guess, an experiment would not work in this case because the researcher needs to assess a real relationship and they need insight into the mind of the respondent.

(3) Content Analysis: Content analysis is used to count the number of occurrences of a phenomenon within a source of media (e.g., books, magazines, commercials, movies, etc.). For example, a researcher might be interested in finding out if people of certain races are underrepresented on television. They might explore this area of research by counting the

number of times people of different races appear in prime-time television and comparing that to the actual proportions in society.

(4) **Meta-Analysis:** In this technique, a researcher takes a collection of quantitative studies and analyses the data to get a better understanding of a communication phenomenon. For example, a researcher might be curious about how video games affect aggression. This researcher might find that many studies have been done on the topic, sometimes with conflicting results. In their meta-analysis, they could analyse the existing statistics to get a better understanding of the relationship between the two variables.

12.4.2 Qualitative Research

Qualitative research is fascinated by exploring subjects' perceptions and understandings as they relate to communication. Imagine two researchers who want to know student perceptions of the essential communication course at a university. the primary researcher, a quantitative researcher, might measure absences to grasp student perception. The second researcher, a qualitative researcher, might interview students to seek out out what they like and dislike a few courses. the previous is predicated on hard numbers, while the latter is predicated on human experience and perception.

Qualitative researchers employ a range of various methodologies. the foremost popular are interviews, focus groups, and participant observation. To higher understand these research methods, you'll explore the subsequent examples:

(1) Interviews: This typically consists of a researcher having a discussion with a participant based on questions developed by the researcher. For example, a researcher might be interested in how parents exert power over the lives of their children while the children are away at college. The researcher could spend time having conversations with college students about this topic, transcribe the conversations and then seek to find themes across the different discussions.

(2) Focus Groups: A researcher using this method gathers a group of people with intimate knowledge of a communication phenomenon. For example, if a researcher wanted to understand the experience of couples who are childless by choice, he or she might choose to run a series of focus groups. This format is helpful because it allows participants to build on one another's experiences, remembering information they may otherwise have forgotten. Focus groups also tend to produce useful information at a higher rate than interviews. That said, some issues are too sensitive for focus groups and lend themselves better to interviews.

(3) Participant Observation: As the name indicates, this method involves the researcher watching participants in their natural environment. In some cases, the participants may not know they are being studied, as the researcher fully immerses his or herself as a member of the environment. To illustrate participant observation, imagine a researcher curious about how humour is used in healthcare. This researcher might immerse his or

herself in a long-term care facility to observe how humour is used by healthcare workers interacting with patients.

Rhetorical Research

Rhetorical research (or rhetorical criticism) could be a variety of textual analysis wherein the researcher systematically analyses, interprets, and critiques the persuasive power of messages within a text. This takes on many forms, but all of them involve similar steps: selecting a text, choosing a rhetorical method, analysing the text, and writing the criticism.

To illustrate, a researcher can be curious about how mass media portrays "good degrees" to prospective college students. to know this communication, a rhetorical researcher could take 30 articles on the subject from the last year and write a rhetorical essay about the factors used and therefore the core message argued by the media. Likewise, a researcher may well be fascinated by how women in management roles are portrayed in television. they might select a gaggle of popular shows and analyse that because the text. This might lead to a rhetorical essay about the behaviours displayed by these women and what the text says about women in management roles.

As a final example, one may well be inquisitive about how persuasion is employed by the president during the White House Correspondent's Dinner. A researcher could select several recent presidents and write a rhetorical essay about their speeches and the way they employed persuasion during their delivery.

12.5 MIXED METHODOLOGY

Taking a mixed methods approach ends up in a quest study that uses two or more techniques discussed above. Often, researchers will pair two methods together within the same study examining the identical phenomenon. Other times, researchers will use qualitative methods to develop quantitative research, like a researcher who uses attention group to debate the validity of a survey before it's finalized.

The good thing about mixed methods is that it offers a richer picture of a communication phenomenon by gathering data and knowledge in multiple ways. If we explore a number of the sooner examples, we are able to see how mixed methods might end in a far better understanding of the communication being studied.

Example 1: In surveys, we discussed a researcher inquisitive about understanding how a supervisor sharing personal information together with his or her subordinate affects the way the subordinate perceives his or her supervisor. While a survey could give us some insight into this communication, we could also add interviews with subordinates. Exploring their experiences intimately could give us an improved understanding of how they navigate self-disclosure during a relationship supported power differences.

Example 2: In content analysis, we discussed measuring representation of various races during clock time television. While we are able to count the appearances of members of various races and compare that to the composition of the final population, that doesn't tell us anything about their portrayal. Adding rhetorical criticism, we could discuss how underrepresented groups are portrayed in either a positive or negative light, supporting or defying commonly held stereotypes.

Example 3: In interviews, we saw a researcher who explored how power might be exerted by parents over their college-age children who are away at college. After determining the tactics utilized by parents, this interview study could have a phase two. during this phase, the researcher could develop scales to live each tactic so use those scales to grasp how the tactics affect other communication constructs. One could argue, as an example, that student anxiety would increase as a parent exerts greater power over that student. A researcher could conduct a hierarchical regression to determine how each power tactic affects the degree of stress experienced by a student.

Each methodology has its own merits, and that they often work well together. As students advance in their study of communication, it's worthwhile to be told various research methods. this permits them to check their interests in greater depth and breadth. Ultimately, they're going to be ready to assemble stronger research studies and answer their questions about communication more effectively.

12.6 MEDIA RESEARCH

Media Research is that the study of the consequences of the various mass media on social, psychological and physical aspects. Research segments the people supported what television programs they watch, radio they listen, media they access and magazines they read. Media research also includes studying the expansion of those channels and their achievements and categorizing people supported what reasonably content they need been consuming. It involves several aspects, like the medium's nature, how it works and functions, technologies that make it what it's, similarities and differences between it and other media forms, services provided by it, its effectiveness, how it will be enhanced, and also the cost related to it.

It is a market survey that enables you to gauge data in an unbiased manner. So, media research is thorough and beneficial in some ways when it involves understanding how your audience perceives your products or services and what aspects of it they like and what parts of it they require better. In fact, it's essential to manage and regulate media channels to handle socio political or economic issues. Furthermore, since the choice process depends on the information you've, many survey companies provide media research services that are meant to be utilized within the long term, so it's incredibly useful within the growth phase because it also allows you to grasp a media agency's competitors.

It includes achievements and effects of media and a study about the event of media. Newspapers, magazines, radio, TV, Cinema or other mass media analysis and collection of information's. It helps to grasp the ways within which media can meet the wants of the audience. Whether it can provide information and entertainment to more and differing kinds of individuals. New technological improvements that help to boost or enhance the medium. Thus, so as to cope with social and political issues insightfully, management and regulation of media is required. Unbiased evaluation of information is achieved through media research.

12.6.1 Parameters in Media Research

1. The nature of medium being used

2. The working of the medium

3. Technologies involved in it

4. Difference and similarities between it and other media vehicles

5. Functions and services provided by it

6. Cost associated and access to new medium

7. Effectiveness and how it can be improved

As decision process depends on data, thus media research has grown to be utilized for long range planning. Research is in growth phase due to competitions between different media.

12.7 QUESTIONS

1. What are mixed methods?
2. What is rhetorical research?
3. Explain in details types of quantitative research techniques.
4. Explain in details types of qualitative research techniques.

12.8 LET'S SUM IT UP

- Development communication is at the very heart of this challenge: it's the method by which individuals become leading actors in their own development. Communication enables people to travel from being recipients of external development interventions to generators of their own development.

- The study of communication and media enables us to grasp the globe around us; it prepares us to be future leaders and problem-solvers, and it challenges us to be curious and passionate critical thinkers.

- Quantitative research seeks to establish knowledge using numbers and measurement. Within the overarching area of quantitative research, there are a variety of different methodologies. The most used

methodologies are experiments, surveys, content analysis, and meta-analysis.

- Qualitative research is fascinated by exploring subjects' perceptions and understandings as they relate to communication. Qualitative researchers employ a range of various methodologies. the foremost popular are interviews, focus groups, and participant observation.

- Rhetorical research (or rhetorical criticism) could be a variety of textual analysis wherein the researcher systematically analyses, interprets, and critiques the persuasive power of messages within a text.

- Taking a mixed methods approach ends up in a quest study that uses two or more techniques. The good thing about mixed methods is that it offers a richer picture of a communication phenomenon by gathering data and knowledge in multiple ways.

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13

CRITIQUING ANY ONE THEORY OF COMMUNICATION / MEDIA

Unit Structure

13.0 OBJECTIVES

In this chapter we are going to understand the:

- What is agenda setting theory?
- History of agenda setting
- Gatekeeping and Priming in the context of agenda setting
- The conceptual framework of Agenda Setting theory
- Technology and agenda setting
- Indian media and agenda setting
- Agenda setting examples in news media

13.1 INTRODUCTION

Agenda-setting describes the "ability (of the news media) to influence the importance placed on the topics of the public agenda". The study of agenda-setting describes the way media attempts to influence viewers, and establish a hierarchy of news prevalence. Nations judged to be endowed with more political power receive higher media exposure. The agenda-setting by the media is driven by the media's bias on things such as politics, economy and culture, etc. evolution of agenda-setting and laissez-faire components of communication research encouraged a fast pace of

growth and expansion of these perspectives. Agenda-setting has phases that need to be in a specific order for it to succeed.

13.2 UNDERSTANDING THE THEORY

What issues are important to you? Why are these issues of importance? Media coverage not only directs what we think but also shapes how we think. This influence provides the media with a powerful tool to influence government and the way people view it.

Agenda setting is the idea that what the public thinks about is set by the media. The agenda setting theory was first introduced by Dr. Maxwell McCombs and Dr. Donald Shaw in 1972. This theory states that the news plays an integral part in the shaping of political realities. The amount of time spent on an issue and the information relayed in a news story along with the story's position, determines how much a reader learns and the amount of importance placed on the issue. The agenda setting theory of McCombs and Shaw states that when the media reflect on the views of a candidate during a campaign, they are also shaping and determining the issues of importance. This can ultimately set the agenda for a political campaign.

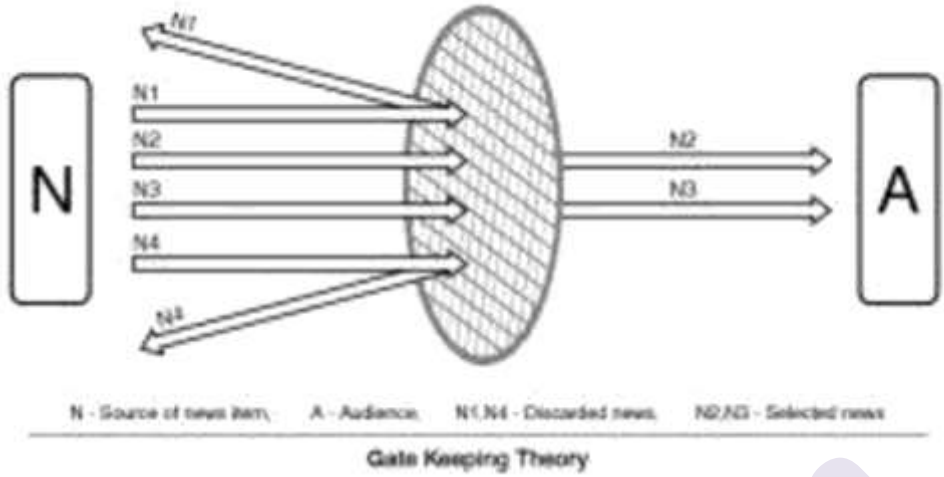
When analysing agenda setting, there are two basic assumptions to be considered:

1. Media and the press filter and shape reality rather than reflect it.
2. When the media focuses on just a few issues and subjects, the public tends to perceive those issues as more important.

13.3 AGENDA SETTING THEORY: GATEKEEPING, FRAMING AND PRIMING

Bernard Cohen's oft cited quote, "the press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about" was the first landmark study that connected media and foreign policy way back in 1963. McCombs and Shaw concretized this idea in 1972 proving that "agenda setting" for political campaigns was affected by the rate at which the news media covered a particular story and the extent to which the public thought it important. It outlined the media's role as a "gatekeeper of public information" through its selection of what constituted news. This process of influence was seen as being three staged. First by discussing certain issues, the media was flagging an agenda (media agenda); the issues discussed were salient to public interest (public agenda); and finally, these issues were viewed as being important to policy makers (policy agenda). However, the question of the causality between the issue's salience in terms of public opinion and media influence was left open. Iyengar and Kinder (1987) tried to establish causality by reworking the hypothesis to include the concepts of "priming" and "framing". They argued that the media "does not alter reality" but "changes and shapes perceptions" by

presenting an issue in a particular context (framing) and positioning it by the act of highlighting and association (priming) thereby influencing



Gate Keeping Theory

judgment. They proved that a report linking poor economic growth with a presidential policy triggered the perception of a drop in presidential performance. Zaller and Feldman described it as "top of the head" judgment. So while priming occurs "when a given message activates a mental concept which [when repeated] for a period of time increases the possibility of that concept", framing is how "news messages help determine what audiences focus on" depending on effects of "message patterns and audience schema that guide this information."

13.4 TECHNOLOGY AND AGENDA SETTING

Advances in technology provide many new avenues for influencing the masses. At the onset of the agenda setting theory, communication was conducted primarily via print and radio, followed by film and television. Today, communication sources are nearly unlimited, allowing for greater public engagement and setting the trend for increased attention on agenda setting.

To demonstrate the effect of technology on agenda setting, let's explore the Occupy Wall Street movement. The Occupy Wall Street movement consisted of a diverse group of gender, color, and political viewpoints that opposed social and economic inequity. The movement emerged in July of 2011 with presence via a website, Facebook, and Twitter. The goal was to gather a group of 20,000 on September 17, 2011, on Wall Street in New York City's financial district. The movement was left largely uncovered by mainstream media until late September of 2011, when YouTube footage of an activist being pepper sprayed by a New York police officer was aired. Following this social media coverage, the movement began to gain a significant presence across the country. By utilizing social media, activists have an effective platform for setting agenda in society.

CHECK YOUR PROGRESS

1. What is agenda setting theory?
2. What is framing theory?

13.5 HAS INDIAN MEDIA BECOME AN AGENDA SETTING INSTITUTION?

Agenda setting is functionally dependent on the reception of the media by the audience at large. We shall thus divorce not agenda setting from propaganda. Higher level of need for ideological orientation depends on interest and uncertainty of the audiences. This leads us to something called the gullibility index of the audience. Indian media has been exploiting this uncertainty and interest of the audience very well recently. While doing this, the media is constantly shaping a media agenda for themselves viz. the priority of news items which is functionally dependent on TRP or 'what sells.' The media can shape the political and social reality. The mere extent of coverage some news item received, the degree of attention that media content receives is a marketable commodity. The recentness and amount of exposure largely skews the public opinion in favour of or against the matter concerned.

Beyond the extent of coverage what automatically follows, is the moral decency and factual accuracy in portrayal. Media ethics seem to have long ago sold their existence to slavery of glamour, dogmatism, bootlicking and the logically unfound merriment and pride in being a stooge. The inevitable concomitant of this is the evil of presupposition which overruns the species named 'media'. Named ironically so because, nothing passes unadulterated and permeated by a biased influence of a heavy opinion which often weighs down the fact to press a favourableagenda.Media often do not acknowledge by means of responsible action and affirmation, the force they command as a means of amending existing frameworks through resocialisation.

"In some instances, established traditions are used to influence agenda setting institutions and in some others, agenda setting institutions influence the existing tradition." -Maxwell Comb and Donald Shaw.

Another important aspect of agenda setting is the manner of portrayal. There is a clear asymmetry between the news houses as the sellers of dramatized news content and those consuming it as a vital source communiqué of tidings and exposé of secrecies. The consumers are manipulated into predilection of dramatized manipulations of media content which make the content more buyable, but take no cognisance of the psychological and social manners that it is setting.

13.5.1 Modus-operandus:

The blatant misuse of question mark to misquote uncertainty as a suggestive statement is a common media practice in both print and electronic news media, The zealous vehemence of the anchors and every

not so intellectual argument being called a 'jung' (war) of sorts has deep rooted implications on the observing minds. Such content has a very high emotional susceptibility quotient assuming the primer of accessible socio-religious fervour and sharp social, political and religious contours. This may be apparently gimmicky but continuous exposure to it leads to serious indoctrination especially of gullible minds of the information age who have high interest and higher uncertainty as stated previously. Easy access to such propaganda, affects the restraint from cognitive effort to explore the realities of it. In recent times this propaganda has seemed to have had certain serious consequences (observations only) which I would love to highlight at the cost of digressing from the primary theme of agenda setting, seeking limited relevance of the explanation.

With the consistent bombardment of emotionally appealing, objectively misaligned rhetoric to set an agenda with the public, be it political or social; There is a sense of rising social anomie. Defiance of social order is a rising common. The sense of public morality influenced by diverse, uncommon and often antithetical interpreted institutions like religious denominations, dominates the sense of constitutional morality. A fallout of this non-conformity is rising social disharmony and friction.

There is also a rising sense of irrationality or moral cretinism (The right becomes the wrong and vice versa) or even more dangerous moral nihilism (nothing is morally right or wrong). This in effect can be described as a loss of distinction between the correct and the wrong, what is a sure wrong thus becomes 'maybe correct' with varying degrees of conviction. E.g. The Telangana rape accused encounter's portrayal of media captured and emancipated the hidden feelings of disappointment and anger within the people's mind very well. While the task of the media should have been to address and explain the difference between revenge and justice; The portrayal of the incident was such that it mobilized a large group of people including some of my professors to support that encounter killing.

13.5.2 Money matters:

Favours in cash and kind and the rising realm of paid news largely influence the narrative of the media. "Paid news" is a pervasive, structured and highly organized practice in Indian newspapers and other media outlets, where news space and favourable coverage is exchanged for money. Prime time is the single most important frame for agenda setting. The increasing importance to prime-time viewership and the TRP business, forces the media house into pushing entertaining content as news, thus digressing from the responsibility assumed as a media house. Prime time news is believed to have influence on the effectiveness of a policy. But with political narratives dominating media and content consumption emotionally arousing or dramatic,

Media is rapidly moving from conveying agenda to formulating or manipulating it. Conveying is replaced by influencing. Information asymmetry between rungs of people and the state is always absorbed by

the media in varied proportions. But here, the value judgment of media houses becomes a fundamental determinant of social or political importance of events. Media sets the tone of social interaction and power dynamics. E.g. The Aasud yatra by the farmers for the alarming farmer suicide statistic (one every 3 hours} deserved much more priority on media agenda than it got.

13.5.3 Perceptual Priming:

One response to a situation automatically pushing other response is known as priming e.g. The topic of the election pushes the response to EVM hacking. Priming can be conceptual, semantic but more important and relevant to this study is perceptual priming. Whereby, manufactured perceptions manipulate social reaction to stimuli. Media houses often come with a specific ideological agenda which they want to infest their viewers with and it has a clear mark of bearing of their ownership and profit motives. The sharp-left right divide as is seen in the Indian media today is unprecedented. Media sets a background of analysis/filter to human perception. It titillates imagination to interpret things in a certain manner.

13.6 AGENDA-SETTING IN BUSINESS NEWS COVERAGE:

Agenda-setting in news coverage for business has expanded to other forms of media to showcase the importance of media usage to businesses and consumers. Businesses are focusing on hiring more journalists and training them so they can perform better. In training the journalist, businesses can ensure that the reporters avoid bias and keep in mind the business' values. This is why when reading newspapers, certain articles influence people differently because editors are working behind the scenes to figure out the placement of articles and how long or short the stories will be. This showcases the importance agenda-setting has on newspapers since it gives the companies the ability to format stories, they want their readers to read and therefore create a mindset that leans a certain way.

13.7 AGENDA-SETTING IN MASS MEDIA:

Agenda-setting in mass media determines what viewers hear and see. This was founded by journalist Walter Lippmann in the 1920's. He also found out that the media determines what pictures are formed in our minds therefore, refiguring the events to make it simpler for viewers to understand. After learning about this, researchers Maxwell McCombs and Donald Shaw took it a step further and wrote about it in their book Emergence of American Political Issues. The book focused on how workers in the press are always looking through the media to select what is written or aired for viewers. They are bringing to light that agenda-setting is in every medium people read and has been a part of our culture for a long time. Agenda-setting creates media that viewers want to see and hear at a given moment and is noticeable when related to politics.

- **Agenda-setting in advertising.** The media's agenda-setting can "go beyond the transfer of silence to the effect of intended behaviour" and is thus relevant to advertising.

- **Agenda-setting in interpersonal communication.** Although agenda-setting theory is related to mass communication theory, it can be applied to interpersonal communication as well. Yang and Stone investigated whether people who prefer interpersonal communication have the same agenda as others who rely on mass media. According to them, the public agenda suggested by the media can flow through interpersonal communication as well.

- **Agenda-setting in crime.** Agenda-setting can be connected to cultivation theory. Lowry et al. conducted a longitudinal study and revealed that network television news covering crimes often made the public not only concentrate on criminal cases but also tremble with fear.

- **Agenda-setting and stereotypes.** Besova and Cooley (2010) found that the agenda-setting function of the media has a major effect on public opinion and how Americans perceive or judge a particular issue. They also found that negative media coverage, as opposed to neutral or positive, has greater agenda-setting power which can contribute to the formation and perpetuation of stereotypes. For example, the media often portrays foreign countries stereotypically by only covering certain stories concerned with certain issues. Only 5.6% of the international news produced by the United States media covers Africa which likely means viewers do not receive a well-rounded view of the entire continent.

With the kind of influence they commanded, media houses naturally got into agenda setting. But soon after, agenda setting has blended in the need to feed the culture of attention grabbing. Contrary to the pack journalism there has also kicked in competitive journalism. Ideological differences between media houses are put forth with aggression. E.g., Exit poll figures formulate political opinion. The conservatism in prediction reflects the ideological inclination of media houses and sets an obvious political agenda. Such media framing also includes the kind of fabricated overlap between criminal allegation and criminal prosecution that the media creates, through their course of public (mis)information.

Agenda setting by the media has lost its argumentative and questioning base and the larger social good is seconded to self-seeking motives. Media houses have gotten into a habit of sensationalizing class issues and conveniently ignoring the more important issues in public discourse. Media no longer absorbs the vacuum between the most marginalized and the lawfully able and resourceful. E.g., The coverage higher universities get vis a vis the abysmal primary education elsewhere, no talks about investigating the causes of graduate unemployment in India but long discussions on the Budget speech, etc.

Media was essentially supposed to be in its own capacity, an independent knowledge institution pivoted on and around reason. But with more than frequent agenda setting, media and media personnel have now become

very predictable and can be taken for granted. The resistance and the ever-important venturing opposite of the flow got lost in setting agenda along the flow, to go longer.

13.8 QUESTIONS

1. Give examples of Indian News Media agenda setting?
2. How does gatekeeping and priming affect agenda setting?

13.9 LET'S SUM IT UP

- The agenda setting theory was first introduced by Dr. Maxwell McCombs and Dr. Donald Shaw in 1972. This theory states that the news plays an integral part in the shaping of political realities.

- Agenda-setting describes the "ability (of the news media) to influence the importance placed on the topics of the public agenda". The study of agenda-setting describes the way media attempts to influence viewers, and establish a hierarchy of news prevalence.

- Priming occurs "when a given message activates a mental concept which [when repeated] for a period of time increases the possibility of that concept", framing is how "news messages help determine what audiences focus on" depending on effects of "message patterns and audience schema that guide this information'.

- Agenda setting by the media has lost its argumentative and questioning base and the larger social good is seconded to self-seeking motives. Media houses have gotten into a habit of sensationalizing class issues and conveniently ignoring the more important issues in public discourse.

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14

CASE STUDIES

Unit Structure

14.0 OBJECTIVES

In this chapter we are going to understand the:

- What are case studies?
- Nature and types of case studies
- How to use case study approach while doing media research
- Examples of case study-based research

14.1 INTRODUCTION

While the term "case study" (or "case method") is widespread in social methodology and media research, it's nevertheless a posh concept. McCartney defines a case study as 'A descriptive report analysing a unit as an entire (e.g. individual, family, organisation, etc.) in qualitative terms' whereas Robert K. Yin defines a Case Study as "An empirical inquiry that investigates a up to date phenomenon within its real world context, especially when the boundaries between phenomenon and context don't seem to be clearly evident." A case study can combine completely different methods (qualitative and quantitative ones) and analytical approaches, but is defined by the circumstance of that specialize in a case (or variety of cases) and is particularly established in qualitative media research (being also the most focus of this article). Second, the term "case study" is very vague because it can name either the method of doing research or the presented result. And, third, a main problem when doing case studies is that the construction of the case borders.

14.2 NATURE AND TYPES OF CASE STUDIES

Case studies are often located within the tradition of quantitative furthermore as qualitative media research. Within qualitative media research case studies are considered as "exploratory research". One can argue that every qualitative study relies on "cases" within the sense that an engagement with contextualised social phenomena is that the foundation of qualitative research intrinsically. Besides that, a more concrete understanding of the case study grasps research investigating specific cases separated from each other. The aim of those studies is either the "thick description" of a case or case research with the aim of creating general or theoretical conclusions.

14.2.1 Systematising case studies

Robert E. Stake has proposed to distinguish three types of case studies:

(1) intrinsic

(2) instrumental

(3) collective case studies

An intrinsic case study is undertaken because the researcher wants a higher understanding of this case; the aim isn't theory building. An instrumental case study analyses a selected case to supply insight into a more general issue or to redraw a generalisation. The collective case study focuses on different cases to research a general phenomenon; during this sense, it's an instrumental study extended to many cases.

14.3 CASE STUDIES IN CURRENT MEDIA RESEARCH

As the discussed examples show, case studies are common in current qualitative media research. Especially when specializing in audience studies and appropriation research, it becomes obvious that lots of far-reaching research focuses on specific cases thoroughly.

Studies on the cases of various social groups also are the indicator of other early research on media appropriation, especially within the tradition of gender studies. But also, current efforts to argue for a more comprehensive cultural studies orientation in media research are especially oriented on cases along the "circuit of culture." Most of those studies don't seem to be "intrinsic case studies" but specialize in specific cases as a place to begin for theoretically oriented research. In doing so, they show the outstanding significance cases have for qualitative media research: research therein tradition takes up with variety of single cases and has the aim of investigating these cases as exhaustively as possible to form their meaning structures and patterns accessible for further, critical theorising. For this, the info sample of research isn't defined prior to but within the process of researching these cases, and qualitative data are often combined with quantitative.

Three tendencies within the use of case studies in current qualitative media research are often observed.

1) First, the potential of case studies was underlined during the past decade, especially by research on media events integrating qualitative and quantitative data. Media events show exemplarily how far our present media cultures are marked by outstanding incidents which demand detailed analyses. Research like this is often not just an outline of something exceptional but a very important foundation to grasp our increasingly mediatized presence.

2) Second, in all, one can ascertain a theoretical orientation in current case studies within qualitative media research. While there are also "intrinsic" motivations for researching specific cases like outstanding media events such research is very undertaken to create more general conclusions or for theory formation. One can understand this as an indicator of an increasing theoretical discourse in media research, which lies beyond the deductive/hypothesis-testing paradigm of much standardised media research and is more aimed toward material-based enhancements of theoretical discourse. this can be the purpose where media and cultural theory meet one another.

3) Third, while case studies are a general moment of qualitative media research, a noteworthy number of them understand research on specific cases – and not along predefined categories and samples – as the way of critical reflection. The underlying idea of this argument is that case studies make it possible to bring into academic discourse "voices" and "particularities" that are normally excluded in media research.

The critical potential of case studies, then, lies within the trajectory of taking specificities seriously while still contextualising them in wider connections like power relations. These three points show that case studies are an inherent a part of current media research. In this, an "intrinsic" orientation on specific cases is increasingly combined with a critical target theory development.

CHECK YOUR PROGRESS

1. What is case study approach?

2. Explain the three types of case study.

14.4 USING CASE STUDIES IN PRACTICAL

Case Studies can function follow-ups to other materials on ethical theory or they will be used on their own to cite overlooked ethical implications. they will be utilized in a course entirely focused on the ethics of media or communication, or they will be accustomed add a partial specialise in ethics to a variety of communication, journalism, or media courses. for example, one may lecture on the ethics of trust within the print media, so use a case study on sports blogging and trust. Alternatively, one might lecture on the varied sorts of sports blogging and use a case study as a

spotlight for discussion over the moral issues concerning sports blogging. Either way, case studies are great ways to evoke discussion over difficult ethical issues.

14.4.1 How might one use case studies in their class

Some teachers use case studies to try and do two things. First, students may be tasked with identifying the moral interests at conflict within the decision made or to be made within the case study at hand. What is the choice that's ethically problematic here? What reasons or interests does one immediately see for each side of this controversy? Cultivating sensitivity to the varied sides to an ethical issue develops the kind of charity and sympathy many see as vital features to an ethical decision-maker. And often, our first reaction is not our most justified or defendable reaction after we predict about our reasons for a small amount.

Second, students are asked to develop a grip on the choice made or to be made what should the agent do (or what should they need done)? More importantly, why is that the proper action to take? This part goes deeper than merely noting interests on either side of this controversy, as students are asked to argue for why one interest or value takes priority over another interest or value. Sometimes, there are creative solutions which will be envisioned to deal with all the concerns within the case study.

The fundamental point to the employment of case studies in teaching ethics is to impress discussion, questioning, and argument. they are not primarily wont to solve problems, convey settled principles, prove certain theories, then forth. Many instructors use them within the following way. Students are put into small groups and asked to read the case study. Each group talks over the case, directed by instructor prompts or the "discussion" questions listed at the tip of the many case studies. Following this, the trainer brings the whole class together and discusses what each group considered each starting question. Students might then be encouraged to interact in reason-based discussion and debate about the case decisions in question. Disagreement, when it results in the comparison and analysis of justifying reasons and values, could be a welcome register using case studies to show ethics. the trainer may conclude discussion with a summary of the interests and positions debated by students, but rarely is there one right answer (and set of reasons) that gains reasoned acceptance by all. Learning the method of critical ethical thinking and reasoned disagreement is one amongst the most ends of using case studies. Here are some samples of case studies within the media research that are presented:

14.5 EXAMPLE ONE:

MEDIA'S GENDER GAP: Investigating relationships between women's news production and consumption - By Alyssa Zeisler

The media gender gap is well established: women are underrepresented in newsrooms and leadership roles are primarily held by and most frequently filled by men. There exists another equally well established but less discussed gender gap: women tend to read less political and international news than men. This gender gap in news consumption has both commercial implications (vis-a-vis audience size and revenues) and editorial implications for news producers.

The news industry has been under financial stress with significant job losses. Media companies require new audiences and revenues to survive. With 163 million women in the U.S., increasing readership by women could offer additional revenues through increasing subscriptions and advertising impressions. There are also significant implications at the societal level: more women reading political news would create a more informed voting population, which could in turn shape government policies. As awareness of the gender consumption gap and the possible benefits of increasing women's news readership has become more prevalent, media companies have begun to innovate and experiment with different methods to engage women readers.

Three primary solutions have emerged: create content specifically for women, develop marketing to target women, and push for gender parity for women in newsrooms. There are also significant implications at the societal level: more women reading political news would create a more informed voting population, which could in turn shape government policies.

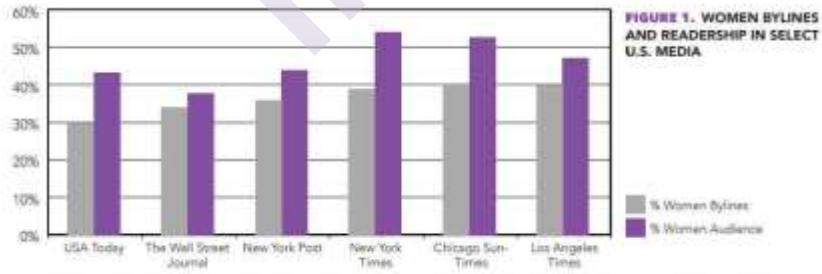


FIGURE 1. WOMEN BYLINES AND READERSHIP IN SELECT U.S. MEDIA

FIGURE 2.

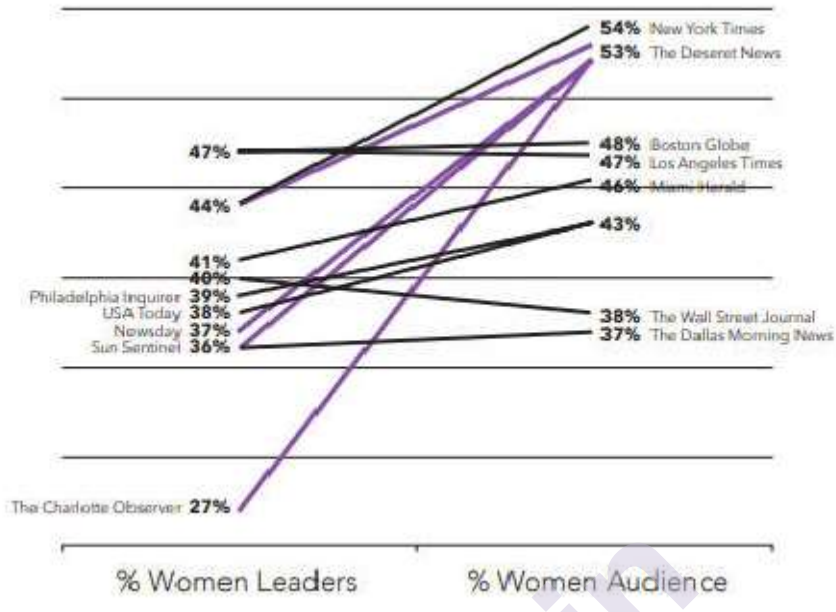
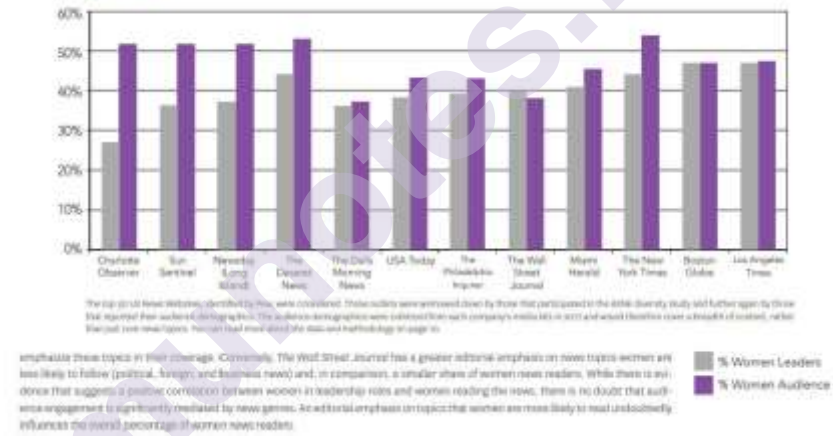


FIGURE 3. WOMEN IN NEWSROOM LEADERSHIP AND AUDIENCE IN SELECT U.S. MEDIA



Simply put, bringing more women into the newsroom seems to impact what is written about, in what way, and by whom. This conclusion is supported by a content analysis of three U.S. daily newspapers and published in the Journal of Communication.

The overarching hypothesis of this research is that the gender makeup of a newsroom will impact that organization's audience. The methodology involved correlating female bylines and female leadership in newsrooms with the percentage of women in each company's respective audience. Analysis of this data was suggestive of a relationship that warrants further investigation. As more data becomes available, consideration of relationships between bylines, leadership, and audience demographics could also be used to investigate how racial, income, sexual orientation, and other imbalances in a newsroom might influence readership.

14.6 EXAMPLE TWO:

The case study on- History, Present and future of Indian Media (Sratup Talky)

Media as we know it has become an indispensable part of our lives. Without it, we'd barely sustain the economic and demographic environment lest having a path carved to move forward. The enormous sea of information that we have access to, is to the grace of this media. We have come decades ahead from telegrams and fax messages which were the primary mediums of passing sensitive information to the world of the internet and smartphones where nothing really is ever sensitive.

The 24*7 media has taken us into the whirlpool of its headlines and breaking news and keeps us on our toes with the latest updates. Print media, Cinema, broadcasts, radio, and now the Gen Z favourite digital media are now the new improved, tech-savvy, and info-rich tools used to pass on information to the masses.

14.6.1 History of Indian Media

Indian media is the largest and the oldest media that has seen itself unfold during the 18th century. The footfalls of pre-independence saw the birth of print media in 1780. Hicky's Bengal Gazette was the first newspaper introduced under the British Raj.

As the fate of India unfolded in the hands of the colonizers there were several other newspapers that steadily made their presence established. This print media later proved to become a powerful weapon at the hands of freedom fighters who spread the message of independence to the masses. The Madras Courier (1785) and the Bombay Herald (1789) were the ones that followed in the early 18th century.

14.6.2 Pre-Independence

Pre-Independence saw a multitude of print media founders support and aggregate the freedom struggle. Mirat-ul-Akbar (a Persian Journal) by Raja Ram Mohan Roy, Rast Goftar by Dadabhai Naoroji, Kesari by Bal Gangadhar Tilak. The Indian Opinion by Mahatma Gandhi were some of the prominent newspapers that took responsibility to encourage masses to come forward for the freedom movement.

14.6.3 After Independence

Even after Independence, the print media was dominated by English newspapers. Firstly, because of the exalted position of the language and secondly because of the Morse code on typewriters which were difficult for vernacular languages. Steadily, Indian languages rose to the occasion and started printing their own press.

Indian press witnessed its first-ever revolt when the (then) Prime Minister Indira Gandhi announced a nationwide emergency during 1975-1977. This

has set a precedent for how nations should not be treating their press. This suspended basic civil liberties-press being among several others.

14.6.4 The Draconian law

The Draconian law under the government threatened and arrested anyone who reported against the tyranny. The 21 month period of emergency had the Indian media on its leash and the publications had to run their content through a Chief Press Advisor before publishing.

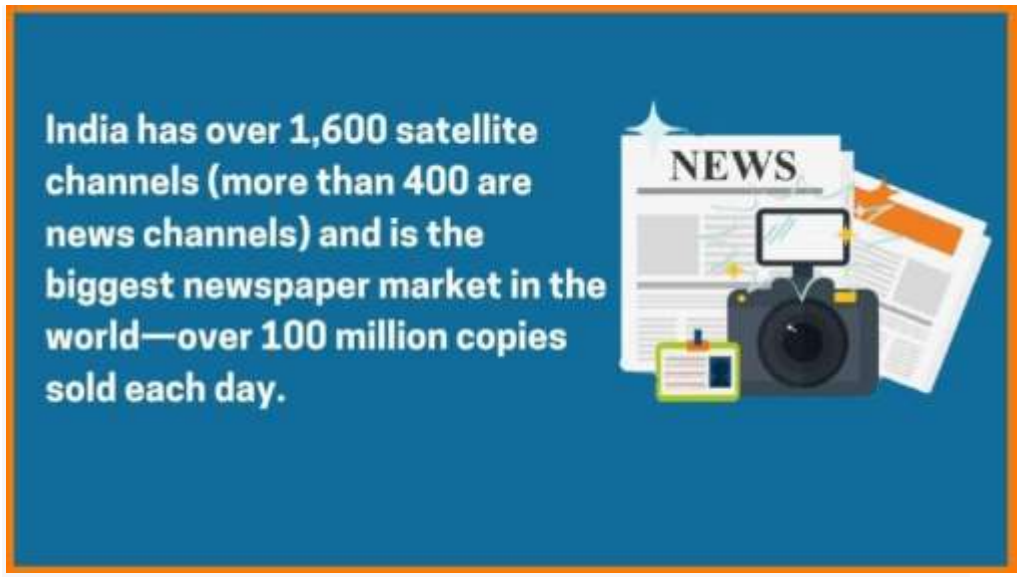
Radio broadcasting was first initiated in 1927 but became a state-owned department in 1930. The ministry of broadcasting and information then held the apparatus including Doordarshan, the first Indian Television channel. It is one of two statutory bodies of the Indian Public Broadcaster Prasar Bharati.

14.6.5 Indian Cinema

The Indian Cinema dates to 1913 when Dadasaheb Phalke, a scholar on Indian languages and culture, pioneered the motion picture industry by producing the first full-length motion picture "Raja Harishchandra". Indian cinema has been tested in many waters to become Bollywood today. Today, India is the second-largest producer of movies in the world.

Indian cinema with respect to its viewers has been very protective of the content and subject matter that is shown to the masses. India holds very dearly to its religious and social-political views. Indian audiences are still not very accepting of mature and sensitive topics such as same-sex relationships, casteism, and politics.

There have been excellent filmmakers who have tried to carve out these subjects keeping in mind the sensitivity of the Indian audience. We are yet to reach the maturity mark as a collective audience when it comes to raw and unfiltered content.



Indian media

14.6.6The Present of the Indian Media

Television Media

India has 1000 plus TV channels across all spoken languages. Every language in the Indian subcontinent has its own set of channels of entertainment. Colors, Zee, Star Plus and Sony are some of the leading networks spread pan India covering news and entertainment in all the main languages.

India is currently witnessing the exit of single-screen theatres as major multiplex players like Cinepolis, INOX, PVR, and Carnival Cinemas have taken over the screenings. India has lost about 12% of single-screen theatres due to the novel corona Virus outbreak. These theatres are unlikely to return to business and may be taken over by multiplex chains.

14.6.7 OTT Platforms in India

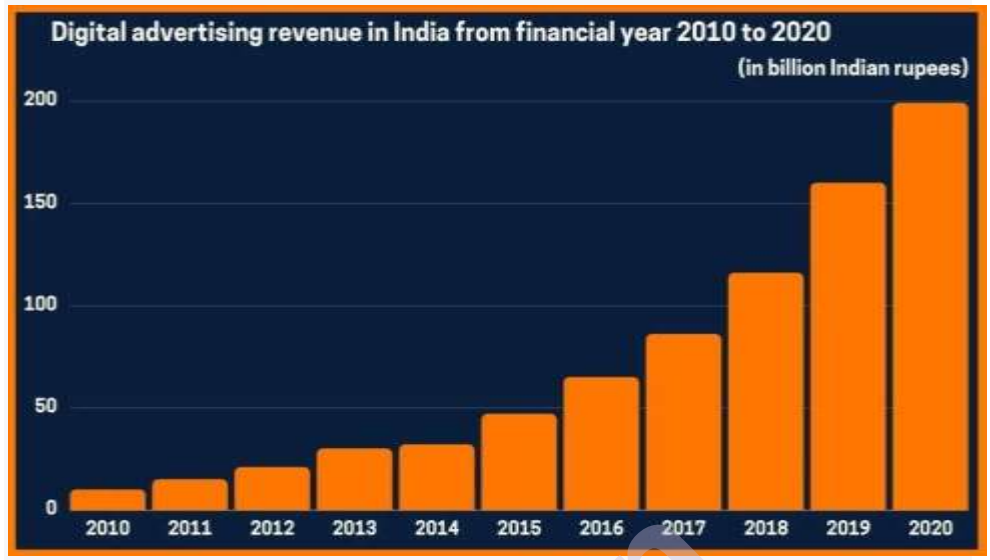
The Over-the-top (OTT) platforms have been around since 2008. But their viewership rose significantly when we were forced into our homes for almost a year thanks to the pandemic. OTT platforms were devoid of censorship and operated pan India since the internet has no geographical barriers. Amazon Prime, Disney+ Hotstar, Netflix India, SonyLiv, Alt Balaji, Voot are some of the established OTT platforms which are giving the DTH industry a run for its money.

14.6.8 Growth of Indian channels, and media outlets

Currently, the country consumes media through platforms such as TV, OTT, Print, VFX, Radio broadcasts, Gaming, and digital advertisements. India's Ad revenue is forecasted to expand at a CAGR of 4.3% between 2021-2024.

Due to the rapid growth in the number of internet users, the digital avenues are looking at a projection to reach a CAGR of 26% by 2024

including print and TV platforms, making India the six-largest demographic with an industry revenue worth $2.9 Billion.



Digital advertising revenue in India from financial year 2010 to 2020

14.6.9 Future of Indian Media

The current state of media and entertainment is a little gloomy and seems to be surrounded by the clouds of arbitrary laws and coercion. But we also need to understand that the growth in terms of number of media outlets is truly exponential. With OTT and Social Media platforms, media is pushing itself towards its highest potential. Content is King: but what if this content is under constant surveillance and the freedom of expression is compromised.

The Indian media is undergoing drastic changes currently and is under transition phase. With the advent of digital media, the business and audience dynamics of media industry will be changing.

14.7 QUESTIONS

1. How can case study approach add value to media research?
2. Explain any case study research of your choice.

14.8 LET'S SUM IT UP

- Case studies are often located within the tradition of quantitative furthermore as qualitative media research. Within qualitative media research case studies are considered as "exploratory research".

- The potential of case studies was underlined during the past decade, especially by research on media events integrating qualitative and quantitative data.

- While case studies are a general moment of qualitative media research, a noteworthy number of them understand research on specific cases – and not along predefined categories and samples – as the way of critical reflection.

- The agenda setting theory was first introduced by Dr. Maxwell McCombs and Dr. Donald Shaw in 1972. This theory states that the news plays an integral part in the shaping of political realities.

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