

Fundamentals of Research

DEGEN530

Edited by
Dr. Ashish Kumar



LOVELY
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Fundamentals of Research

**Edited By:
Dr. Ashish Kumar**

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Unit 01: Basics of Research

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Objectives

- To understand the meaning of research
- To point out the major difference between research methods and research methodology
- To examine the objectives and characteristics of research
- To understand the meaning of motivations in research
- To analyse the major types of research in social science research

Introduction

People talk about research a lot these days, both inside and outside of academic institutions. Year after year, a number of research studies are conducted and completed. However, in most cases, a critical aspect of research, namely research methodology, receives very little attention. As a result, much study, especially in the social sciences, involves an excessive amount of word-spinning and quotes. As a result, a lot of research is pointless. In the context of planning and development, it's worth noting that the importance of research lies in its quality rather than its quantity. As a result, those involved in research must pay close attention to designing and following appropriate methods throughout the research process in order to improve the quality of the results. Although the methodology may vary from one problem to the next, the fundamental approach to research remains the same.

This unit looks at the meaning of research, the main differences between research methods and research methodology, research goals and characteristics, research motives, and the major types of research in social science research.

1.1 MEANING OF RESEARCH

The term "research" refers to a search for information. A scholarly and systematic search for relevant information on a particular subject can also be defined as research. Research is, in fact, a form of empirical inquiry. Research is defined as "a thorough investigation or inquiry, particularly through the search for new facts in any branch of knowledge," according to the Advanced Learner's Dictionary. Research, according to Redman and Mory, is basically a logical effort and systematic attempt to find knowledge. Many tries to see research as basically an attempt to find the unknown and explored the unexplored. It is a journey for finding new information and knowledge. It's a human tendency to go for inquisitive approach whenever we see something strange or required attention. Such interrogative analysis result in gaining a full and adequate understanding of the

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unknown. This is what inquisitiveness means and it is the inspiration of all knowledge. And of course, each researcher needs to adopt certain techniques and research methods to gain knowledge of whatever the unknown is. Research is a term that should be used in a technical sense because it is an academic activity.

According to Clifford Woody, research entails identifying and redefining problems, formulating hypotheses or proposed solutions, gathering, organising, and analysing data, deducing and arriving at conclusions, and finally carefully testing the conclusions to see if they fit the formulating hypothesis. The Encyclopaedia of Social Sciences defines research as "the manipulation of objects, concepts, or symbols for the purpose of generalising to extend, correct, or verify knowledge, whether that knowledge helps in the building of theory or the practise of an art," according to D. Slesinger and M. Stephenson.

As a result, research is a unique contribution to the current body of knowledge that contributes to its advancement. It is the search for truth through research, observation, contrast, and experimentation. In a nutshell, research is the pursuit of knowledge through an objective and systematic method of locating a solution to a problem. The approach to generalisation and theory formulation is also a research. As a result, the term "research" refers to a systematic approach that includes stating the problem, formulating a hypothesis, gathering facts or data, analysing the facts, and arriving at certain conclusions, either in the form of solutions to the problem at hand or in the form of generalisations for some theoretical formulation.

The goal of study is to find answers to questions through the use of scientific methods. The main goal of research is to uncover the truth that has been hidden and has yet to be found. Though each research study has its own specific goal, we can categorise research goals into the following broad categories:

1. To gain familiarity with a phenomenon or to gain new insights into it (exploratory or formulative research studies are those with this goal in mind);
2. To accurately represent the characteristics of a specific person, situation, or group (studies with this goal in mind are referred to as descriptive research studies);
3. To ascertain the frequency with which something happens or is associated with something else (diagnostic research studies are those that focus on this object);
4. To see if a causal relationship between variables can be proven (such studies are known as hypothesis-testing research studies).

Research Methods versus Methodology

At this point, it seems necessary to clarify the distinction between research methods and research methodology. All of the tools/techniques used to conduct research can be categorised as research methods. Thus, research methods or techniques refer to the procedures that researchers employ when conducting research. In other words, research methods refer to all of the techniques used by the researcher to investigate his or her research problem. Because the goal of research, especially applied research, is to find a solution to a specific problem, the available data and the unknown elements of the problem must be linked in order for a solution to be possible.

With this in mind, research methods can be divided into three categories:

1. Those methods concerned with data collection are included in the first category. When the data already available is insufficient to arrive at the required solution, these methods will be used.
2. The second group of statistical methods includes those that are used to determine relationships between data and unknowns.
3. The third group of methods consists of those that are used to assess the accuracy of the obtained results. The last two groups of research methods are commonly referred to as the analytical tools of study.

A research approach is a method for solving a research problem in a systematic manner. It can be thought of as a science that studies how scientific research is carried out. We look at the different steps that a researcher takes to investigate his research issue, as well as the reasoning behind them. The researcher must understand not only the research methods and techniques, but also the

methodology. Researchers must not only understand how to create specific indices or tests, calculate the mean, mode, median, standard deviation, or chi-square, and apply specific research techniques, but they must also understand which of these methods or techniques are important and which are not, and what they mean and suggest and why.

Researchers must also be aware of the assumptions that underpin different methods, as well as the criteria by which they can determine whether certain techniques and procedures are appropriate for specific problems and which are not. All of this implies that the researcher must design his methodology for his problem, as it may vary from one to the next. For example, when designing a building, an architect must consciously determine the basis of his decisions, such as why and on what basis he chooses a specific size, number, and location of doors, windows, and ventilators, or why he uses certain materials and not others, and so on. In research, the scientist must subject his or her findings to scrutiny before implementing them. He must specify exactly what decisions he chooses and why he chooses them so that they can be reviewed by others as well.

Criteria of Good Research

Whatever the kinds of research projects and studies, one thing is certain: they all share a common ground in the scientific method they employ. Scientific research is expected to meet the following criteria:

1. The research's intent should be clearly defined, and common concepts should be used.
2. The research process should be outlined in enough detail for another researcher to repeat it for further advancement while maintaining the continuity of what has already been accomplished.
3. The research's procedural design should be meticulously planned in order to produce objective results.
4. The researcher should be completely honest about any flaws in the procedure design and estimate their impact on the findings.
5. Data analysis should be sufficient to reveal the significance of the data, and the methods of analysis used should be relevant. The data's validity and reliability should be double-checked.
6. Conclusions should be limited to those that are supported by the study data and for which the data provide an adequate foundation.
7. If the researcher is seasoned, has a good research reputation, and is a person of integrity, greater trust in the research is justified.

1.2 OBJECTIVES OF RESEARCH

The goal of study is to find answers to questions through the use of scientific methods. The main goal of research is to uncover the truth that has been hidden and has yet to be found. Though each research study has its own specific goal, we can categorise research goals into the following broad categories:

1. To gain familiarity with a phenomenon or to gain new insights into it (exploratory or formulative research studies are those with this goal in mind);
2. To accurately represent the characteristics of a specific individual, situation, or group (descriptive research studies are those that have this goal in mind);
3. To ascertain the frequency with which something happens or is associated with something else (diagnostic research studies are those that focus on this object);
4. To see if a causal relationship between variables can be proven (such studies are known as hypothesis-testing research studies).

In general, research goals define what we want a project to accomplish.

The research goals are generally stated in layman's terms and are aimed at the client as well as the researcher. In a study without a hypothesis, research goals may be related to a hypothesis or used as a statement of intent.

Notes

The layperson should be able to interpret the research from the goals, even though the nature of the research is not clear from the theories.

The activities of research can be guided by a statement of research goals.

Consider the examples below.

Objective: To identify the factors that farmers consider when deciding whether to adopt a new technology or what crops to grow.

Objective: To create a budget for reducing pollution by a specific company.

Objective: To characterize the giant panda's habitat in China.

The research in the examples above is mostly descriptive in nature.

In the first case, the research would be able to specify factors that appeared in household decisions at the end of the study.

The specification of a pollution reduction budget will be the outcome of the second.

The third step is to draw a photograph of the giant panda's habitat in China.

These findings could lead to the formulation of hypotheses that could be tested in a subsequent study. A research objective will serve as an appropriate guide to the research as long as the goal of the study is exploratory, that is, to explain what is rather than to test an explanation for what is.

1.3 MOTIVATIONS IN RESEARCH

What motivates people to do research? This is an issue of critical importance. One or more of the following reasons could motivate you to conduct research:

1. A desire to obtain a research degree and the benefits that come with it; 2. A desire to take on the challenge of solving unsolved problems, i.e., a desire to solve practical problems leads to research; 3.
2. A desire to experience the intellectual pleasure of doing something creative;
3. A desire to serve society;
4. A desire to gain respectability.

This is not, however, an exhaustive list of factors that motivate people to participate in research studies. Many other factors, such as government directives, employment conditions, curiosity about new things, a desire to understand causal relationships, social thinking and awakening, and so on, may also inspire (or compel) individuals to conduct research.

Motivational Research

Motivational research aims to figure out what customers don't know about themselves. Motivational research implicitly assumes that there are underlying or unconscious motivations influencing consumer behaviour. Motivational research aims to uncover hidden forces and influences that consumers are unaware of (e.g., cultural factors, sociological forces). Typically, conscious motivations, cultural biases, economic factors, and fashion trends are intertwined with and complicated by unconscious motives (or beyond-awareness reasons) (broadly defined). Motivational research tries to sort through all of these influences and factors in order to solve the mystery of consumer behaviour in relation to a particular product or service, so that the marketer has a better understanding of the target audience and how to influence them.

When strong underlying motives are suspected of influencing consumer behaviour, motivational research is most useful. Motivational research is likely to be conducted on products and services that relate, or may relate, to attraction of the opposite sex, personal adornment, status or self-esteem, authority, death, fears, or social taboos. Why, for example, do women's clothing and personal adornment expenses tend to rise as they reach the age of 50 to 55? The reasons for this are linked to the loss of youth's beauty and fertility, as well as the fear of losing their husbands' love. It's often a period in life where disposable income is increasing. Other motivations are at work (women are complex creatures), but a standard marketing research survey will never expose them because most women are unaware of why their interest in expensive adornments increases at this point in their lives.

Even low-risk or low-involvement product categories can also benefit from motivational research's insights. Perception factors and cultural influences are typically most important in low-involvement product categories. Our society is a set of rules and regulations that make our lives easier and more effective. How we squeeze a tube of toothpaste, open packages, use a bath towel, and who does what work are all governed by cultural norms. The majority of us are oblivious to these cultural norms. Understanding how these cultural norms impact a specific product can be extremely useful information for marketers.

1.4 TYPES OF RESEARCH

The major classifications of research are as follows:

1. Descriptive vs. Analytical

Descriptive research covers a variety of surveys and fact-finding inquiries. The most important goal of descriptive research is to describe the current state of affairs. Ex post facto research is a term used frequently in social science and business research to describe descriptive research findings. The main feature of this approach is that the researcher has no control over the variables; he can only report what has occurred or is currently occurring. The majority of ex post facto research projects are used for descriptive studies in which the researcher wants to measure things like shopping frequency, people's preferences, or other data. Ex post facto studies are attempts by researchers to find causes after the fact, even though they are unable to control the variables. Survey techniques of all types, including comparative and correlational methods, are used in descriptive study. The researcher must analyse facts or information that is already available in order to make a critical assessment of the material.

2. Applied vs. Fundamental

There are two types of research: applied (or action) research and fundamental (or pure) research. Applied research aims to solve a problem that a society or an industrial/business organisation is currently facing, while fundamental research is primarily concerned with generalisations and theory formulation. "Knowledge gathering for the sake of knowledge is referred to as 'basic' research. Fundamental research may include studies of natural phenomena or pure mathematics. Fundamental research on human behaviour is often carried out with the goal of making generalisations about human behaviour, while applied research is carried out with the goal of reaching specific conclusions about a specific social or business issue. Applied research includes, for example, research to identify social, economic, or political patterns that may affect a specific institution, copy research (research to determine whether certain communications will be read and understood), marketing research, and evaluation research. As a result, the primary goal of applied research is to find a solution to a pressing practical problem, while basic research aims to find information that has a wide range of applications and thus adds to the already organised body of scientific knowledge.

3. Quantitative vs. Qualitative

Quantitative research is based on determining the quantity or amount of something. It can be used to describe phenomena that have a numerical value. Qualitative research is concerned with qualitative phenomena, such as those involving or relating to quality or kind. When we're looking into the reasons for human behaviour (i.e., why people think or do certain things), we often refer to 'Motivation Study,' which is a type of qualitative research. The aim of this type of study is to uncover the underlying motivations and desires by conducting in-depth interviews. Word association tests, sentence completion tests, story completion tests, and other projective approaches are also used in this type of study.

Qualitative research includes attitude or opinion research, which is intended to find out how people feel or think about a particular subject or institution. In the behavioural sciences, where the goal is to discover the underlying motives of human behaviour, qualitative research is particularly important. We will analyse the different factors that motivate people to behave in a certain way or make people like or dislike a certain thing using this type of research. However, it should be noted that putting qualitative research into practice is a difficult task, and as a result, experimental psychologists should be consulted when conducting such research.

4. Conceptual vs. Empirical

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The term "conceptual research" refers to research that is concerned with abstract ideas or theories. Philosophers and thinkers widely use it to formulate new ideas or reinterpret existing ones. Empirical research, on the other hand, depends solely on experience or observation, often without regard for system or theory. It will arrive at conclusions that can be confirmed through observation.

It's often referred to as experimental research. It is necessary to obtain facts firsthand, at their source, and to actively go about doing certain things in order to facilitate the production of desired information in such a study. In such a study, the researcher must first formulate a working hypothesis or educated guess about the likely outcomes. He then creates experimental designs that he believes will manipulate the people or materials involved in order to obtain the desired information. The experimenter's control over the variables under study, as well as his deliberate manipulation of one of them to study its effects, characterise such studies. When evidence is needed that certain variables affect other variables in some way, empirical research is the way to go. Experiments and empirical studies are now widely regarded as the most powerful sources of evidence for a given theory.

5. Some Other Types of Research

All other kinds of research are variations of one or more of the above-mentioned methods, based on the research's intent, the time it takes to complete it, the environment in which it's conducted, or some other comparable factor. We should think of research as either one-time or longitudinal research from the perspective of time. In the first case, the study is limited to a single time period, while in the second case, the study spans many time periods. Depending on the context in which the research is to be conducted, it can be field research, laboratory research, or simulation research.

Clinical or diagnostic research are both terms that can be used to describe research. To arrive at the underlying causal relationships, such studies use case-study techniques or in-depth approaches. Such studies typically delve deeply into the causes of things or events that we are interested in, employing very small samples and deep probing data collection devices. It is possible for the study to be exploratory or formalised. Exploratory research focuses on the creation of hypotheses rather than their testing, whereas formalised research studies have a more defined structure and unique hypotheses to test. Historical research is the study of past events or ideas, including the philosophy of individuals and organisations at any point in time, using historical sources such as documents, remains, and other artefacts.

Conclusion-oriented and decision-oriented research are two types of research. When conducting conclusion-oriented research, a researcher is free to pick a problem, redesign the investigation as he goes, and conceptualise as he sees fit. Decision-oriented research is often for the benefit of the decision maker and the researcher, who is not free to conduct research according to his or her own desires. Because operations research is a scientific method of providing executive departments with a quantitative basis for decisions regarding operations under their control, it is an example of decision-oriented research.

Summary

We will be able to gain a thorough understanding of the meaning of research, the major differences between research methods and research methodology, research goals and characteristics, research motives, and the main types of research in social science research based on what has been mentioned above. We can also argue that research methodology has several dimensions, and that research methods are a part of the methodology. Research methodology encompasses a broader range of topics than research methods.

Thus, when we talk about research methodology, we don't just talk about the research methods; we also consider the rationale behind the methods we use in the context of our research study and explain why we're using one method or technique over another, so that research findings can be analysed by the researcher or others. When we discuss research methods in relation to a research problem, we generally get answers to questions like why a research study was conducted, how the research problem was identified, how and why the hypothesis was formulated, what data was gathered and what procedure was used, why a particular technique of data analysis was used, and a slew of other questions.

Researchers from all over the world face significant challenges due to a lack of scientific training in research methods and a proper understanding of the term research. There is a scarcity of qualified researchers. Many researchers take a risk by assuming they don't know what they're doing because they don't know what they're doing. The majority of research is not conducted in a methodologically sound manner. For many researchers, and even their guides, research is mostly a scissor-and-paste work with little insight into the materials gathered. The result is self-evident: research findings often

do not reflect reality or realities. As a result, a thorough examination of research methods is a must. Researchers should be well-versed in all methodological aspects before embarking on research projects. As a result, efforts should be made to provide intensive short-term courses to satisfy this requirement.

Keywords

Research: Research can be defined as a systematized effort to gain new knowledge.

Research Methods: Research methods may be understood as all those methods/techniques that are used for conduction of research.

Research Methodology: Research Methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.

Descriptive research: Descriptive research is description of the state of affairs as it exists at present.

Applied Research: Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organisation.

Fundamental Research: Fundamental research is mainly concerned with generalisations and with the formulation of a theory.

Self-Assessment/Evaluation

1. Problems in Social Science Research.....
 - a. Elucidate
 - b. Diagnose
 - c. Suggest
 - d. Formulate
2. The goal of social research is to.....
 - a. Integration
 - b. Social Harmony
 - c. National Integration
 - d. Social Equality
3. The classification of research is based on..... and methods.
 - a. Goals
 - b. Objectives
 - c. Methodology
 - d. Techniques
4. The term "fundamental research" refers to a type of research that
 - a. Action Research
 - b. Survey
 - c. Pilot study
 - d. Pure Research
5. Motivation research is a type of
 - a. Quantitative
 - b. Qualitative
 - c. Pure
 - d. Applied research.
6. aids in social planning
 - a. Social science research

Notes

- b. survey of experience
 - c. formulation of a problem
 - d. diagnostic study
7. Students are motivated to conduct research by
- a. a research degree
 - b. a research academy
 - c. research labs
 - d. research problems.
8. A problem that needs to be solved is.....
- a. Observation
 - b. Problem
 - c. Data
 - d. Experiment
9. The process of converting a question into a researchable problem is known as.....
- a. Solution
 - b. Examining
 - c. Formulating Problems
 - d. Solving Problems
10. Problems that are ---- not taken into consideration when selecting a problem.
- a. Very Common
 - b. Overdone
 - c. Easy
 - d. Rare
11. The first step in formulating a problem is to
- a. state the problem
 - b. collect data
 - c. measure
 - d. conduct a survey
12. -----is a quality of a good researcher
- a. Objects
 - b. Humans
 - c. Living Things
 - d. Non-living Things
13. Research in social science deals with
- a. Objects
 - b. Humans
 - c. Non Living Things
 - d. Living Things
14. Abstract ideas or concepts are the subject of what type of research?
- a. Empirical research
 - b. Conceptual Research
 - c. Quantitative research
 - d. Qualitative research

Review Questions

1. How do you define the term Research?
2. Elaborate the major difference between research methods and research methodology.
3. What are the significances of research methods and research methodology in a research?
4. What are the objectives of the research?
5. How do you elucidate research objectives?
6. Elucidate the major research types available in social science research.

Further/Suggested Readings



Books

- Ackoff, Russell L., *The Design of Social Research*, Chicago: University of Chicago Press, 1961.
- Ackoff, Russell L., *Scientific Method*, New York: John Wiley & Sons, 1962.
- Allen, T. Harrell, *New Methods in Social Science Research*, New York: Praeger Publishers, 1978.

UNIT 02: RESEARCH APPROACHES

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Objectives/Expected Learning Outcomes

Introduction

Subject Matter

2.1 RESEARCH APPROACHES, SIGNIFICANCE OF RESEARCH

2.2 RESEARCH PROCESS AND CRITERIA OF GOOD RESEARCH

2.3 CONCEPT OF THEORY: DEDUCTIVE AND INDUCTIVE THEORY

Summary

Keywords/Glossary

Self-Assessment/Evaluation

Review Questions

Further/Suggested Readings

Objectives/Expected Learning Outcomes

- To discern the meaning of Quantitative & Qualitative approach
- To examine the nature of pragmatic approach (mixed methods)
- To differentiate the processes involved in defining the problem
- To highlight and assess the meaning of inductive and deductive approaches
- To analyze the usages and challenges of inductive deductive methods in social science research

Introduction

The second chapter, Research Approaches, falls under the domain of fundamentals of research and consists of three lectures focusing on research approaches, research importance, research processes, the meaning and nature of deductive inductive approaches. By offering alternatives to social classes and castes, social research facilitates social harmony. It identifies the source of such problems and offers a solution. It also investigates people's lives structurally by learning more about their social conditions. The aim of every research is to bring an optimistic shift in cultural values and societal norms. Therefore, to achieve large objectives, societal activity is observed and analyzed.

In addition to enhancing creativity and innovation at societal and systemic levels, social science researches assist all the processes accelerating community growth. The novel invention contributes to societal advancement. Focusing on research improves understanding and thus gives society more power. Creative thinking and innovation aid in the development of new ideas that improve social behaviour and social values. Social science research examines widely accepted or rejected concepts and ideas. It does researches on motivation, personality, leadership, teamwork, and other topics. Through its latest research methodologies, it challenges previously held beliefs.

In view of the effectiveness of research studies and investigations, it facilitates in the formulation of policies which definitely help the political system in one or other way: The development of numerous public policies is also facilitated by various researches. Almost all government strategies and budgets are prepared and implemented with the assistance of researchers. The government sets the annual budget, monthly budget, fiscal, and economic policies on the basis on some serious researches. The primary goal of every researches is to acquire new knowledge: It creates a slew of new concepts and questions long-held beliefs. It is widely used in all subjects including business: Many firms require researchers to work on a variety of projects. It's used to figure out what's going on in the economy. Capital budgeting, tax control, and cost-cutting policies are also aided by it.

Theories in social science researches are developed to describe, predict, and comprehend any social phenomena, as well as to question and expand established knowledge within the constraints of critical bounding assumptions. The theories and its confined framework is supposed to provide a detailed structure for the concerned studies. The theoretical framework discusses and presents the theory that explains why a particular problem studies under a particular framework itself.

“Developing a hypothesis based on known theory, and then constructing a research hypothesis (based on existing theory)” is what a deductive approach entails. “Deductive reasoning” has been described as “reasoning from the specific to the broad or particular to the general.” Inductive method “involves the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses”. Let us now go through each of the above points in greater depth.

Subject Matter

2.1 RESEARCH APPROACHES, SIGNIFICANCE OF RESEARCH

The quantitative and qualitative approaches are the two major research types that researchers commonly rely on. The former entails the collection of quantitative data that can then be subjected to rigorous quantitative analysis in a systematic and rigid manner. Simulation, inferential, and experimental are sub-categories of this approach. The aim of an inferential research is to discern a data base from which to infer the exact and precise characteristics or relationships of population. This generally refers to survey studies, in which a subset of the population is examined (interviewed or observed) to assess its features, and then the population as a whole is considered to have the same characteristics based on the inferred data.

The experimental research method is distinguished by a greater degree of control over the testing environment, and in this case, certain variables are manipulated to see if they affect other variables. The simulation approach covers creating an artificial environment in which significant data and information can be created. This allows for the observation of a system's dynamic actions. In business and social science fields, the concept "simulation" refers to the vindication of a numerical model that reflects the structure of a dynamic process. A simulation is run to describe the behaviour of the process over time given the values of initial conditions, parameters, and exogenous variables.

The subjective evaluation of perceptions, beliefs, and behaviour is central to the qualitative research approach. In this case, research is focused on the researcher's observations and experiences. Such a

method of study yields findings that are either qualitative or have not been subjected to detailed quantitative analysis. Generally, in this methods, FGDs, interviews, projective techniques and in-depth observations are used.

Significance of Research

Inquiry is the mother of all development. Doubt is often preferable to overconfidence, because it leads to investigation, and inquiry leads to invention, says a popular Hudson maxim, illustrating the importance of study. Progress is made possible by increasing the amount of testing undertaken. Research encourages the development of critical thought and organisational habits by instilling scientific and inductive thinking. In recent years, the importance of research in many fields of applied economics, whether related to industry or the economy as a whole, has risen dramatically. The increasingly complex nature of any issues in public and private has focused attention on the use of research in solving operational problems. Both government and business have increased their reliance on research as a tool for economic policymaking.

Almost all government decisions in our economic system are based on research. Government budgets, for example, are based in part on an appraisal of people's needs and expectations, as well as the availability of revenues to meet these needs. The cost of needs must be compared to possible sales, and this is an area where further study is needed. We may formulate alternative policies and analyse the implications of each of these alternatives through analysis. While decision-making is not a part of research, it does help policymakers make informed decisions. The government must also devise plans to address all aspects of the public life, the majority of which would be linked directly or indirectly to the economic circumstances.

The plight of cultivators, the problems of large and small business and industry, working conditions, trade union practises, delivery issues, and even the scale and scope of defence services are all subjects that need further investigation. As a result, research is deemed important in the allocation of a country's resources. Collecting data on the nation's economic and social system is another field of government where study is needed. Such data shows what is going on in the economy and what changes are occurring. Collecting such statistical data is by no means a simple process, and it entails a wide range of research issues. Almost all governments now employ a significant number of researchers or specialists to carry out this work.

In the context of government, research as a tool for economic policy has three main phases of operation: (i) constant collection of data and its compilation to investigate economic structure; (ii) diagnosis of current events and study of forces underlying them; and (iii) prognosis, or forecasting future developments.

Research plays a crucial role in addressing a number of organisational and planning challenges in business and industry. Motives in research, operations research, motivational and market researches all considered important, and the results help in making business decisions in a number of ways. Market research is the study of a market's structure and growth with the goal of developing effective buying, manufacturing, and sales policies. The application of statistical, logical, and analytical methods to the solution of business problems including cost minimization or benefit maximisation, also known as optimisation problems, is referred to as operations research.

Motivational research focuses on consumer characteristics in order to figure out why people behave the way they do.

To put it another way, it is concerned with determining the reasons that underpin customer (market) conduct. All of this is particularly useful to people in business and industry who are in control of making business decisions. In industry, research into demand and market factors is extremely useful. It is generally not difficult for a firm or an industry to change its supply schedule within the limits of its projected capacity provided awareness of potential demand. These days, market research is an important method in business strategy. Company budgeting, which leads to a forecast profit and loss account, is mostly focused on revenue forecasts, which are based on market research. After sales forecasting is completed, productive development and investment programmes can be developed around which buying and financing strategies can be grouped. As a result, research is replacing intuitive business judgments with more rational and empirical ones.

For social scientists, research is equally critical in researching social relationships and finding solutions to various social problems. It gives the intellectual pleasure of learning a few things just for the sake of knowing, as well as having practical value for the social scientist to know in order to do something better or more effectively. In the social sciences, research is concerned with knowledge both for its own sake and for what it can contribute to practical issues. In the case of social science, this double emphasis is perhaps particularly appropriate. On the one hand, it has a scientific duty to establish a set of principles that allow for the comprehension and prediction of the full spectrum of human interactions. However, because of its social orientation, it is increasingly being looked at for practical advice in resolving urgent human relations problems.”

In addition to what has already been mentioned, the importance and value of research can also be understood by considering the following:

- (a) For students preparing to write a master's or doctoral thesis, study can represent a career path or a means of achieving a high social status;
- (b) For those who indulge in researches in research methodologies itself, research may be a source of income and livelihood.
- (c) For thinkers and theorists, research may mean the introduction of new ideas and concepts;
- (d) For literary men and women, research may mean the generalisations of new theories;
- (e) For analysts and academics, research may mean the development of new theories.

As a result, research is a shining beacon of knowledge for the sake of knowledge, as well as a valuable source of guidance for addressing various business, governmental, and social issues. It is a type of formal training that allows one to better understand new developments in one's profession.

2.2 RESEARCH PROCESS AND CRITERIA OF GOOD RESEARCH

Research Process

Before delving into the research design, a quick description of the research process seems necessary. The research method is made up of a set of measures or steps that must be taken in order to perform research successfully, as well as the order in which these steps should be taken.

The order in which the different steps are mentioned below is a helpful systematic reference for the research process:

- (1) formulation of the research question/problem;
- (2) literature survey;
- (3) develop hypothesis;
- (4) research design;
- (5) determine sample design;
- (6) data collection;
- (7) implementation of the project;
- (8) data analysis;
- (9) testing the hypothesis;
- (10) generalisations and interpretation, and
- (11) report preparation and result presentation
- (12) conclusions.

1. Formulating the research problem:

There are two kinds of research problems: those that deal with states of nature (nature of the problem) and those that deal with relationships between variables. The researcher must first classify the issue he/she wishes to examine, i.e., the general area of interest or feature of a subject matter that he/she wishes to investigate. The problem could be described in general terms at first, and then any ambiguities, if any, regarding the problem could be resolved. Before a working formulation of the problem can be set up, the viability of a specific solution must be considered. The conversion of a broad subject into a particular research issue is thus the first step in any scientific investigation. Formulating the research problem entails two steps: first, a detailed comprehension of the problem, and then, from an analytical perspective, rephrasing it into concrete terms.

2. Extensive literature survey:

A short description of the issue should be written down after it has been formulated. It is expected of a research worker writing a Ph.D. thesis to write a synopsis of the subject and apply it for approval to the Research Board. At this point, the researcher should conduct a detailed literature review on the subject. The first place to look for this information is in abstracting and indexing papers, as well as published and unpublished bibliographies. Depending on the nature of the issue, scholarly journals, conference proceedings, government reports, books, and other sources must be used. It's important to note that one source can lead to another during this process. If there are any previous studies that are close to the one at hand, they should be thoroughly examined. At this stage, a good library would be of great assistance to the researcher.

3. Development of working hypotheses:

Following a comprehensive analysis of the literature, the researcher should state the working hypothesis or hypotheses in clear terms. A working hypothesis is a hypothesis that is made with the purpose of elucidating and evaluating its conceptual or analytical implications. As a result, the manner in which research hypotheses are formulated is critical, as they serve as the research's focal point. They also have an effect on the way experiments must be performed in data analysis, as well as the quality of data needed for the analysis. The creation of working hypotheses is critical in

almost all types of study. Since it must be checked, hypotheses should be very precise and restricted to the piece of research at hand. It sharpens his thought and concentrates his attention on the most crucial aspects of the issue. It also specifies the type of data needed and the data analysis methods to be used. What's the easiest way to come up with working hypotheses? The solution is to take the following steps:

- (a) Academic interchanges with colleagues and experts to discuss the issue, its origins, and the goals of the solution search;
- (b) Examining data and documents related to the problem for potential patterns, peculiarities, and other indications, if available; (c) Review of similar studies in the area or of the studies on similar problems; and
- (c) Personal investigation to explore the practical aspects of the problem.

4. Preparing the research design:

The researcher will be expected to prepare a research design, which will state the conceptual framework under which research will be performed, after the research problem has been formulated in clear terms. The preparation of such a design allows for the most effective research possible, yielding the most details. To put it another way, the purpose of research design is to allow for the collection of relevant evidence with the least amount of effort, time, and money possible. However, how all of this can be accomplished is largely determined by the research goal.

Research processes may be classified into four categories, viz.,

- (i) Description,
- (ii) Diagnosis
- (iii) Exploration
- (iv) Experimentation.

The consideration of the following factors is normally included in the preparation of a research design that is suitable for a specific research problem:

- (v) the means of obtaining information;
- (vi) the availability and skills of the researcher;
- (vii) explanation of the way in which selected means of obtaining information will be organised and the reasoning leading to the selection;
- (viii) the time availability
- (ix) the cost factor relating to research

5. Determining sample design:

A 'universe' or 'population' is made up of all the items under consideration in any area of research. A census is a complete enumeration of all the things in the 'population.' It is reasonable to assume that when all of the objects are protected, there is no element of chance left, and the highest accuracy is obtained. In fact, however, this may not be the case. Even the tiniest factor of bias in such an investigation can grow as the number of findings grows. Furthermore, except by a resurvey or the use of sample tests, there is no way to verify the factor of bias or its degree. Furthermore, this

form of investigation takes a lot of time, resources, and effort. Not only this, census inquiry is not possible in practice under many circumstances.

For instance, blood testing is done only on sample basis. Hence, quite often we select only a few items from the universe for our study purposes. The items so selected constitute what is technically called a sample. The researcher must decide the way of selecting a sample or what is popularly known as the sample design. In other words, a sample design is a definite plan determined before any data are actually collected for obtaining a sample from a given population.

6. Collecting the data:

When dealing with any real-world problem, it is common to discover that the data available is insufficient, necessitating the collection of more suitable data. There are many methods for gathering relevant data, each of which varies significantly in terms of cost, time, and other resources available to the researcher.

Primary data may be gathered through an experiment or a survey. When a researcher performs an experiment, he takes note of certain objective measures, or data, with which he tests the truth of his hypothesis.

But in the case of a survey, data can be collected by any one or more of the following ways:

- (i) *observation*
- (ii) *personal interview*
- (iii) *telephone interviews*
- (iv) *mailing of questionnaires*
- (v) *schedules*

7. Execution of the project:

The implementation of project or research is a critical step in the research process. If the project is carried out correctly, the data that will be obtained will be sufficient and reliable. The researcher should ensure that the project is completed in a timely and systematic manner. Data can be easily machine-processed if the survey is performed using standardised questionnaires. Questions and workable solutions may be coded in such a case. If the data is to be collected by interviewers, proper selection and instruction to conduct interviewers should be made.

Training clearly describe the job of the interviewers at each stage can be used to provide the training. Field reviews should be performed on a regular basis to ensure that interviewers are conducting their duties honestly and efficiently.

In order to make the survey as accurate as possible, keep a close eye out for unanticipated causes. This, in other words, means that steps should be taken to ensure that the sample is statistically monitored and that the data obtained meets the pre-determined accuracy level. If any of the respondents refuse to cooperate, some appropriate methods for dealing with this issue should be designed. Making a list of non-respondents and taking a small sub-sample of them is one method of dealing with the non-response issue, and then making vigorous efforts to secure response with the aid of experts is another.

8. Analysis of data:

Following the collection of data, the researcher moves on to the task of analysing it. Data analysis necessitates a number of closely related operations, including the development of categories, the application of these categories to raw data through coding, tabulation, and statistical inferences. For further study, the unwieldy data must be condensed into a few manageable groups and tables. As a result, the researcher can sort the raw data into some useful categories. At this point, the categories of data are normally converted into symbols that can be tabulated and counted, which is called coding.

Editing is the process of improving the data quality until it is coded. The stage is now ready for tabulation after coding. Tabulation is a technical process that involves putting confidential data in the form of tables. At this stage, the mechanical devices can be utilised. Computers tabulate a lot of data, particularly in large investigations. Computers not only save time, but also allow simultaneous analysis of a large number of variables affecting a problem. Similarly, the study of variance technique will assist us in determining if three or more varieties of seeds grown on specific fields produce substantially different results. In summary, the researcher may use different statistical tools to analyse the data gathered.

9. Hypothesis-testing:

Following the above-mentioned data analysis, the researcher is in a position to test any theories he had previously formulated. Do the evidence support the theories or do they contradict them? This is a common question that needs to be addressed when testing hypotheses. Statistical tests such as the Chi square test, the t-test, and the F-test have been created for this purpose. Depending on the purpose and object of the research investigation, one or more of these tests can be used to evaluate the hypotheses. The hypothesis would either be accepted or rejected based on the results of the hypothesis testing. If the researcher didn't have any hypotheses to begin with, generalisations based on data can be reported as hypotheses that will be tested in future studies.

10. Generalisations and interpretation:

If a hypothesis is tested and confirmed many times, the researcher can be able to generalise it, i.e. construct a theory. In reality, the true worth of research is in its ability to arrive at such generalisations. If the researcher didn't have a hypothesis to begin with, he could try to justify his results using a theory. It's referred to as perception. The process of interpretation will often generate new questions, which can lead to additional analysis.

11. Preparation of the report or the thesis:

Finally, the researcher must write a paper summarising his results. The following points should be kept in mind when writing a report:

The layout of the report should be as follows:

- (i) the preliminary pages;
- (ii) the main text,
- (iii) the end matter.

The main text of the report should have the following parts:

- (i) Introduction
- (ii) Summary of findings

(iii) Main report

(iv) Conclusion

Appendices for all technical details should be specified at the end of the article. A bibliography, which contains a list of the books, articles, studies, and other references used, should be included at the end. In a published research study, an index should be included.

2.3 CONCEPT OF THEORY: DEDUCTIVE AND INDUCTIVE THEORY

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists.

A deductive approach is concerned with “developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the hypothesis” It has been stated that “deductive means reasoning from the particular to the general. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances”.

Deductive approach can be explained by the means of hypotheses, which can be derived from the propositions of the theory. In other words, deductive approach is concerned with deducing conclusions from premises or propositions. Deduction begins with an expected pattern “that is tested against observations, whereas induction begins with observations and seeks to find a pattern within them”.

Advantages of Deductive Approach

Deductive approach offers the following advantages:

Possibility to explain causal relationships between concepts and variables

Possibility to measure concepts quantitatively

Possibility to generalize research findings to a certain extent

Inductive approach, also known in inductive reasoning, starts with the observations and theories are proposed towards the end of the research process as a result of observations. Inductive research “involves the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses”. No theories or hypotheses would apply in inductive studies at the beginning of the research and the researcher is free in terms of altering the direction for the study after the research process had commenced.

It is important to stress that inductive approach does not imply disregarding theories when formulating research questions and objectives. This approach aims to generate meanings from the data set collected in order to identify patterns and relationships to build a theory; however, inductive approach does not prevent the researcher from using existing theory to formulate the research question to be explored. Inductive reasoning is based on learning from experience.

Patterns, resemblances and regularities in experience (premises) are observed in order to reach conclusions (or to generate theory).

Summary

To be precise, the three topics covered in this section are very significant to understand the each process and phases involved in the research. So important information on topics like research approaches, significance of research, processes involved in research and the meaning of deductive and inductive approaches or theories are often strengthen every researchers' capabilities. We realized that social research allows for social harmony by offering alternatives to social classes and castes. It determines the root of such problems and offers a solution for resolving them. The new concept contributes to societal advancement. Focusing on research increases awareness and thus gives society more strength. Innovation and creativity help in the development of new ideas that improve social behaviour. As a result, social science research studies seek to assist society and our system in addressing any problems.

In purview of relevance of research, it obviously helps in the formulation of all processes and methods. As we've seen, all government programmes and budgets are prepared and implemented with the assistance of researchers. The government sets the annual budget, monthly budget, fiscal, and economic policies. Various organisations assist the government in formulating policies through analysis. The primary goal is to acquire awareness, which leads to a plethora of new concepts and changes outdated researches findings.

When it comes to the major approaches to research, researchers will always get the benefits of deductive and inductive approaches. "Developing a hypothesis based on known theory, and then constructing a testing strategy to test the hypothesis" is what a deductive approach is all about. "Deductive reasoning" is described as reasoning from the specific to the general. The inductive method begins with observations, and theories are formulated as a result of observations at the end of the research process. Inductive research encompasses "checking for trends in observations and formulating reasons - theories - for certain patterns via a sequence of hypotheses." As a result, any researcher conducting research on any subject using systematic measures, methods, and design will always be efficient.

Keywords/Glossary

Quantitative Approach: The Quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.

Qualitative Approach: Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour.

Inferential Approach: The inferential approach to research is to form a data base from which to infer characteristics or relationships of population.

Experimental Approach: Experimental approach is characterised by much greater control over the research environment and in this case some variables are manipulated to observe their effect on other variables.

Universe/Population: All the items under consideration in any field of inquiry constitute a 'universe' or 'population'.

Census Inquiry: A complete enumeration of all the items in the 'population' is known as a census inquiry.

Hypothesis: Hypothesis is a tentative proposition

Sampling: Sampling is a process used in statistical analysis in which a predetermined number of observations are taken from a larger population.

Deductive Method: The deductive method seeks to draw valid conclusions from initial premises.

Inductive Method: Inductive Method is the process by which we draw a general conclusion from individual instances or observations.

Self-Assessment/Evaluation

1. "Creative management, whether in public administration or private industry, depends on methods of inquiry that maintain objectivity, clarity, accuracy and consistency". Discuss this statement and examine the significance of research".
2. What are the major processes involved in the act of research? Substantiate with examples.
3. How do you identify a good research with parameters?
4. "Research is much concerned with proper fact finding, analysis and evaluation." Do you agree with this statement? Give reasons in support of your answer.
5. Differentiate inductive and deductive research approaches with examples.

Review Questions

1. "One of the methods of logical reasoning process" is called

- a) Induction
- b) Deduction
- c) Research
- d) Experiment School of Distance Education Research Methodology

2. An essential Criterion of Scientific study is

- a) Belief
- b) Value
- c) Objectivity
- d) Subjectivity

3. "Reasoning from general to particular "is called

- a) Induction
- b) Deduction
- c) Observation
- d) experience

4. "Deduction and induction are a part of system of reasoning" - stated by

- a) Caroline
- b) P.V.Young
- c) Dewey John
- d) Emory

5. Theory is " a set of systematically related propositions specifying casual relationship among variables" is defined by

- a) Black James and Champion
- b) P.V. Young
- c) Emory
- d) Gibbes

6. Research method is a part of

- a) Problem
- b) Experiment
- c) Research Techniques
- d) Research methodology

7. Identifying causes of a problem and possible solution to a problem is

- a) Field Study
- b) diagnostic study
- c) Action study
- d) Pilot study

8. A question which requires a solution is

- a) Observation
- b) Problem
- c) Data
- d) Experiment

9. Converting a question into a Researchable problem is called

- a) Solution
- b) Examination
- c) Problem formulation
- d) Problem Solving

10. While Selecting a problem, problem which is is no taken

- a) Very Common
- b) Overdone
- c) Easy one
- d) rare

11. The first step in formulating a problem is

- a) Statement of the problem
- b) Gathering of Data
- c) Measurement
- d) Survey

12. will help in finding out a problem for research

- a) Professor
- b) Tutor
- c) HOD
- d) Guide

13. Second step in problem formulation is

- a) Statement of the problem
- b) Understanding the nature of the problem
- c) Survey
- d) Discussions

14. Third step in problem formulation is

- a) Statement of the problem
- b) Understanding the nature of the problem
- c) Survey the available literature
- d) Discussion

15. Fourth step in problem formulation is

- a) Develop ideas through discussion
- b) Survey
- c) Statement of problem Enactment
- d) Summary

16. Last step in problem formulation is

- a) Survey
- b) Discussion
- c) Literature survey
- d) Re Phrasing the Research problem

17. In the formulation of the problem we need to give a

- a) Title
- b) Index
- c) Bibliography
- d) Concepts

Answer

1. a 2. c 3. b 4. b 5. a 6. d 7. b 8. b 9. c 10. b
11. a 12. d 13. b 14. c 15. a 16. d 17. a

Further/Suggested Readings

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UNIT 03 -Literature Survey and Research Gap Identification

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Objectives/Expected Learning Outcomes

- To examine the meaning, significance and purpose of literature review
- To analyze the meaning and significance of identifying research gaps for further researches
- To describe the process involved in identifying and selecting a topic for research
- To discern the major ways in identifying thrust and potential areas for research
- To differentiate scientific and advocacy literature and researches in terms of its genesis and processes

Introduction

The third unit endeavors to make detailed explanations on topics including review of literature, research gaps, selection of a research problem, potential and thrust areas of research and scientific and advocacy literature. Building your research on and relating it to existing knowledge is the building block of all academic research activities, regardless of discipline. Therefore, to do so accurately should be a priority for all academics. However, this task has become increasingly complex. Knowledge production within the field of business research is accelerating at a tremendous speed while at the same time remaining fragmented and interdisciplinary. This makes it hard to keep up with state-of-the-art research and to be at the forefront, as well as to assess the collective evidence in a particular research area. This is why the literature review as a research method is more relevant than ever. A literature review can broadly be described as a more or less systematic way of collecting and synthesizing previous research. An effective and well-conducted review as a research method creates a firm foundation for advancing knowledge and facilitating theory development. By integrating findings and perspectives from many empirical findings, a literature review can address research questions with a power that no single study has.

A research gap is, simply, a topic or area for which missing or insufficient information limits the ability to reach a conclusion for a question. It should not be confused with a research question, however. For example, if we ask the research question of what the healthiest diet for humans is, we would find many studies and possible answers to this question. On the other hand, if we were to ask the research question of what are the effects of antidepressants on pregnant women, we would not find much-existing data. This is a research gap. When we identify a research gap, we identify a direction for potentially new and exciting research.

A research problem is the main organizing principle guiding the analysis of your paper. The problem under investigation offers us an occasion for writing and a focus that governs what we want to say. It represents the core subject matter of scholarly communication, and the means by which we arrive at other topics of conversations and the discovery of new knowledge and understanding.

The most important characteristic of this approach is its thrust on objectivity. To what extent is the research using scientific approach is useful in studying the problems of society? How can we acquire reliable knowledge about the various aspects of human experience? To be more specific how can the scientific approach be of value in understanding social phenomena?

Scientific literature is the principal medium for communicating the results of scientific research and, as such, represents the permanent record of the collective achievements of the scientific community over time. This scientific knowledge base is composed of the individual "end products" of scientific research and discovery and continues to grow as new research builds on earlier research

Research helps you to gain a clear understanding of the causes and effects of animal welfare issues from the perspective of identifying practical and feasible policy solutions that make it possible to build a consensus in favor for change. It is impossible to argue logically and coherently for policy change without the strong understanding of your issue that research provides. Now, let's discuss all points one by one.

Subject Matter

A literature review surveys books, scholarly articles, and any other sources relevant to a particular issue, area of research, or theory, and by so doing, provides a description, summary, and critical evaluation of these works in relation to the research problem being investigated. Literature reviews are designed to provide an overview of sources you have explored while researching a particular topic and to demonstrate to your readers how your research fits within a larger field of study.



A literature review may consist of simply a summary of key sources, but in the social sciences, a literature review usually has an organizational pattern and combines both summary and synthesis, often within specific conceptual categories. A summary is a recap of the important information of the source, but a synthesis is a re-organization, or a reshuffling, of that information in a way that informs how you are planning to investigate a research problem.



The analytical features of a literature review might:

Give a new interpretation of old material or combine new with old interpretations,

Trace the intellectual progression of the field, including major debates,

Depending on the situation, evaluate the sources and advise the reader on the most pertinent or relevant research, or

Usually in the conclusion of a literature review, identify where gaps exist in how a problem has been researched to date.

The purpose of a literature review is to:

Place each work in the context of its contribution to understanding the research problem being studied.

Describe the relationship of each work to the others under consideration.

Identify new ways to interpret prior research.

Reveal any gaps that exist in the literature.

Resolve conflicts amongst seemingly contradictory previous studies.

Identify areas of prior scholarship to prevent duplication of effort.

Point the way in fulfilling a need for additional research.

Locate your own research within the context of existing literature

It is important to think of knowledge in a given field as consisting of three layers. First, there are the primary studies that researchers conduct and publish. Second are the reviews of those studies that summarize and offer new interpretations built from and often extending beyond the primary studies.

Third, there are the perceptions, conclusions, opinion, and interpretations that are shared informally that become part of the lore of field.

In composing a literature review, it is important to note that it is often this third layer of knowledge that is cited as "true" even though it often has only a loose relationship to the primary studies and secondary literature reviews. Given this, while literature reviews are designed to provide an overview and synthesis of pertinent sources you have explored, there are a number of approaches you could adopt depending upon the type of analysis underpinning your study.

3.1 Types of Literature Reviews

Argumentative Review

This form examines literature selectively in order to support or refute an argument, deeply imbedded assumption, or philosophical problem already established in the literature. The purpose is to develop a body of literature that establishes a contrarian viewpoint. Given the value-laden nature of some social science research [e.g., educational reform; immigration control], argumentative approaches to analyzing the literature can be a legitimate and important form of discourse. However, note that they can also introduce problems of bias when they are used to make summary claims of the sort found in systematic reviews.

Integrative Review

Considered a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated. The body of literature includes all studies that address related or identical hypotheses or research problems. A well-done integrative review meets the same standards as primary research in regard to clarity, rigor, and replication. This is the most common form of review in the social sciences.

Historical Review

Few things rest in isolation from historical precedent. Historical literature reviews focus on examining research throughout a period of time, often starting with the first time an issue, concept, theory, phenomena emerged in the literature, then tracing its evolution within the scholarship of a discipline. The purpose is to place research in a historical context to show familiarity with state-of-the-art developments and to identify the likely directions for future research.

Methodological Review

A review does not always focus on what someone said [findings], but how they came about saying what they say [method of analysis]. Reviewing methods of analysis provides a framework of understanding at different levels [i.e. those of theory, substantive fields, research approaches, and data collection and analysis techniques], how researchers draw upon a wide variety of knowledge ranging from the conceptual level to practical documents for use in fieldwork in the areas of ontological and epistemological consideration, quantitative and qualitative integration, sampling, interviewing, data collection, and data analysis. This approach helps highlight ethical issues which you should be aware of and consider as you go through your own study.

Systematic Review

This form consists of an overview of existing evidence pertinent to a clearly formulated research question, which uses pre-specified and standardized methods to identify and critically appraise relevant research, and to collect, report, and analyze data from the studies that are included in the review. The goal is to deliberately document, critically evaluate, and summarize scientifically all of the research about a clearly defined research problem. Typically it focuses on a very specific empirical question, often posed in a cause-and-effect form, such as "To what extent does A contribute to B?" This type of literature review is primarily applied to examining prior research studies in clinical medicine and allied health fields, but it is increasingly being used in the social sciences.

Theoretical Review

The purpose of this form is to examine the corpus of theory that has accumulated in regard to an issue, concept, theory, phenomena. The theoretical literature review helps to establish what theories already exist, the relationships between them, to what degree the existing theories have been investigated, and to develop new hypotheses to be tested. Often this form is used to help establish a lack of appropriate theories or reveal that current theories are inadequate for explaining new or

emerging research problems. The unit of analysis can focus on a theoretical concept or a whole theory or framework.

So, once the problem is formulated, a brief summary of it should be written down. It is compulsory for a research worker writing a thesis for a Ph.D. degree to write a synopsis of the topic and submit it to the necessary Committee or the Research Board for approval. At this juncture the researcher should undertake extensive literature survey connected with the problem. For this purpose, the abstracting and indexing journals and published or unpublished bibliographies are the first place to go to. Academic journals, conference proceedings, government reports, books etc., must be tapped depending on the nature of the problem. In this process, it should be remembered that one source will lead to another. The earlier studies, if any, which are similar to the study in hand should be carefully studied. A good library will be a great help to the researcher at this stage.

3.2 Research Gap Identification

Research gap is a problem, which is not addressed properly. This may be due to lack of sufficient information to support their claim and also literature gap which are the missing or incomplete piece of data in the research literature that is not been explored or ventured so far. It can be anything to everything from a population of samples-sizes, types, etc. It may arise due to failure in understanding the working of particular instruments, new technological advances or studying a new organism that has been recently discovered.



Research gaps can be identified by citation analysis, systematic reviews and in the introduction section of research articles and finally in the discussions and future research sections in research papers or journals which researchers have already published.

Research Gap analysis:

1. Identify the broad area:

The researcher has to narrow down his area of interest e.g. if your area of interest is animal protection techniques, you can narrow it down to techniques to protect tigers. This will be the starting stone to further research. Identification of the research gap can be achieved by studying more literature on that particular subject.

2. Research gaps identifying methods

It is necessary to formulate questions that will require more research and investigation to formulate a research gap. This can be done by collecting data or resources from books, journals or databases that will help in identifying the research gaps. Reviewing data over a period of 5-10 years is the best way to narrow down the search at the same time identifying the literature gaps.

3. Viability of the research gap

After the first two steps, if the research question is not viable then modifying the research problem which is the best way to move ahead. This may be due to the confusing literature review methodology.

4. Selection of research gap

This is totally dependent on the researcher, his interests and his contribution. This may be due to availability of literature easily to the researcher, e.g. if the problem identified is indiscriminate setting up of traps to hunt tigers and the literature in databases is limited so one has to refer to books and other miscellaneous sources to gather data.

5. Expected outcome

The researcher should have some expected outcomes in mind when he sets his foot into the research problem. If the gap identified by the researcher doesn't bear any usefulness than the gap can be described as vague and unnecessary and the researcher should consider revising the entire process.

6. Research gap table

Another way you can find the research problem is by using the research gap table. The first column in the table includes the category which consists of characteristics, presentation of the research problem etc. The Second column is made up of the sub-category possessing knowledge deficiency, non-matching evidence, conflict in the resources, etc. The third column contains the definition where the causes of the research problem, reasons for the existence of the research gap are mentioned and

at the same time how to present your findings in the research table is also mentioned. The last column which is nothing but the research gaps show the no of gaps in the research.

7. Medical Research Gaps

Medicine deals with treatment, prevention of various diseases and ailments which affect humans. It is a vast field where research is specified in definite areas within medicine. Over the years medical research has been able to make vaccines and medicines which have cured some important diseases in the human race.

As time has passed by, many new diseases and ailments have entered the human world making the research gap wider with the increased scope but also resulted in the involvement of more time and resources.

Here's a list of major gaps in certain areas which would revolutionize medical research altogether:

Treatment of cancer

Vaccine for AIDS

Prevent ageing

Advance study of the human brain

Prevention/treatment of hereditary diseases

Stem cells in organ harvests

The identification of gaps from systematic reviews is essential to the practice of "evidence-based research." A comprehensive and explicit consideration of the existing evidence is necessary for the identification and development of an unanswered and answerable question, for the design of a study most likely to answer that question, and for the interpretation of the results of the study.

In a systematic review, the consideration of existing evidence often highlights important areas where deficiencies in information limit our ability to make decisions. We define a research gap as a topic or area for which missing or inadequate information limits the ability of reviewers to reach a conclusion for a given question. A research gap may be further developed, such as through stakeholder engagement in prioritization, into research needs. Research needs are those areas where the gaps in the evidence limit decision making by patients, clinicians, and policy makers.

A research gap may not be a research need if filling the gap would not be of use to stakeholders that make decisions in health care. The clear and explicit identification of research gaps is a necessary step in developing a research agenda. Evidence reports produced by Evidence-based Practice Centers (EPCs) have always included a future research section. However, in contrast to the explicit and transparent steps taken in the completion of a systematic review, there has not been a systematic process for the identification of research gaps.

In a prior methods project, our EPC set out to identify and pilot test a framework for the identification of research gaps. We searched the literature, conducted an audit of EPC evidence reports, and sought information from other organizations which conduct evidence synthesis. Despite these efforts, we identified little detail or consistency in the frameworks used to determine research gaps within systematic reviews. In general, we found no widespread use or endorsement of a specific formal process or framework for identifying research gaps using systematic reviews.

We developed a framework to systematically identify research gaps from systematic reviews. This framework facilitates the classification of where the current evidence falls short and why the evidence falls short. The framework included two elements: (1) the characterization the gaps and (2) the identification and classification of the reason(s) for the research gap.

3.3 Problem Identification

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

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

We can, thus, state the components¹ of a research problem as under:

- (i) There must be an individual or a group which has some difficulty or the problem.
- (ii) There must be some objective(s) to be attained at. If one wants nothing, one cannot have a problem.
- (iii) There must be alternative means (or the courses of action) for obtaining the objective(s) one wishes to attain.

This means that there must be *at least two means* available to a researcher for if he has no choice of means, he cannot have a problem.

(iv) There must remain some doubt in the mind of a researcher with regard to the selection of alternatives. This means that research must answer the question concerning the relative efficiency of the possible alternatives.

(v) There must be some environment(s) to which the difficulty pertains. Thus, a research problem is one which requires a researcher to find out the best solution for the given problem, i.e., to find out by which course of action the objective can be attained optimally in the context of a given environment.

There are several factors which may result in making the problem complicated. For instance, the environment may change affecting the efficiencies of the courses of action or the values of the outcomes; the number of alternative courses of action may be very large; persons not involved in making the decision may be affected by it and react to it favourably or unfavourably, and similar other factors. All such elements (or at least the important ones) may be thought of in context of a research problem.

Selecting the Problem

The research problem undertaken for study must be carefully selected. The task is a difficult one, although it may not appear to be so. Help may be taken from a research guide in this connection. Nevertheless, every researcher must find out his own salvation for research problems cannot be borrowed. A problem must spring from the researcher's mind like a plant springing from its own seed. If our eyes need glasses, it is not the optician alone who decides about the number of the lens we require. We have to see ourselves and enable him to prescribe for us the right number by cooperating with him. Thus, a research guide can at the most only help a researcher choose a subject.

However, the following points may be observed by a researcher in selecting a research problem or a subject for research:

- (i) Subject which is overdone should not be normally chosen, for it will be a difficult task to throw any new light in such a case.
- (ii) Controversial subject should not become the choice of an average researcher.
- (iii) Too narrow or too vague problems should be avoided.
- (iv) The subject selected for research should be familiar and feasible so that the related research material or sources of research are within one's reach.

Even then it is quite difficult to supply definitive ideas concerning how a researcher should obtain ideas for his research. For this purpose, a researcher should contact an expert or a professor in the University who is already engaged in research. He may as well read articles published in current literature available on the subject and may think how the techniques and ideas discussed therein might be applied to the solution of other problems. He may discuss with others what he has in mind concerning a problem. In this way he should make all possible efforts in selecting a problem.

(v) The importance of the subject, the qualifications and the training of a researcher, the costs involved, the time factor are few other criteria that must also be considered in selecting a problem. In other words, before the final selection of a problem is done, a researcher must ask himself the following questions:

- (a) Whether he is well equipped in terms of his background to carry out the research?
- (b) Whether the study falls within the budget he can afford?
- (c) Whether the necessary cooperation can be obtained from those who must participate in research as subjects?

If the answers to all these questions are in the affirmative, one may become sure so far as the practicability of the study is concerned.

(vi) The selection of a problem must be preceded by a preliminary study.

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

If the subject for research is selected properly by observing the above mentioned points, the research will not be a boring drudgery, rather it will be love's labour. In fact, zest for work is a must. The subject or the problem selected must involve the researcher and must have an upper most place in his mind so that he may undertake all pains needed for the study.

Necessity of Defining the Problem

Quite often we all hear that a problem clearly stated is a problem half solved. This statement signifies the need for defining a research problem. The problem to be investigated must be defined unambiguously for that will help to discriminate relevant data from the irrelevant ones. A proper definition of research problem will enable the researcher to be on the track whereas an ill-defined problem may create hurdles.



What data are to be collected? What characteristics of data are relevant and need to be studied? What relations are to be explored? What techniques are to be used for the purpose? And similar other questions crop up in the mind of the researcher who can well plan his strategy and find answers to all such questions only when the research problem has been well defined. Thus, defining a research problem properly is a prerequisite for any study and is a step of the highest importance. In fact, formulation of a problem is often more essential than its and can smoothly carry on all the consequential steps involved while doing research.

Technique Involved in Defining a Problem

Let us start with the question: What does one mean when he/she wants to define a research problem? The answer may be that one wants to state the problem along with the bounds within which it is to be studied. In other words, defining a problem involves the task of laying down boundaries within which a researcher shall study the problem with a pre-determined objective in view.

How to define a research problem is undoubtedly a herculean task. However, it is a task that must be tackled intelligently to avoid the perplexity encountered in a research operation. The usual approach is that the researcher should himself pose a question (or in case someone else wants the researcher to carry on research, the concerned individual, organisation or an authority should pose the question to the researcher) and set-up techniques and procedures for throwing light on the question concerned for formulating or defining the research problem. But such an approach generally does not produce definitive results because the question phrased in such a fashion is usually in broad general terms and as such may not be in a form suitable for testing.

Defining a research problem properly and clearly is a crucial part of a research study and must in no case be accomplished hurriedly. However, in practice this is a frequently overlooked which causes a lot of problems later on. Hence, the research problem should be defined in a systematic manner, giving due weightage to all relating points.

The technique for the purpose involves the undertaking of the following steps generally one after the other:

- (i) statement of the problem in a general way;
- (ii) understanding the nature of the problem;
- (iii) surveying the available literature
- (iv) developing the ideas through discussions; and
- (v) rephrasing the research problem into a working proposition.

A brief description of all these points will be helpful.

(i) Statement of the problem in a general way:

First of all the problem should be stated in a broad general way, keeping in view either some practical concern or some scientific or intellectual interest. For this purpose, the researcher must immerse himself thoroughly in the subject matter concerning which he wishes to pose a problem. In case of social research, it is considered advisable to do some field observation and as such the researcher may undertake some sort of preliminary survey or what is often called *pilot survey*. Then the researcher can himself state the problem or he can seek the guidance of the guide or the subject expert in accomplishing this task.

Often, the guide puts forth the problem in general terms, and it is then up to the researcher to narrow it down and phrase the problem in operational terms. In case there is some directive from an organisational authority, the problem then can be stated accordingly. The problem stated in a broad general way may contain various ambiguities which must be resolved by cool thinking and rethinking over the problem. At the same time the feasibility of a particular solution has to be considered and the same should be kept in view while stating the problem.

(ii) Understanding the nature of the problem:

The next step in defining the problem is to understand its origin and nature clearly. The best way of understanding the problem is to discuss it with those who first raised it in order to find out how the problem originally came about and with what objectives in view. If the researcher has stated the problem himself, he should consider once again all those points that induced him to make a general statement concerning the problem. For a better understanding of the nature of the problem involved, he can enter into discussion with those who have a good knowledge of the problem concerned or similar other problems. The researcher should also keep in view the environment within which the problem is to be studied and understood.

(iii) Surveying the available literature:

All available literature concerning the problem at hand must necessarily be surveyed and examined before a definition of the research problem is given.

This means that the researcher must be well-versed with relevant theories in the field, reports and records as also all other relevant literature. He must devote sufficient time in reviewing of research already undertaken on related problems. This is done to find out what data and other materials, if any, are available for operational purposes. "Knowing what data are available often serves to narrow the problem itself as well as the technique that might be used."

This would also help a researcher to know if there are certain gaps in the theories, or whether the existing theories applicable to the problem under study are inconsistent with each other, or whether the findings of the different studies do not follow a pattern consistent with the theoretical expectations and so on. All this will enable a researcher to take new strides in the field for furtherance of knowledge i.e., he can move up starting from the existing premise. Studies on related problems are useful for indicating the type of difficulties that may be encountered in the present study as also the possible analytical shortcomings. At times such studies may also suggest useful and even new lines of approach to the present problem.

(iv) Developing the ideas through discussions:

Discussion concerning a problem often produces useful information. Various new ideas can be developed through such an exercise. Hence, a researcher must discuss his problem with his colleagues and others who have enough experience in the same area or in working on similar problems. This is quite often known as an *experience survey*. People with rich experience are in a position to enlighten the researcher on different aspects of his proposed study and their advice and comments are usually invaluable to the researcher. They help him sharpen his focus of attention on specific aspects within the field. Discussions with such persons should not only be confined to the formulation of the specific problem at hand, but should also be concerned with the general approach to the given problem, techniques that might be used, possible solutions, etc.

(v) Rephrasing the research problem:

Finally, the researcher must sit to rephrase the research problem into a working proposition. Once the nature of the problem has been clearly understood, the environment (within which the problem has got to be studied) has been defined, discussions over the problem have taken place and the available literature has been surveyed and examined, rephrasing the problem into analytical or operational terms is not a difficult task. Through rephrasing, the researcher puts the research problem

in as specific terms as possible so that it may become operationally viable and may help in the development of working hypotheses.

In addition to what has been stated above, the following points must also be observed while defining a research problem:

- (a) Technical terms and words or phrases, with special meanings used in the statement of the problem, should be clearly defined.
- (b) Basic assumptions or postulates (if any) relating to the research problem should be clearly stated.
- (c) A straight forward statement of the value of the investigation (i.e., the criteria for the selection of the problem) should be provided.
- (d) The suitability of the time-period and the sources of data available must also be considered by the researcher in defining the problem.
- (e) The scope of the investigation or the limits within which the problem is to be studied must be mentioned explicitly in defining a research problem.

3.4 Potential and Thrust Areas

Research is a process by which one acquires dependable and useful information about a phenomenon or a process. It may be broadly defined "as a systematic inquiry towards understanding a complex social phenomenon or a process". It follows the scientific approach to gain knowledge. The most important characteristic of this approach is its thrust on objectivity. To what extent is the research using scientific approach is useful in studying the problems of society? How can we acquire reliable knowledge about the various aspects of human experience? To be more specific how can the scientific approach be of value in understanding social phenomena? In this chapter we will discuss the thrust and potential areas of research.

Potential and Thrust Areas of Research

Research gaps, thematisations, contributions, rationale, scope and significance are core areas to be considered when we conduct researches. The whole idea of finding potential and thrust areas of research is subject specific. But once the subject and problem for the study has chosen, then the focus must be on the core aspects of research process itself. Scholars and researchers have to concentrate carefully on research gaps. Identifying research gaps after rigorous literature review would help the researcher to find out the exact problem for the study. Based on exact thematisation and referring contributions of eminent researchers, scholars will be able to determine the rationale and scope of the study.

In the case of finding potential research areas, researchers will be motivated by several sources including reading, consultations, brainstorming, academic experience, daily experience, exposure to filed situations and complexity of subject matter.

A major obstacle is the inherent complexity of the subject matter. Natural scientists deal with the physical and biological phenomena. A limited number of variables that can be measured precisely are involved in the explanation of many of these phenomena, and it is possible to establish universal laws. For example, Boyles' Law on the influence of pressure on the volume of gases, which deals with relatively uncomplicated variables, formulates the relationship between phenomena that are apparently unvarying throughout the universe. On the other hand, social scientists deal with the human subjects. They are concerned with the subject's behaviour and development both, as an individual and as a member of a group.

There are so many variables acting independently and in interaction, that must be considered in any attempt to understand complex human behaviour. Each individual is unique in the way he or she develops, in the mental equipment, in social and emotional behaviour and in application of the overall personality. The behaviour of human beings in groups and the influence of the behaviour of group members on an individual must also be dealt with by social scientists. A group of youth leaders in one situation will not behave like youth leaders in another situation. There are youth leaders, their siblings, relatives, and community people, each with variables that contribute to the behavioural phenomena observed in a setting. Thus, researchers must be extremely cautious about making generalisations, since the data obtained in one group situation may not be valid for another group.

Difficulties in Observation

Observation, the sine qua non of science, is more difficult in the social sciences than in natural sciences. Observation in social sciences is more subjective because it frequently involves interpretation on the part of the observer. For example, the subject matter for investigation is often a person's responses to the behaviour of others. Motives, values and attitudes are not open to inspection. Observers must make subjective interpretations when they decide that behaviours observed indicate the presence of any particular motive, value or attitude. The problem is that social scientist's own values and attitudes may influence both the observations and the assessment of the findings on which they base their conclusions. Natural scientists study phenomena that require little subjective interpretation.

Difficulties in Replication

A chemist can objectively observe the reaction between two chemicals in a test tube. The findings can be reported and the observations can be easily replicated by others. This replication is much more difficult to achieve in social sciences. Even within a community, one cannot reproduce a given situation in its entirety and with precision. Social phenomena are singular events and cannot be repeated for purposes of observation.

Interaction between an Observer and Subjects

An additional problem is that mere observation of social phenomena may produce changes that might not have occurred otherwise. Researchers may think that X is causing Y, when, in fact, it may be their subjective observation that X causes Y. For example, in the well-known Hawthorne experiments, changes in the productivity of workers were found to be not due to the varying working conditions but to the mere fact that the workers knew they had been singled out for investigation. Investigators are human beings and their presence as observers in a situation may change the behaviour of their human subjects. The use of hidden cameras and tape recorders may help minimize the interaction in some cases, but much of research in social science includes the responses of human subjects to human observers.

Difficulties in Control

The range of possibilities of controlled experiments on human subjects is much more limited than in natural sciences. The complexities involved in research of human subjects present problems in 'control' that are unparalleled in natural sciences. In the latter, rigid control of experimental conditions is possible in the laboratory. Such control is not possible with human subjects. The social scientists must deal with many variables simultaneously and must work under conditions that are much less precise. They try to identify and control as many of these variables as possible, but the task is very difficult.

Problems of Measurement

Experimentation must provide for measurement of the factors involved. The tools for measurement in social sciences are much less perfect and precise than the tools of the natural sciences. We have nothing that can compare with the precision of the ruler, the thermometer, or the numerous laboratory instruments. We have already pointed out that an understanding of human behaviour is complicated by the large number of determining variables acting independently and in interaction. The multivariate statistical devices available for analysing data in social sciences take care of relatively few of the factors that are obviously interacting. Furthermore, these devices permit the researcher to attribute the variance only to factors operating at the time of measurement. Factors that have influenced development in the past are not measurable in the present, and yet they significantly influence the course of development.

Since research in behavioural sciences including research in education is complicated by these factors, researchers must exercise caution in making generalisations from their studies. It will often be necessary to conduct several studies in an area before attempting to formulate generalisations. If initial findings were consistently confirmed, then, one would have more confidence in making broad generalisations. Despite these handicaps, social sciences have made great progress, and their scientific status can be expected to increase as scientific investigation and methodology become more systematic and rigorous in their research activities.

3.5 Scientific Literature and Advocacy Literature

Scientific literature is the principal medium for communicating the results of scientific research and, as such, represents the permanent record of the collective achievements of the scientific community over time. This scientific knowledge base is composed of the individual "end products" of scientific research and discovery and continues to grow as new research builds on earlier research. This new research may add to, substantiate, modify, refine or refute existing knowledge on a specific topic. As a cycle new research and discovery in the laboratory or field is dependent on the existing scientific knowledge base which, in turn, becomes valuable when the new research is incorporated into the scientific knowledge base.

Scientific literature composing the scientific knowledge base is often divided into two basic categories:

Primary literature -- publications that report the results of original scientific research. These include journal papers, conference papers, monographic series, technical reports, theses, and dissertations.

Secondary literature -- publications that synthesize and condense what is known on specific topics. These include reviews, monographs, textbooks, treatises, handbooks, and manuals. These take time to produce and usually cite key primary publications on the topic.

Scientific literature comprises scholarly publications that report original empirical and theoretical work in the natural and social sciences, and within an academic field, often abbreviated as the literature. Academic publishing is the process of contributing the results of one's research into the literature, which often requires a peer-review process.

Original scientific research published for the first time in scientific journals is called the primary literature. Patents and technical reports, for minor research results and engineering and design work (including computer software), can also be considered primary literature. Secondary sources include review articles (which summarize the findings of published studies to highlight advances and new lines of research) and books (for large projects or broad arguments, including compilations of articles).

Tertiary sources might include encyclopedias and similar works intended for broad public consumption.

Scientific literature can include the following kinds of publications:

Scientific articles published in scientific journals

Patents in the relevant subject (for example, biological patents and chemical patents)

Books wholly written by one author or a few co-authors

Edited volumes, where each chapter is the responsibility of a different author or group of authors, while the editor is responsible for determining the scope of the project, keeping the work on schedule, and ensuring consistency of style and content presentations at academic conferences, especially those organized by learned societies

Government reports such as a forensic investigation conducted by a government agency such as the NTSB

Scientific publications on the World Wide Web (although e.g. scientific journals are now commonly published on the web).

Books, technical reports, pamphlets, and working papers issued by individual researchers or research organizations on their own initiative; these are sometimes organized into a series.

Literature may also be published in areas considered to be grey, as they are published outside of traditional channels. This material is customarily not indexed by major databases and can include manuals, theses and dissertations, or newsletters and bulletins.

The significance of different types of the scientific publications can vary between disciplines and change over time. According to James G. Speight and Russell Foote, peer-reviewed journals are the most prominent and prestigious form of publication. University presses are more prestigious than commercial press publication. The status of working papers and conference proceedings depends on the discipline; they are typically more important in the applied sciences. The value of publication as a preprint or scientific report on the web has in the past been low, but in some subjects, such as mathematics or high energy physics, it is now an accepted alternative.

Scientific papers and articles

Scientific papers have been categorised into ten types. Eight of these carry specific objectives, while the other two can vary depending on the style and the intended goal.

Papers that carry specific objectives are:

An original article provides new information from original research supported by evidence.

Case reports are unique events that researchers read to obtain information on the subject.

A technical note is a description of a technique or piece of equipment that has been modified from an existing one to be new and more effective.

A pictorial essay is a series of high-quality images published for teaching purposes.

A review is a detailed analysis of recent developments on a topic.

A commentary is a short summary of an author's personal experience.

Editorials are short reviews or critiques of original articles.

Letters to the editor are communications directed to the editor of an article to ask questions and provide constructive criticism.



The following two categories are variable, including for example historical articles and speeches:

Nonscientific material: This type of material comes from the result of an article being published. It does not advance an article scientifically but instead contributes to its reputation as a scientific article.

Other: Other types of papers not listed under non-scientific material or in any of the above eight categories. They can vary depending on the objective and style of the article.

Advocacy Literature

Advocacy research that is carried out with the intention of providing evidence and arguments that can be used to support a particular cause or position. Advocacy research is commonly carried out by pressure groups, lobby groups and interest groups (such as trade unions) and, occasionally, by political parties, journalists and academics.

In order to persuade policy-makers to change their policies, laws or implementation – be this through direct lobbying or other means such as provoking an official investigation or influencing public opinion – you will need information. To obtain this, you will have to do some research. That could mean anything from combing through piles of documents in the office or a library, to searching the Internet, to taking photos and talking to witnesses. This is all research.

In fact, research is any systematic investigation to discover facts or collect information. If research is to be useful to policymakers, it will need to be: **General** - Providing extensive background information, not just selective cases and anecdotes. **Accessible and Easily Understandable** - A body of good evidence, presented in a user-friendly format, and collated and analyzed. **Targeted**-Findings are presented in multiple formats, tailored to each audience, with information needs of policy makers (content and format) being taken into account.

Relevant-Appropriate to their area of work, priorities and interests. **Measurable**-Incorporating facts, figures and statistics. **Timely** - Provided at the right time, and using up-to-date information.

Practically Useful-Grounded in reality, and providing practical, feasible and cost effective solutions. **Objective**-Gathered from objective sources, without unsubstantiated value judgments or emotional arguments.

Accurate-Providing a true and fair representation of the facts.

Credible-Reliable, sourced appropriately, using accepted tools and methods. **Authoritative**-Carried out by an organization that policy makers perceive as credible and reliable.

General background information helps to place the issue in context, providing the 'bigger picture' against which the local problem can be examined – for example: by providing facts and figures, or researching the international and regional dimensions of a problem (for instance: international

animal welfare standards; regional animal welfare conventions or regulations; or a comparison with the situation in other countries).

Research also helps to personalize your issue and build empathy. You can do this by using methods such as undercover investigations showing individual animal suffering involved; case studies; quotations from witnesses; photo or video evidence etc.

Effective research should:

- Focus on a problem that directly affects the welfare of animals
- Be linked to your program work
- Look into the root causes of problems in order to identify workable solutions
- Analyze the policy environment to uncover implementation gaps
- Link local, national, regional & international aspects
- Collect evidence in a systematic way
- The key is that evidence is collected in a rigorous and systematic way.
- Type and Source of Research
- Categories of Research

There are two categories of research:

Quantitative—statistical techniques, surveys market research, experimental techniques.

It can be useful to illustrate scale of problem and/or when you want to generalize about an issue or sector (e.g. the views of consumers or voters/public)

Qualitative-views, opinions, and beliefs

Useful for softer aspects, difficult to quantify (e.g. using focus groups)

Data and Its Sources

The difference between data and information is that data is raw, unprocessed whilst information is in an accessible, meaningful form.

Some useful sources are:

- Internet (range of information ever-increasing)
- Libraries
- Directories
- National and local agencies
- Databases
- Government information and statistics and other 'public records' (Freedom of information legislation is a great help here)
- Legislation and precedents (e.g. court cases)
- Trade associations/trade journals/trade e-mail lists/conferences
- Other NGOs, including animal welfare societies
- Exhibitions and conferences
- News media
- Opinion Polls
- A national library (or large public library) is probably the widest ranging source of published information.

Referencing

Always make sure to reference your research, so readers can check your sources. In general, what you are trying to achieve is that any reader can clearly see the source of your research (and look this up themselves, if they wish to). There are various formats for referencing your research. One of the most widely used systems of referencing is the APA system (created by the American Psychological Association system, but now used internationally).



Why is Advocacy Research Important?

Research helps you to gain a clear understanding of the causes and effects of animal welfare issues from the perspective of identifying practical and feasible policy solutions that make it possible to build a consensus in favor for change. It is impossible to argue logically and coherently for policy change without the strong understanding of your issue that research provides. In some cases, the only solution to prevent severe animal suffering may be a ban on the practice (e.g. abolition of gin traps). In this case, the evidence of the animal suffering must be strong and graphic in order to convince influential stakeholders.

Research is the foundation for successful advocacy. It is important for both:

An effective advocacy strategy - by enabling thorough strategic analysis; and Successful advocacy work - by providing authoritative and accurate evidence to support advocacy.

Advocacy research can:

- Give your advocacy substance
- Establish your reputation as an expert on the issue
- Provide feasible and workable solutions to your issue
- Provide you with case studies, anecdotes and examples to make your issue come alive
- Provide cost-benefit arguments, including the (often hidden) cost of alternatives and inaction
- Demonstrate public support or public concern
- Help you to analyze your issue from different perspectives
- Help to disprove myths, rumors and false assumptions
- Analyze and provide counter arguments to positions held by stakeholders who may not be sympathetic to your cause
- Provide evidence for your positions
- Explain why previous strategies have or have not worked
- Provide the basis for media and public awareness work

Summary

In conclusion, it is important to note that it is often third layer of knowledge that is cited as true even though it often has only a loose relationship to the primary studies and secondary literature reviews. Given this, while literature reviews are designed to provide an overview and synthesis of pertinent sources you have explored, there are a number of approaches you could adopt depending upon the type of analysis underpinning your study. In addition, research gaps can be identified by citation analysis, systematic reviews and in the introduction section of research articles and finally in the discussions and future research sections in research papers or journals which researchers have already published.

The research problem undertaken for study must be carefully selected. The task is a difficult one, although it may not appear to be so. Help may be taken from a research guide in this connection. Nevertheless, every researcher must find out his own salvation for research problems cannot be borrowed. A problem must spring from the researcher's mind like a plant springing from its own seed. If our eyes need glasses, it is not the optician alone who decides about the number of the lens we require. We have to see ourselves and enable him to prescribe for us the right number by cooperating with him. Thus, a research guide can at the most only help a researcher choose a subject.

Research gaps, thematisations, contributions, rationale, scope and significance are core areas to be considered when we conduct researches. The whole idea of finding potential and thrust areas of research is subject specific. But once the subject and problem for the study has chosen, then the focus must be on the core aspects of research process itself. Scholars and researchers have to concentrate carefully on research gaps. Identifying research gaps after rigorous literature review would help the researcher to find out the exact problem for the study. Based on exact thematisation and referring contributions of eminent researchers, scholars will be able to determine the rationale and scope of the study. In the case of finding potential research areas, researchers will be motivated by several sources

including reading, consultations, brainstorming, academic experience, daily experience, exposure to filed situations and complexity of subject matter.

Scientific literature comprises scholarly publications that report original empirical and theoretical work in the natural and social sciences, and within an academic field, often abbreviated as the literature. Academic publishing is the process of contributing the results of one's research into the literature, which often requires a peer-review process.

Original scientific research published for the first time in scientific journals is called the primary literature. Patents and technical reports, for minor research results and engineering and design work (including computer software), can also be considered primary literature. Secondary sources include review articles (which summarize the findings of published studies to highlight advances and new lines of research) and books (for large projects or broad arguments, including compilations of articles).

Research helps you to gain a clear understanding of the causes and effects of animal welfare issues from the perspective of identifying practical and feasible policy solutions that make it possible to build a consensus in favor for change. It is impossible to argue logically and coherently for policy change without the strong understanding of your issue that research provides. In some cases, the only solution to prevent severe animal suffering may be a ban on the practice (e.g. abolition of gin traps). In this case, the evidence of the animal suffering must be strong and graphic in order to convince influential stakeholders.

Keywords/Glossary

Argumentative Review: This form examines literature selectively in order to support or refute an argument, deeply imbedded assumption, or philosophical problem already established in the literature.

Integrative Review: Considered a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated.

Historical Review: Historical literature reviews focus on examining research throughout a period of time, often starting with the first time an issue, concept, theory, phenomena emerged in the literature, then tracing its evolution within the scholarship of a discipline.

Methodological Review: Reviewing methods of analysis provides a framework of understanding at different levels, how researchers draw upon a wide variety of knowledge ranging from the conceptual level to practical documents for use in fieldwork in the areas of ontological and epistemological consideration, quantitative and qualitative integration, sampling, interviewing, data collection, and data analysis.

Systematic Review: This form consists of an overview of existing evidence pertinent to a clearly formulated research question, which uses pre-specified and standardized methods to identify and critically appraise relevant research, and to collect, report, and analyze data from the studies that are included in the review.

Theoretical Review: The purpose of this form is to examine the corpus of theory that has accumulated in regard to an issue, concept, theory, phenomena.

Experience Survey: A researcher must discuss his problem with his colleagues and others who have enough experience in the same area or in working on similar problems. This is quite often known as an experience survey.

Scientific literature: Scientific literature is the principal medium for communicating the results of scientific research and, as such, represents the permanent record of the collective achievements of the scientific community over time.

Self-Assessment/Evaluation

Elucidate the significance of review of literature in research.

Detail the processes involved in the act of research gap identification.

How do you identify the problem/topic for a genuine research? Elucidate with example.

What are the major potential and thrust elements a research needs to consider while conducting a research?

Distinguish scientific literature and advocacy literature with examples.

Review Questions

1. Review of the literature can be done through.....
 - a) Thematization
 - b) General reading
 - c) News Paper reading
 - d) Imagination

2. Theoretical review is associated with
 - a) Books
 - b) Articles
 - c) News papers
 - d) Concpets

3. While Selecting a problem, problem which is is no taken
 - a) Very Common
 - b) Overdone
 - c) Easy one
 - d) Rare

4. The first step in formulating a problem is
 - a) Statement of the problem
 - b) Gathering of Data
 - c) Measurement
 - d) Survey

5. will help in finding out a problem for research
 - a) Professor
 - b) Tutor
 - c) HOD
 - d) Guide

6. Second step in problem formulation is
 - a) Statement of the problem
 - b) Understanding the nature of the problem
 - c) Survey
 - d) Discussions

7. Third step in problem formulation is

- a) Statement of the problem
- b) Understanding the nature of the problem
- c) Survey the available literature
- d) Discussion

8. Fourth step in problem formulation is

- a) Develop ideas through discussion
- b) Survey
- c) Statement of problem Enactment

9. Last step in problem formulation is

- a) Survey
- b) Discussion
- c) Literature survey
- d) Re Phrasing the Research problem

10. In the formulation of the problem we need to give a

- a) Title
- b) Index
- c) Bibliography
- d) Concepts

11. Objectives in problem formulation means

- a) Questions to be answered
- b) Methods
- c) Techniques
- d) Methodology

12. The formulated problem should have

- a) Originality
- b) Values
- c) Coherence
- d) Facts

13. Good scientific writing can be described as

- a) Clear, concise, and compelling.
- b) Clear, concise, and flowery
- c) Concise, dense, and compelling
- d) Clear, concise, and convoluted

14. Advocacy research is commonly carried out by

- a) Pressure groups
- b) Politicians
- c) Public
- d) Individuals

Answers

Q. No.	Ans	Q. No.	Ans	Q. No.	Ans	Q. No.	Ans
1	A	5	D	9	D	13	A
2	D	6	B	10	A	14	A
3	B	7	C	11	A		
4	A	8	A	12	A		

Further/Suggested Readings



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Unit 04: Hypothesis

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Introduction

- 4.1 Subject Matter (Hypothesis)
- 4.2 Meaning And Characteristics Of Hypothesis
- 4.3 Sources Of Hypothesis
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Objectives

- To understand the meaning of hypothesis
- To point out the relevance of hypothesis in research
- To examine the major types of hypothesis
- To examine the relevance of data bases in research
- To understand the usages of search engines in research
- To evaluate the role of systematic way of searches for literature in research

Introduction

This unit consists two significant topics: Hypothesis and Use of Databases. Once the selection and definition of the research problem have been accomplished, the derivation of the hypothesis is the next most important step in the research process. From the research scholar's point of view, the hypothesis may be conveniently considered as a tentative or working assumption, and the theory as surviving or final hypothesis, which is most defensibly supported by all evidences. Hypothesis is generally derived after the selection and definition of the problem. But since the knowledge arrived through scientific method is objective in the light of new data, a theory is in only one sense a working assumption, so that the conventional distinction between hypothesis and theory, on the basis of increasing adequacy of evidence and hence greater certainty, is a only relative. The second topic deals with use of databases. A database is a collection of related information stored in a computer so that it is available to many users for different purposes. The content of a database is obtained by combining data from different sources in an organisation, so that the relevant data are available to all users and redundant data can be eliminated or at least minimized.

A database holds recorded data. The content may be textual, graphics, images, etc. Therefore, it is an essential component of all information storage and retrieval systems (IRS), and for the generation of information products and services therefrom. In setting up an IRS, the first task is to design the database. Hence, the importance of learning and practicing the design and development

of databases of various types, - their content, organisation and indexing is required for fast and precise retrieval of information. So, this unit describes the nature, importance and formulation of hypothesis. It also deals with various ways of stating a hypothesis and explains how it can be tested. Various sources of hypothesis along with the characteristics and significance of hypothesis have also been explained. And it also discusses about the uses of databases in research.

4.1 Subject Matter (Hypothesis)

Scientific process or all empirical sciences are recognized by two inter-related concepts, namely; (a) context of discovery (getting an idea) and (b) context of justification (testing and results). Hypotheses are the mechanism and container of knowledge moving from the unknown to known. These elements form techniques and testing ground for scientific discovery. Hypotheses are tentative explanation and potential answer to a problem. Hypothesis gives the direction and helps the researcher interpret data.



In this session, you will be familiarised with the term hypothesis and its characteristics. It is, then, followed by the hypothesis formulation and types of hypothesis. Errors in hypothesis testing are also highlighted. Further, In order to test the hypothesis, researcher rarely collects data on entire population owing to high cost and dynamic nature of the individual in population. Therefore, they collect data from a subset of individual - a sample - and make the inferences about entire population. This leads us to what we should know about the population and sample. So, researcher plans sample design and uses various method of sampling. This unit will acquaint you with the meaning of sampling and basic terminology which is used in sampling design. Now, it will move to purpose of sampling. And finally, various probability and non-probability sampling methods along with advantages and disadvantages are described.

4.2 Meaning And Characteristics Of Hypothesis

In conducting research, the important consideration after the formulation of a research problem is the construction of hypothesis. As you know, any scientific inquiry starts with the statement of a solvable problem, when the problem has been stated, a tentative solution in the form of testable proposition is offered by the researcher. Hypothesis is often considered a tentative and testable statement of the possible relationship between two or more events / variables under investigation. According to Mcguigan (1990), 'a testable statement of a potential relationship between two or more variables, i.e. advance as potential solution to the problem'.



Kerlinger (1973) defined 'a hypothesis is a conjectural statement of the relation between two or more variables'. In order to be useful in any study, the hypothesis needs to be stated in such a way that it might be subjected to empirical testing. The researcher is responsible to suggest or find some way to check how the hypothesis stands against empirical data. When a hypothesis is formulated, the investigator must determine usefulness of the formulated hypothesis. There are several criteria or characteristics of a good research hypothesis.



A good hypothesis is one which meets such criteria to a large extent. Some of these characteristics are enumerated below: 1) Hypothesis should be conceptually clear; 2) Hypothesis must be testable; 3) Hypothesis should be related to the existing body or theory and impact; 4) Hypothesis should have logical unity and comprehensiveness; 5) Hypothesis should be capable of verification; and 6) Hypothesis should be operationizable.

4.3 Sources Of Hypothesis

The formulation of a good hypothesis is a difficult task. The value of research is determined by the results/conclusions arrived at after testing the hypothesis. It requires a researcher to be speculative, imaginative having good knowledge, deep insight and an analytical mind. The sources that are available with a researcher for deriving a tenable hypothesis are as follows:



Experience and Creativity of the Researcher

Both creativity and experience are capable of deriving adequate hypothesis. While working in an environment, a researcher comes across many problems, some of which are serious enough and requires hard work to solve them.



For example, a researcher who is working on the 'Classroom Correlates of Effective Teaching' can think of a host of factors such as teacher's mastery over the subject, effective use of teaching skills, decision-making, capability, perception of his competence, perception of student's capacity for better interaction, use of communication skills etc. A critical analysis of these factors may facilitate the task of studying the relationship among the variables. Personal experiences of the researcher as a result of his personal readings of biographies, autobiographies, newspapers, research activities, relevant literature, informal talks with friends, socio-political speeches, etc. can be the potential sources in the generation of a hypothesis.



Background Knowledge

It is necessary for a researcher to be thoroughly familiar with established facts, existing theories and previous researches relating to the problem. The related literature is an important source of hypothesis formulation. It sharpens the perspective of a researcher as to how to hypothesize the relationship among the variables, which aspects of relationship have been already studied and which still remain to be tested. A rich background of knowledge enables the researcher to locate the key association among the variables and to find out the missing data needed to explain a phenomenon.



The researcher should have intensive knowledge in the area in which he is carrying out an investigation and should be insightful so that she/he may deduce a hypothesis inductively after making observation of behaviour noticing trends or probable relationships. Hypothesis is the product of considerable speculation and imaginative guess work. It is based partly on known facts and explanations. In formulating hypothesis, rich experiences and profound academic background of a researcher are helpful. Significant researches have not taken place accidentally but are the result of hard work. A researcher must have a rich background knowledge which may enable him/her to perceive relationships among the variables.



Versatility of Intellect

A researcher must possess a versatile intellect to understand a theory, to deduce a hypothesis from theories, to be able to spot very quickly the contributing variables in a study, to creatively imagine the output or solution to the problem and to have an adventurous and heuristic attitude, all of which depend upon the expenditure of considerable time and effort along with the persistence of the researcher. It will induce originality in the process of research. Thus, an alert mind is capable of deriving a meaningful hypothesis and rejecting a faulty hypothesis. With his versatile intellect, the researcher may restructure his experiences and deduce the hypothesis from a theory using logic.



Analogies

Hypothesis: Nature of Formulation Analogies are a strong source for the formulation of hypothesis and finding out solutions to the problem. Reasoning by analogy is based on similarities and differences between two situations in which a similar or the same

phenomenon or event takes place.



For example, in a research problem like the 'Studying the Causes of Bum out Tendencies among College Students', the researcher insightfully thinks, "Why were bum out tendencies not found among college students 20-30 years back as they are today?, What has changed them: quality of teaching or quality of leadership? Arguing analogically in this way may lead the investigator to some conclusions which may be used for identifying variables and relationships, which form the basis of hypothesis construction. If a researcher knows from previous experience that the old situation is related to other factors Y and Z as well as to X, he may reason out that the new situation may also be related to Y and Z.



Scientific Theories

A systematic review and analysis of theories developed in field of psychology, sociology, political science and even in biological sciences may help the researcher to provide a suggestive base to formulate a hypothesis. For example, a researcher working on 'Modification of Teacher Behaviour' may be benefited by the Skinnerian theory of behaviour shaping.



Authentic Knowledge

Since the hypothesis offers a solution to the problem, it must be formulated in consonance with authentic knowledge and irrefutable analysis available. If the hypothesized relationship among the variables involved is substantiated, then the researcher proceeds in a meaningful and scientific manner. The analysis and interpretations provide a sound base to deduce the hypothesis. For example, if researcher is working on motivation, then Maslow's Hierarchy of Needs will provide an authentic source for hypothesis formulation.

4.4 FORMULATION OF HYPOTHESIS

Science proceeds with observation, hypothesis formulation and hypothesis testing. After testing the hypothesis, through various statistical tests, researcher can accept or reject the hypothesis. If the hypothesis is accepted then researcher can replicate the results, if hypothesis is rejected then researcher can refined or modify the results. By stating a specific hypothesis, the researcher narrows the focus of the data collection effort and is able to design a data collection procedure which is aimed at testing the plausibility of the hypothesis as a possible statement of the relationship between the terms of the research problem. It is, therefore, always useful to have a clear idea and vision about the hypothesis. It is essential for the research question as the researcher intends to verify, as it will direct and greatly help to interpretation of the results.



GOOD HYPOTHESIS: POSSIBLE DIFFICULTIES IN FORMULATION

There are three major possible difficulties; a researcher could face during formulation of hypothesis. First, the absence of knowledge of a theoretical framework is a major difficulty in formulating a good research hypothesis. Second, if detailed theoretical evidences are not available or if the investigator is not aware of the availability of those theoretical evidences, a research hypothesis cannot be formulated. Third, when the investigator is not aware of the scientific research techniques, she/he will not be able to frame a good research hypothesis. Despite these difficulties, the investigator attempts in her/his research to formulate a hypothesis.

Usually the hypothesis is derived from the problem statement. The hypothesis should be formulated in a positive and substantive form before data are collected. In some cases additional hypothesis may be formulated after collection of data, but they should be tested on a new set of data and not on the old set which has suggested it. The formulation of a hypothesis is a creative task and involves a lot of thinking, imagination and innovation. Reichenbach (1938) has made a distinction between the two processes found commonly in any hypothesis formulation task. One is the context of discovery and another is the context of justification.



The manner or the process through which a scientist arrives at a hypothesis illustrates the context of justification. A scientist is concerned more with a context of justification in the development of a hypothesis. He never puts his ideas or thoughts as they nakedly occur in the formulation of a hypothesis. Rather, he logically reconstructs his ideas or thoughts and draws some justifiable inferences from those ideas and thoughts. He never cares to relate how he actually arrived at a hypothesis. He does not say, for example, that while he was shaving, this particular hypothesis occurred to him. He usually arrives at a hypothesis by the rational reconstruction of thoughts.



When a scientist reconstructs his thoughts and communicates them in the form of a hypothesis to others, he uses the context of justification. When he arrives at a hypothesis, he extensively as well as intensively surveys a mass of data, abstracts them, tries to find out similarities among the abstracted data and finally makes a generalisation or deduces a proposition in the form of a hypothesis.



Here is an important distinction to be made between formulating a hypotheses and choosing one. Although a researcher often becomes interested in a question about human behaviour for personal reasons, the ultimate value of research study depends on the researcher bringing methodological criteria to bear on the selection of the hypothesis to be tested. In other words, Good hypothesis are made, not born. Hypothesis plays a key role in formulating and guiding any study. The hypotheses are generally derived from earlier research findings, existing theories and personal observations and experience.

For instance, you are interested in knowing the effect of reward on learning. You have analysed the past research and found that two variables are positively related. You need to convert this idea in terms of a testable statement. At this point you may develop the following hypothesis. Those who are rewarded shall require lesser number of trails to learn the lesson than those who are not rewarded.



A researcher should consider certain points while formulating a hypothesis:

- i) Expected relationship or differences between the variables.
- ii) Operational definition of variable.
- iii) Hypotheses are formulated following the review of literature The literature leads a researcher to expect a certain relationship.

Hypotheses are the statement that is assumed to be true for the purpose of testing its validity. As suggested by Russell and Reichenback (1947), the hypotheses should be stated in the logical form on the general implications. A hypothesis can be put in the form of an ifthen statement; if A is true then B should follow



For example, verbal development theory of amnesia states that childhood amnesia caused by the development of language. To test this theory, researcher can make a hypothesis like this - if the lack of verbal ability is responsible for childhood amnesia, then the children should not be able to verbally recall events usually words that they did not know at the time of events.

4.5 Types Of Hypotheses

As explained earlier, any assumption that you seek to validate through investigation is called hypotheses. Hence theoretically, there should be one type of hypotheses on the basis of the investigation that is, research hypothesis. However, because of the conventions in scientific enquiries and wording used in the constructions of the hypothesis, Hypotheses can be classified into several types, like; universal hypotheses, existential hypotheses, conceptual hypotheses etc.

Broadly, there are two categories of the hypothesis:

- **Null hypothesis**
- **Alternative hypothesis**

Null Hypothesis

Null hypothesis is symbolised as H_0 . Null hypothesis is useful tool in testing the significance of difference. In its simplest form, this hypothesis asserts that there is no true difference between two population means, and the difference found between sample means is, accidental and unimportant, that is arising out of fluctuation of sampling and by chance. Traditionally null hypothesis stated that there is zero relationship between terms of the hypothesis.



For example, (a) schizophrenics and normal do not differ with respect to digit span memory (b) There is no relationship between intelligence and height. The null hypothesis is an important component of the decision making methods of inferential statistics. If the difference between the samples of means is found significant the researcher can reject the null hypothesis. It indicates that the differences have statistically significant and acceptance of null hypothesis indicates that the differences are due to chance. Null hypothesis should always be specific hypothesis i.e. it should not state about or approximately a certain value.

Thus, the null hypothesis is that mean of the population of those children who have the high vocabulary is less than or equal to mean of those who lack the vocabulary.

Alternative Hypothesis

Alternative hypothesis is symbolised as H_1 or H_a , is the hypothesis that specifies those values that are researcher believes to hold true, and the researcher hopes that sample data will lead to acceptance of this hypothesis as true. Alternative hypothesis represents all other possibilities and it indicates the nature of relationship.

The alternative hypothesis is that the mean of population of those who have the vocabulary is greater than the mean of those to lack the vocabulary. In this example the alternative hypothesis is that the experimental population had higher mean than the controls. This is called directional hypothesis because researcher predicted that the high vocabulary children would differ in one particular direction from the low vocabulary children. Sometimes researcher predicts only that the two groups will differ from each other but the researcher doesn't know which group will be higher. This is non directional hypothesis.

4.6 Errors in Testing a Hypothesis

It is possible to arrive at a incorrect conclusion about a hypothesis for the various reasons if –

- Sampling procedure adopted faulty
- Data collection method inaccurate
- Study design selected is faulty
- Inappropriate statistical methods used
- Conclusions drawn are incorrect

Two common errors exist when testing a hypothesis. Type I error – Rejection of a null hypothesis when it is true. Type II error - Acceptance of a null hypothesis when it is false.

Hypothesis is the basic function of the scientific research. If simple, brief and clear scientific hypothesis has been formulated, there shall be no problem for the investigator to proceed in the research field. Its utility or importance for and research may be studied as under. Accordingly to Goode and Hatt ('without' hypothesis formulation the research is unfocussed, a random empirical wandering. The results cannot be studied as facts with clear meaning. Formulation of hypothesis links between theory and investigation which lead to discovery of addition to knowledge.

4.7 Subject Matter(Use of Databases)

A database is a collection of related information stored in a computer so that it is available to many users for different purposes. The content of a database is obtained by combining data from different sources in an organisation, so that the relevant data are available to all users and redundant data can be eliminated or at least minimized.

A database holds recorded data. The content may be textual, graphics, images, etc. Therefore, it is an essential component of all information storage and retrieval systems (IRS), and for the generation of information products and services therefrom. In setting up an IRS, the first task is to design the database. Hence, the importance of learning and practicing the design and development of databases of various types, – their content, organisation and indexing is required for fast and precise retrieval of information.



Databases may be created and stored in the hard disk of a personal computer (PC), or if it is small (few records), on a floppy disk, or ported on to a high density disk (e.g. 40 MB, 120 MB, etc.) or onto CD-ROM, or on magnetic tape, or on a mainframe computer (server) which may be located far away. The latter may be accessible via a local area network (LAN), wide area network (WAN), the Internet, etc. A database can be used simultaneously by more than one user from different locations. Thus, the design of the database and the software used should be such that it can be accessed and / or manipulated by two or more users simultaneously, for example in a networked environment.

A wide variety of databases can be identified. These databases are usually defined in terms of the information they contain or in terms of the attributes of the systems used to manage and manipulate the information from these databases. Databases can be categorised by different attributes for example, by subject, by geographical area covered, by producer, by accessibility, by type of content/information provided etc. On the basis of content the databases may be categorised as Source database, Reference database and Multimedia database.

4.8 Source Databases

A Source database contains original source data, or full text of original source material. Such databases are also called Factual databases. Source databases may be one of the following types:

- Textual database
- Numeric database
- Textual-numeric database
- Full-text database
- Software database

Textual Database

A Textual database consists solely of records containing textual matter. Example: The database of Memorabilia of Dr. S.R. Ranganathan, Compendex database (covering all scientific and engineering fields including geography), the GeoRef database, and Petroleum Abstracts.

Numeric database

Numeric databases provide mostly numeric data such as statistics, financial data, mathematical data, census information, economic indicators, etc.

Textual-Numeric database

A Textual-Numeric database consists of records which may contain numeric data and some textual data. Examples are databases of company reports, handbook type data, dictionaries, phone book databases etc.

Full-Text Database

Full-text databases contain the complete text of publications. Most full-text databases are also bibliographic databases. They provide details about the source of an article as well as an abstract and full text. Examples are databases of full texts of articles in periodicals, patents, technical specifications, etc. e.g EBSCO host provides the full text of articles from newspapers, magazines, and other publications.

Software database

A software database contains computer programmes. A database of the Pascal programmes to be used with CDS-ISIS is an example.



SEARCH ENGINE

A search engine is a web-based tool that enables users to locate information on the World Wide Web. Popular examples of search engines are Google, Yahoo!, and MSN Search. Search engines utilize automated software applications (referred to as robots, bots, or spiders) that travel along the Web, following links from page to page, site to site. The information gathered by the spiders is used to create a searchable index of the Web.

Every search engine uses different complex mathematical formulas to generate search results. The results for a specific query are then displayed on the SERP (Search Engine Result Pages). Search engine algorithms take the key elements of a web page, including the page title, content and keyword density, and come up with a ranking for where to place the results on the pages. Each search engine's algorithm is unique, so a top ranking on Yahoo does not guarantee a prominent ranking on Google, and vice versa. To make things more complicated, the algorithms used by search engines are not only closely guarded secrets, they are also constantly undergoing modification and revision. This means that the criteria to best optimize a site with must be surmised through observation, as well as trial and error – and not just once, but continuously.



Search engines only “see” the text on web pages, and use the underlying HTML structure to determine relevance. Large photos, or dynamic Flash animation mean nothing to search engines, but the actual text on your pages does. It is difficult to build a Flash site that is as friendly to search engines; as a result, Flash sites will tend not to rank as high as sites developed with well coded HTML and CSS (Cascading Style Sheets – a complex mechanism for adding styles to website pages above and beyond regular HTML). If the terms you want to be found by do not appear in the text of your website, it will be very difficult for your website to yield high placement in the SERPs.

Search engines allow researchers to enter search terms; the engine then lists Web pages on which information about the terms might be found. Search engines work by regularly sending out “spiders” – programs that search for newly appearing Web pages – and then cataloging the contents of these pages.



RESEARCH GATEWAY

Research Gateway is one of the largest academic/Corporate service providing company in the world, with the most popular services being Data research & Analysis, Syndicate Reporting, Dissertation and PhD Thesis Writing Services. Research Gateway has successfully completed more dissertations (under dissertation writing services and dissertation help) than all other organised and unorganised companies. The company's expertise and wealth of experience comes handy in ensuring that the clients get the best research support in one go.

Research Gateway is best company in India for their Dissertation and publications, with the other services like Syndicate Reporting , Dissertation editing , PhD Thesis Services, Content validating Research, B.tech Project. Research Gateway has successfully completed more number of dissertations and thesis than all other organised and unorganised companies. Its Specialization and Wealth of experience comes handy in ensuring that the clients get the best research support in one go.

It helps in PhD/MSc/MBA/B.ed/B.tech/M.tech dissertations or Thesis. It has been in this industry for over 12 years now and have helped thousands of students and many corporate/NGO in completing their Research with outstanding results. It has worked for dissertation of over 510 Universities including all popular colleges and institutes. It offers special rendering and dissertation/thesis writing service for clients.



It aims to be the most reputed name for provision of research assistance to Corporates, Government Bodies, NGO and scholars across the world. Even as you read this, Research Gateway writers have created million words of innovative content for research documents. Research Gateway uses the best of plan, measurable and subjective research programming. This is reflected in the nature of our work. Devices like Big Data , Tera Data , Minitab , SPSS, Stata, SAS, R, Nvivo, are utilized for our tasks. Our authors have top to bottom information of these devices. It uses the best strategies to compose and dissect exposition work, yet additionally influence the specialist to comprehend the justification behind utilizing those techniques and disclose to them the complexities, so it is simpler for you to additionally utilize these advancements.

4.9 Gantt Chart

A Gantt chart, commonly used in project management, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time. On the left of the chart is a list of the activities and along the top is a suitable time scale. Each activity is represented by a bar; the position and length of the bar reflects the start date, duration and end date of the activity.



This allows you to see at a glance:

What the various activities are

When each activity begins and ends

How long each activity is scheduled to last

Where activities overlap with other activities, and by how much

The start and end date of the whole project

To summarize, a Gantt chart shows you what has to be done (the activities) and when (the schedule).



Timeframe in Research

A framework for your research will guide throughout your research process, and the framing document you develop can also serve as a concept note to advisors and partners, and a funding proposal to potential donors. Choosing a specific timeframe for your research can result in more precise findings than working with an open-ended timeframe. Also, deciding whether you will repeat this research at regular intervals will allow you to set up data collection benchmarks for easy replication and comparison over time.

Frame your research process with key questions that only your research can answer and limit those questions to a specific time frame (e.g. past five years, past year, etc.).



Consider the following points:

What exactly do you want to learn more about and what is the hypothesis you would like to test? Writing this out will assist you in your thought process.

Is there existing research on this? If research already exists, it may not make sense to conduct new WITM research unless you feel like the existing research is not extensive or specific enough.

What time frame do you want to cover in your analysis? For example, will your research analyze only the past year, or several previous years, such as the past five years?

Are you planning to repeat your survey to collect data in the future?

Summary

In conclusion, it is asserted that the hypothesis is tentative solution or an intelligent guess about a research problem under study. It is not simply an educated guess, rather it is based on past research where the researcher gathers the evidence to advance a hypothesized relationship between variables. Thus, it is a conjecture statement about the solution of a problem, which the researcher

goes on to verify on the basis of relevant information. Various sources, namely, experience, creativity, background knowledge, scientific theories etc. are important sources, which are important sources which are helpful in the formulation of a hypothesis.

After the hypothesis is formulated, it is subjected to testing. Some hypotheses are simple and can be tested directly. In most situations, however, they are complex and cannot be so tested. They are tested in terms of their deduced consequences. A good hypothesis is one which is testable, and states the expected relationship between variables. It is clearly and precisely stated. A good hypothesis should state the expected relationship between the variables. It is limited in scope and should be consistent with the most known facts. A hypothesis has great significance in the research process.

It (i) directs, monitors and controls the research effort, (ii) helps in drawing generalizations to build theories, (iii) suggests the method of problem solving, (iv) helps in studying cause-effect relationship between the variables, (v) facilitates extension of knowledge in an area, and (vi) provides a basis for reporting the conclusions of the study.

When it comes to databases and search engines in research, there are several points already discussed. Academic search has changed immensely with the advancement of new technologies such as the Internet. Information has become widely available through free and online databases. This has created a dramatic increase of the use of online resources and declining use of physical libraries. Changes in the research process and advances in web search have created a trend where students and faculty have come to expect immediacy when looking for information related to their studies. They want to have the ability to instantaneously see results and bring up the content item. Online search tools are also very attractive to scholars because of their ease of use. However, their use is not so suitable for users with ill-defined information needs, as is often the case with people in academia. Researchers' main goals are primarily to gain a deeper understanding of the topic of interest, as well as to form hypotheses that require further studies. In this type of search process, exploration and learning are major factors. All these points have well explained in the second session of this unit.

Keywords

Hypothesis: A tentative proposition; a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Null Hypothesis: A null hypothesis is a type of hypothesis used in statistics that proposes that there is no difference between certain characteristics of a population (or data-generating process). For example, a gambler may be interested in whether a game of chance is fair.

Alternative Hypothesis: The alternative hypothesis is a position that states something is happening, a new theory is preferred instead of an old one. It is usually consistent with the research hypothesis because it is constructed from literature review, previous studies, etc.

Textual Database: A Textual database consists solely of records containing textual matter.

Numeric database: Numeric databases provide mostly numeric data such as statistics, financial data, mathematical data, census information, economic indicators, etc.

Textual-Numeric database: A Textual-Numeric database consists of records which may contain numeric data and some textual data.

Full-Text Database: Full-text databases contain the complete text of publications. Most full-text databases are also bibliographic databases.

Software database: A software database contains computer programmes. A database of the Pascal programmes to be used with CDS-ISIS is an example.

Self-Assessment

- (1) A tentative proposition subject to test is
- a) Variable
 - b) Hypothesis
 - c) Data
 - d) Concept
- (2) Analogies are sources of
- a) Data
 - b) Concept
 - c) Research
 - d) Hypothesis
- (3) "A Proposition which can be put to test to determine its validity" Defined by
- a) Lund berg
 - b) Emory
 - c) Johnson
 - d) Good and Hatt
- (4) "A tentative generalization" stated by
- a) Good and Hatt
 - b) Lund berg
 - c) Emory
 - d) Orwell
- (5) Propositions which describe the characteristics are Hypothesis
- a) Descriptive
 - b) Imaginative
 - c) Relational
 - d) Variable
- (6) A Hypothesis which develops while planning the research is
- a) Null Hypothesis
 - b) Working Hypothesis
 - c) Relational Hypothesis
 - d) Descriptive Hypothesis
- (7) When a hypothesis is stated negatively it is called

- a) Relational Hypothesis
- b) Situational Hypothesis
- c) Null Hypothesis
- d) Casual Hypothesis

(8) The first variable is variable

- a) Abstract
- b) Dependent
- c) Independent
- d) Separate

(9) The second variable is called

- a) Independent
- b) Dependent
- c) Separate
- d) Abstract

(10) Hypothesis which explain relationship between two variables is

- a) Causal
- b) Relational
- c) Descriptive
- d) Tentative

(11) Null means

- a) One
- b) Many
- c) Zero
- d) None of these

(12) Represent common sense ideas

- a) Statistical Hypothesis
- b) Complex Hypothesis
- c) Common sense Hypothesis
- d) Analytical Hypothesis

(13) Hypothesis concerned with analytical variable is

- a) Null Hypothesis
- b) Casual Hypothesis
- c) Barren Hypothesis
- d) Analytical Hypothesis

(14) A Hypothesis from which no generalization can be made is

- a) Null Hypothesis
- b) Barren Hypothesis
- c) Descriptive Hypothesis
- d) Analytical Hypothesis

(15) from theory leads to Hypothesis

- a) Deduction
- b) Induction
- c) Logical deduction
- d) Observation

(16) is a source of Hypothesis

- a) Intuition
- b) Knowledge
- c) Energy
- d) Survey

(17) Hypothesis Research

- a) Guide
- b) Misguide
- c) Alter
- d) Change

(18) Which among the following is a genuine research platform?

- a) Google
- b) TOI
- c) Ad-Sense
- d) J-stor

Answer for Self Assessment

- | | | | | | | | | | |
|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1. | B | 2. | D | 3. | D | 4. | B | 5. | A |
| 6. | B | 7. | C | 8. | C | 9. | B | 10. | B |
| 11. | C | 12. | C | 13. | D | 14. | B | 15. | C |
| 16. | A | 17. | A | 18. | D | | | | |

Review Questions

- Q1 How do define the term hypothesis? Explain it with examples
- Q2 What are the two major types of hypothesis? Describe with examples
- Q3 How does search engine helps researchers in finding exact literature for the research?
- Q4 What is the significance of time frame and Gantt chart in the process of research?

Further Readings



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UNIT 05: TYPES AND CLASSIFICATIONS OF JOURNAL

Objectives/Expected Learning Outcomes

Introduction

Subject Matter

1.1 Types of Journals

1.2 Journal Indexing

1.3 Role of Indexing in Defining the Quality of Journal

Summary

Keywords/Glossary _____

Self-Assessment/Evaluation

Objectives/Expected Learning Outcomes

- Identify the types of journals
- Highlight the purposes of classifications of journals
- Examine the meaning and significance of journal indexing
- Examine the types and relevance of indexing
- Analyze the scope of indexing in researches

Introduction

This unit discusses three major topics including types and classifications of journals, indexing of journals and the significance of journal indexing particularly in social science researches. From its beginning, the computer has been an aid in producing existing forms of indexes and made possible the establishment of large databases. Biomedical information is growing explosively, and new and useful results are appearing every day in research publications. The World Wide Web and associated advances have enabled the availability of information in various forms to virtually everyone around the globe. The presence of vast data has mandated the creation of various databases which makes searching information relatively easier and faster.

Often we are flooded with predatory publishers' and journals inviting researchers to submit their valuable research work to publish in their respective journals. They claim their journals being covered by many abstracting and indexing services (A&I). For a clearer view, an A&I service is a platform provided by many companies where the research work is made available for other researchers and/or clinicians in their databases by assigning few select words to each research work. Today, almost all journals mandate their authors to provide them with an abstract of their manuscript, so A&I services do not compose abstracts anymore. They create a searchable database with subject, author, and title access to individual articles from a selection of journals they choose to include in their database.



Indexed journals are a hallmark of its quality. They are considered to be of better scientific quality than non-indexed. It also helps journals achieve its aim of being accessible to wider audience. To create a niche in publishing space, journals make themselves visible and available to their readers. One of the ways by which they achieve this is getting their journals indexed in one or more leading databases. Once a journal is indexed by a database, it is immediately available to all users. Some database index only titles, some full articles, while others index only abstract and/or references. Some of these A&I services are affiliated with institutions (e.g., PubMed maintained by the United States National Library of Medicine at the National Institute of Health) while some are provided by publishers (e.g., SCOPUS and EMBASE by Elsevier). Indexing a journal in right database is equally important, since, just as editors do not consider manuscripts that lie outside the scope of their journal, indexing companies also do not consider journals that lie outside their scope. These A&I companies use certain criteria like quality of content published, publishing timeliness and journal

workflow and processes. In other words, the process of getting indexed is similar to manuscript submission and peer review.



The important question of which A&I services is best and valid is a gray area. It partly depends on the requirements of universities. Some universities provide emoluments for their researchers and faculties on publishing their research work in journals indexed in select databases. These databases provide h-index, which is an indirect indicator of productivity and impact of a scholarly journal as well as group of scientists, such as a department or university or country. Various other metrics apart from the impact factor have been introduced to compare the journals. However, this question must be subject to debate regarding the validity of A and I services with inputs from various stakeholders. Nevertheless, in spite of having a vast ocean of information at the click of a button, it often becomes difficult to search the precise piece of information the user is looking for. Retrieving the required information without the background noise of other remotely relevant information is the need of the hour. This unit examines each aforementioned points in detail.

Subject Matter

Journals are an excellent means to convey research findings, latest discoveries and developments, and future research prospects to the public. Articles published in peer reviewed academic journals are approved by experts in the field and are therefore reliable resources that can be referred to by researchers, policy makers, and the general public.



Journals offer a wide collection of scholarly articles that can be used for understanding the progress of knowledge in a research field and for developing ideas for further research. Thus, academic journals enable communication between scholars, form the basis for the development of further ideas, and track emerging ideas in the field of science. Moreover, getting published in reputable journals increases the visibility and credibility of the researchers and furthers career opportunities.

The importance of journals in academic life goes beyond providing a means of communication and a permanent record. Journal articles are the final output of most research, and a researcher's performance and productivity are judged largely on the number of publications as well as where they appear. Journals have become deeply embedded in academic infrastructure. They are central to career paths, including both funding and appointments. Author surveys confirm that 'furthering my career' and 'future funding' are important motivations in publishing their work.



Journals are often selective and specialised in their coverage. As they compete for papers, their identity serves as a proxy for the research published there – and its significance. The impact factor (a measure of the citations to a particular journal) is frequently seen as the means of determining the importance of a journal, and is often used (and misused) by authors and academia to decide where to publish as well as how to rank the importance of a publication. A rigid and often misleading soundbite, the impact factor of a journal is akin to the term megapixel for digital cameras; the importance of a journal to a particular community is not always reflected in its impact factor. This is the subject of a later article in this series.

Authors may publish for a variety of reasons and the type of article can vary substantially. A journal is often perceived to comprise research articles but there are a wide variety of articles that serve the purpose of communication and provide valuable information to the community. News, editorials, letters, reviews, commentaries, images, audio clips and other forms of article can be equally valuable to researchers, and can also be found in journals.



1.1 Types of Journals

There are various types of journals including:

- academic/scholarly journals

- trade journals
- current affairs/opinion magazines
- popular magazines
- newspapers

Journals and magazines are important sources for up-to-date information in all disciplines. Sometimes distinguishing the different types of journals included in the UC Library Collection can be challenging. For our purposes, we've divided the criteria for journal, or periodical, literature into four categories:

- Scholarly
- Substantive News/General Interest
- Popular
- Sensational



Journal Types Defined

Webster's Third International Dictionary offers the following definitions for our four journal types:

Scholarly: concerned with academic study, especially research, exhibiting the methods and attitudes of a scholar, and having the manner and appearance of a scholar.

Substantive: having a solid base, being substantial.

Popular: fit for, or reflecting the taste and intelligence of, the people at large.

Sensational: arousing or intending to arouse strong curiosity, interest or reaction.

Distinguishing Journal Type Guidelines

Keeping the above definitions in mind and realizing that the lines drawn between our four journal types are never totally clear-cut, these general criteria may be applied:

Scholarly, Academic or Peer Reviewed Journals

Scholarly and academic are often used interchangeable. Peer reviewed means that all research articles that appear in that publication are reviewed first by a group of qualified academics. Most, but not all, scholarly or academic publications are peer reviewed. Scholarly journals generally have a sober, serious look. They often contain many graphs and charts but few glossy pages or exciting pictures. Scholarly journals always cite their sources in the form of footnotes or bibliographies. Articles are written by a scholar in the field or by someone who has done research in the field. The language of scholarly journals is that of the discipline covered. It assumes some scholarly background on the part of the reader. The main purpose of a scholarly journal is to report on original research or experimentation in order to make such information available to the rest of the scholarly world. Many scholarly journals, though by no means all, are published by a specific professional organization.



Examples of Scholarly Journals:

- American Economic Review
- Archives of Physical Medicine and Rehabilitation
- JAMA: The Journal of the American Medical Association
- Modern Fiction Studies



Substantive News or General Interest Journals

These periodicals may be quite attractive in appearance, although some are in newspaper format. Articles are often heavily illustrated, generally with photographs. News and general interest periodicals sometimes cite sources, though more often do not. Articles may be written by a member of the editorial staff, a scholar or a free-lance writer. The language of these publications is geared to any educated audience. There is no specialty assumed, only interest and a certain level of intelligence. They are generally published by commercial enterprises or individuals, although some emanate from specific professional organizations. The main purpose of periodicals in this category is to provide information, in a general manner, to a broad audience of concerned citizens.



Examples of Substantive News or General Interest Journals:

- Christian Science Monitor
- Economist
- National Geographic
- New York Times
- Scientific American
- Vital Speeches of the Day

Popular Magazines

Popular periodicals come in many formats, although often somewhat slick and attractive in appearance. Lots of graphics (photographs, drawings, etc.). These publications rarely, if ever, cite sources. Information published in such journals is often second or third hand and the original source is sometimes obscure. Articles are usually very short, written in simple language and are designed to meet a minimal education level. There is generally little depth to the content of these articles. The main purpose of popular periodicals is to entertain the reader, to sell products (their own or their advertisers), and/or to promote a viewpoint.



Examples of Popular Magazines:

- Ebony
- Parents
- People Weekly
- Readers Digest
- Sports Illustrated
- Time
- Vogue

Sensational Magazines

Sensational periodicals come in a variety of styles, but often use a newspaper format. Their language is elementary and occasionally inflammatory or sensational. They assume a certain gullibility in their audience. The main purpose of sensational magazines seems to be to arouse curiosity and to cater to popular superstitions. They often do so with flashy headlines designed to astonish (e.g. Half-man Half-woman Makes Self Pregnant). Examples of Sensational Magazines are Globe, National Examiner, Star and Weekly World News.

1.2 Journal Indexing

This part of the unit explain the importance of good journal indexing and how journals that apply key standards can increase the reach and impact of their publications. Every journal seeks to be named a valid source of scientific information and to be recognized as a prestigious source among many other publications around the globe.

To achieve this aim, journals must increase their visibility, validity, availability, and readership, resorting to different methods, one of which is getting their publication “indexed” by one or more

leading databases. An indexed journal ensures the authors that it has gone through and passed a review process of certain requirements done by a journal indexer.



What is Indexing?

An index is a list of items pulled together for a purpose. Journal indexes (also called bibliographic indexes or bibliographic databases) are lists of journals, organized by discipline, subject, or type of publication. Journals included in an index are considered of higher quality than journals that are not. This is because journals have to go through a vetting process to be included, or indexed, in reputable bibliographic databases.

Every author search for indexed journals to publish his/her article in, and tries to select a journal that is covered by a number of abstracting and indexing services. The indexation of a journal indicates its quality. Indexed journals are considered to be of higher scientific quality as compared to non-indexed journals. The indexed journals have expanded online presence, improved article discoverability, and reputable for high-quality publication in their own field.

Types of Indexes

Generally speaking, journals are included in two types of public or specialized indexes.

General indexes

This type of indexing index journals that cover various disciplines and a broad variety of topics. General indexes index popular magazines, newspapers, and some scholarly journals. Following are some well-known general indexes:

Specialized indexes

Specialized indexes cover a specific topic or discipline and will usually index more scholarly journals.

Basic Indexing Standards

The indexation of a journal is based on some basic publishing standards. Any journal should have the following standards to meet basic indexing requirements:

An International Standard Serial Number (ISSN): ISSN is the number given to one set of the series, to identify a serial, recurring publication, such as a monthly journal.

Digital Object Identifiers (DOIs): A DOI is just like a social security number for a digital item (journal article, data file, presentation file, etc.).

An established publishing schedule

A copyright policy

Basic article-level metadata



Why is Indexing Essential?

Accessibility

Since the main purpose of a journal is to be accessible to a wide audience, once it is indexed by a database, it is immediately made available to all users of a database that has indexed that journal

Reputation

Being accessible has a direct impact on a journal's reputation; if a journal is available for a large number of academic population, it will be considered a reliable source of high-quality information in a certain field.

Readership

Every researcher will look to established, well-known databases as the first activity in his/her studies; if a journal is indexed in a known database in that researcher's field, he/she will find that easily and read it. This increases that journal's readership.

An indexing periodical is an access tool to a systematically arranged list of periodical literature providing complete bibliographical references of already published individual items of primary documents, which are republished in regular interval. It is organised in a convenient manner to search the location of entries. An Index can be alphabetical, classified, chronological, geographical or numerical. They are access tools to identify and locate the required information which appeared in a particular periodical. An abstract according to ALA Glossary (1983) is an abbreviated, accurate representation of a work, usually without added interpretation or criticism, accompanied by a bibliographical reference to the original work when appearing separately from it.



An abstracting periodical, in addition to having the abovementioned features of an indexing periodical, gives the information content of the primary documents in a condensed form. Quite often it functions as the surrogate of the original primary publication, as in the Chemical Abstracts. In short, the major difference between indexing and abstracting services lies in the form and content. Indexing periodicals provide lists of articles with bibliographical details arranged in user-friendly order to enable a user to trace the needed information easily and quickly. Abstracting periodicals not only list the bibliographical details but also provide abstracts of documents in a specific field or a group of subject fields helping the reader for his choice of an article or a paper.



Functions

The primary functions of indexing and abstracting periodicals are: to keep scholars and information users abreast of current literature in their fields of interest. They can be benefited from scanning the issues of indexing and abstracting periodicals. This can be termed as current use function; to find information on the literature of the subject fields as and when need arises. The indexing and abstracting periodicals are key tools to librarians and information workers for day to day reference and bibliographical work, though research scholars also use them extensively. This can be termed as retrospective search function; and to provide bibliographical control of literature output either by country or by subject or by kind of materials, if the aim of the indexing and abstracting services is exhaustive coverage. This can be termed as comprehensive use function.



The secondary functions are: to help users get over language barrier, particularly in the case of abstracting periodicals; to obtain correct and complete bibliographical details of particular items of literature, when there is any doubt; to look up for information on a topic, which may not have been well covered by books, encyclopaedias, etc.; to make known the work of individual scientists or scholars; to serve as a source for carrying out statistical, bibliometric and sociological studies on the growth and pattern of literature, indicative of research and development efforts taking place; and to help users to get information which is otherwise scattered in other sources.



Indexation of a journal is considered a reflection of its quality. Indexed journals are considered to be of higher scientific quality as compared to non-indexed journals. Indexation of medical journals has become a debatable issue. For a long-time Index Medicus has been the most comprehensive index of medical scientific journal articles. It is being published since 1879. Over the years, many other popular indexation services have developed. These include MedLine, PubMed, EMBASE, SCOPUS, EBSCO Publishing's Electronic Databases, SCIRUS among others. There are various regional and national versions of Index Medicus such as African Index Medicus.



This brings us to the question which indexation is best and most valid? How to compare the quality of articles published in journals indexed with different indexation services? These questions are of

particular relevance for two main reasons. First, importance of publications is being increasingly recognised by the academic institutions. MCI guidelines also recommend indexed publications for teaching faculty in medical colleges. Consequently many more authors would be publishing than ever before. Selection of high quality journal becomes a difficult decision for the authors as there is no clarity on the issue. Should one aim at only the journals indexed in Index Medicus/MedLine/PubMed? Is it appropriate to make submissions to journals having a high impact factor although they are not indexed with Index Medicus/MedLine/PubMed?

Second, recently many more indexation services have come up. These include Caspur, DOAJ, Expanded Academic ASAP, Genamics Journal Seek, Hinari, Index Copernicus, Open J Gate, Primo Central, Pro Quest, SCOLOAR, SIIC databases, Summon by Serial Solutions, Ulrich's International Periodical Directory. Are these indexations services equally relevant? Would a journal indexed with any of these databases be considered "indexed"?

1.3 Role of Indexing in Defining the Quality of Journal



h Index

The h index was proposed by J.E. Hirsch in 2005 and published in the Proceedings of the National Academy of Sciences of the United States of America. The h index is a quantitative metric based on analysis of publication data using publications and citations to provide "an estimate of the importance, significance, and broad impact of a scientist's cumulative research contributions." According to Hirsch, the h index is defined as: "A scientist has index h if h of his or her N_p papers have at least h citations each and the other $(N_p - h)$ papers have $\leq h$ citations each."

How Calculated: Number of papers (h) that have received at least h citations.



As an example, an h index of 10 means that among all publications by one author, 10 of these publications have received at least 10 citations each.

Hirsch argues that the h index is preferable to other single-number criteria, such as the total number of papers, the total number of citations and citations per paper. However, Hirsch includes several caveats:

A single number can never give more than a rough approximation to an individual's multifaceted profile;

Other factors should be considered in combination in evaluating an individual;

There will be differences in typical h values in different fields, determined in part by the average number of references in a paper in the field, the average number of papers produced by each scientist in the field, and the size (number of scientists) of the field; and

For an author with a relatively low h that has a few seminal papers with extraordinarily high citation counts, the h index will not fully reflect that scientist's accomplishments.

Hirsch stressed that the full career publications for an author should be used for the h index.

Since Hirsch introduced the h index in 2005, this measure of academic impact has garnered widespread interest as well as proposals for other indices based on analyses of publication data such as the g index, h (2) index, m quotient, r index, to name a few.

Several commonly used databases, such as Elsevier's Scopus, Clarivate Analytics' Web of Science, and Google Scholar provide h index values for authors.



Strengths of the h index

The h index is a metric for evaluating the cumulative impact of an author's scholarly output and performance; measures quantity with quality by comparing publications to citations.

The h index corrects for the disproportionate weight of highly cited publications or publications that have not yet been cited.

Several resources automatically calculate the h index as part of citation reports for authors.



Shortcomings of the h index

The h index is a metric to assess the entire body of scholarly output by an author; not intended for a specific timeframe.

The h index is insensitive to publications that are rarely cited such as meeting abstracts and to publications that are frequently cited such as reviews.

Author name variant issues and multiple versions of the same work pose challenges in establishing accurate citation data for a specific author.

The h index does not provide the context of the citations.

The h index is not considered a universal metric as it is difficult to compare authors of different seniority or disciplines. Young investigators are at a disadvantage and academic disciplines vary in the average number of publications, references and citations.

Self-citations or gratuitous citations among colleagues can skew the h index.

The h index will vary among resources depending on the publication data that is included in the calculation of the index.

The h index disregards author ranking and co-author characteristics on publications.

There are instances of “paradoxical situations” for authors who have the same number of publications, with varying citation counts, but have the same h index. As an example, Author A has eight publications which have been cited a total of 338 times and Author B also has eight publications which have been cited a total of 28 times. Author A and Author B have the same h index of 5 but Author A has a higher citation rate than Author B.



h-Core

The h-core of a publication is a set of top cited h articles from the publication. These are the articles that the h-index is based on. For example, the publication discussed earlier has the h-core with three articles, those cited by 17, 9, and 6. The core journals in scientometrics were determined by the frequency of papers in journals in the elite publication subsets (i.e. most frequently cited publications) of Price medallists. It is supposed that scientometric impact indicators derived from elite subsets may represent the impact of total publication activity more appropriately than the indices referring to whole sets. It is assumed further that prominent scientists publish their papers of potentially high impact in the leading journals of the field.

The size of the elite subsets was determined by h, π , πv , MCR, and HCP-statistics. MCR is the mean citation rate of publications in a total set, whereas HCP means here papers at least with 100 citations. According to MCR or HCP statistics those papers belong to the corresponding elite subset of which citation frequency is equal to or higher than the mean of the corresponding set or 100, resp. The combined set of papers in 11 core journals of scientometrics was analysed. The number of papers in the elite subsets and their mean citation rate was calculated. The size of the studied elite subsets ranges from 30 to 225. The mean citation rate of the journal papers in the different elite subsets was found to decrease as the size of the elite subset increased.



The publications in the field of “scientometrics” were collected also by keywords: scientometric, bibliometric, informetric, and webometric, from WoS. The mean citation rate of papers in the elite subsets was found significantly higher for those published in journals covering non-scientometric topics (e.g. Nature, Science, British Medical Journal, PLOS One, etc.). The high rate of papers in the elite subsets published by Price medallists may validate the selection of these sets for evaluation purposes. In most cases, any of the studied elite subsets may be used for publication evaluation.



h-Median

The h-median of a publication is the median of the citation counts in its h-core. For example, the h-median of the publication discussed earlier is 9. The h-median is a measure of the distribution of citations to the articles in the h-core. The h-index is an author-level metric that measures both the productivity and citation impact of the publications of a scientist or scholar. The h-index correlates with obvious success indicators such as winning the Nobel Prize, being accepted for research fellowships and holding positions at top universities. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other publications. The index can also be applied to the productivity and impact of a scholarly journal as well as a group of scientists, such as a department or university or country. The index was suggested in 2005 by Jorge E. Hirsch, a physicist at UC San Diego, as a tool for determining theoretical physicists' relative quality and is sometimes called the Hirsch index or Hirsch number.



h5-index, h5-core, and h5-median

Finally, the h5-index, h5-core, and h5-median of a publication are, respectively, the h-index, h-core, and h-median of only those of its articles that were published in the last five complete calendar years. The H5-index is created by Google Scholar, and is similar to the h-index explained in Author-level Metrics. H5-index is the largest number h such that h articles published in [the past 5 years] have at least h citations each". Thus, an H5-index of 60 means that that journal has published 60 articles in the previous 5 years that have 60 or more citations each. H5-median is based on H5-index, but instead measures the median (or middle) value of citations for the h number of citations. A journal with an H5-index of 60 and H5-median of 75 means that, of the 60 articles with 60 or more citations, the median of those citation values is 75. To the right is a chart listing the top 20 English-language journals ranked by the H5-index. Both the H5-index and H5-median are available in Google Scholar Metrics. Journals can be browsed by discipline or searched by keyword. Google Scholar Metrics will only display the top 20 journals for each subject category. Additionally, there is no historical data.



Role of Indexing in defining the Quality of Journals

If a research article is published without being added to any academic indexes, does it have an impact? Contrary to the thought experiment – “If a tree falls in a forest and no one is around to hear it, does it make a sound?” – There is a pretty definitive answer to the former question. Intangible impacts aside, it's almost certain that without being added to academic indexes an article's impact will be pretty muffled.



Indexing is vital to the reputation, reach, and consequently impacts of journal articles. Reports in recent years have found that academic indexes, such as Google Scholar, PubMed, MathSciNet, and the Directory of Open Access Journals are the top research starting points for most scholars. Additionally, many scholars prioritize referencing and submitting to journals that are included in leading indexes, because indexing is a marker of journal quality. Every organization publishing journals should prioritize indexing, to increase the reach of their articles and better serve the needs of researchers. For journal publishers to achieve the widest indexing impacts, meeting both basic publishing standards AND the highest technical indexing standards is key.



Basic indexing standards

All academic indexes require journals to follow certain core publishing standards. To meet basic indexing requirements journals should have:

An International Standard Serial Number (ISSN)

Digital Object Identifiers (DOIs)

An established publishing schedule

A copyright policy

Basic article-level metadata

From there, indexes will have different inclusion requirements such as:

Publication scope: Many indexes only accept journals that publish within particular subject areas.



For example, MEDLINE and PubMed Central only index journals in the biomedical and life sciences.

Editorial board and policies: Often indexes require the full names and affiliations of journal editors, as well as information about journal editorial policies such as a publicly available peer review policy and publication ethics statement.

Level of publishing professionalization: Some indexes look at publishing professionalization including readability of articles and production quality.

Archiving policy: Some indexes require journals to show that their articles are being archived by a long-term digital preservation service.

You can find a full breakdown of publishing standards for academic indexes in Scholastica's eBook *How to publish low-cost, high-quality open access journals online*. Publishing standards ensure the uniformity and reputability of indexes. Consequently, indexes with higher standards tend to be more trusted by scholars, improving the reputation and reach of the journals in them.



Examples of top general indexes include:

Academic Search (EBSCO)

Directory of Open Access Journals (DOAJ)

JSTOR

SciELO

Web of Science

Reaching full indexing potential: Why technical standards are key

Once journals meet core publishing standards, like those outlined above, they'll be eligible for relevant indexes. But, to get the most value out of indexing, journals must also meet the highest technical standards.



There are two main models for how indexes collect and process information:

Web crawlers: Some indexes, such as Google Scholar, index journal articles on their own via web crawlers, which are automated internet programs that "crawl" websites to gather information. In order for crawlers to easily identify new content, publishers must apply metadata to articles and maintain a website structure that complies with the index's requirements.

Metadata/content deposits: Many indexes do not have web crawlers and instead require information to be submitted to them in machine-readable formats. In this case, machine-readable metadata files (often XML) must be deposited into the index so the index can process article information and know what to return in search results.

While web crawler indexes do most of the work for journals, there are steps that publishers must take to ensure articles can be crawled. For example, for an academic search engine like Google Scholar, technical steps include:

Checking HTML and PDF files to make sure the text is searchable

Configuring journal websites to export bibliographic data in HTML meta tags

Making sure journal websites can be crawled by robots



It is important to note that most academic indexes don't have web crawlers and instead require machine-readable metadata to be submitted to them. While some indexes have forms for making manual metadata deposits, directly depositing machine-readable metadata files into indexes is the highest technical standard and yields the best results.

Machine-readable metadata files are richer, more uniform, and less prone to inaccuracies as compared to manually entered metadata. They also have data mining potential (or text-and-data-mining potential if they are full-text files). Articles that allow for text and data mining can be processed by online scripts and machine-learning tools to analyze article information for purposes such as language or citation analysis. For example, Scite, a new software provider, is using machine learning to scan article citations to check if papers have been supported or contradicted.



The technical indexing standard for academic journals is XML, or extensible markup language, in the JATS format, which stands for Journal Article Tag Suite. Whereas XML is a language, JATS is a type of syntax. It is a specific way of formatting XML files developed by the National Information Standards Organization (NISO). JATS is preferred or required by many academic indexes, including all National Library of Medicine indexes and search engines (i.e. PubMed, PubMed Central, and MEDLINE). cOAlition S also strongly recommends that articles be formatted in JATS XML in its updated Plan S implementation guidelines.

Producing XML in the JATS format is on the more technical side, but software can automate much of the process. Software can also be used to generate full-text XML files and avoid steps like having to manually add and check for copyright data or citation metadata, saving time and costs.

Journals should at least produce front-matter XML files for all articles with basic metadata like article title, publisher, and DOI. However, as noted, full-text JATS XML files are better for text and data mining. They're also required by some indexes like PubMed Central. Full-text JATS XML files include all of the metadata mentioned as well as the full text of the article.

Including journal articles in relevant indexes can greatly improve their reputation and reach, providing greater impact potential for journals and the scholars publishing in them. Inclusion in leading indexes is an indicator of journal quality to scholars and their institutions, and indexes are one of the main outlets scholars use to find articles, serving as powerful discovery outlets. But, the potential benefits of indexes are dependent on the quality of the machine-readable metadata and article files journals put into them. For journal publishers and authors to get the most impacts from indexing, journals taking steps to meet both the highest publishing and technical standards is key.

Summary

In conclusion, we would be able to summarise the content what we have understood above. The importance of journals in academic life goes beyond providing a means of communication and a permanent record. Journal articles are the final output of most research, and a researcher's performance and productivity are judged largely on the number of publications as well as where they appear. Journals have become deeply embedded in academic infrastructure. They are central to career paths, including both funding and appointments. Author surveys confirm that 'furthering my career' and 'future funding' are important motivations in publishing their work.

Journals are often selective and specialised in their coverage. As they compete for papers, their identity serves as a proxy for the research published there – and its significance. The impact factor (a measure of the citations to a particular journal) is frequently seen as the means of determining the importance of a journal, and is often used (and misused) by authors and academia to decide where to publish as well as how to rank the importance of a publication. A rigid and often misleading soundbite, the impact factor of a journal is akin to the term megapixel for digital cameras; the importance of a journal to a particular community is not always reflected in its impact factor. This is the subject of a later article in this series.

Authors may publish for a variety of reasons and the type of article can vary substantially. A journal is often perceived to comprise research articles but there are a wide variety of articles that serve the purpose of communication and provide valuable information to the community. News, editorials, letters, reviews, commentaries, images, audio clips and other forms of 'article' can be equally valuable to researchers, and can also be found in journals.

Academic journal articles are only as impactful as they are discoverable, and online discovery hinges almost entirely on one thing – indexing. Without proper indexing by discovery services, researchers will be hard-pressed to find even the most groundbreaking scholarly articles. From general search engines to discipline-specific databases and aggregators, there are numerous indexing options that journals can pursue, all with different benefits. Each index a journal seeks inclusion in will have its own requirements for entry and likely take time to get set up, so it's important to pick a few to start, then follow through with the necessary steps to be added to those indexes before moving on to new ones.

What types of indexes should publishers seek to add their journals to first? How should publishers go about prioritizing indexing initiatives? What steps should publishers take to keep improving their journal indexing outcomes? This unit breaks down answers to these common indexing questions, covering everything you need to know to initiate and keep building upon a successful journal indexing strategy. Therefore, understanding the genuine journals and its indexing would always help the researchers to complete their work with proper guidelines and strategies.

Keywords/Glossary

Indexing: An index is a list of items pulled together for a purpose. Journal indexes (also called bibliographic indexes or bibliographic databases) are lists of journals, organized by discipline, subject, or type of publication.

General indexes: This type of indexing index journals that cover various disciplines and a broad variety of topics. General indexes index popular magazines, newspapers, and some scholarly journals.

Specialized indexes: Specialized indexes cover a specific topic or discipline and will usually index more scholarly journals.

Basic Indexing Standards: The indexation of a journal is based on some basic publishing standards.

h Index: The h index is a quantitative metric based on analysis of publication data using publications and citations to provide "an estimate of the importance, significance, and broad impact of a scientist's cumulative research contributions."

h-Core: The h-core of a publication is a set of top cited h articles from the publication. These are the articles that the h-index is based on. For example, the publication discussed earlier has the h-core with three articles, those cited by 17, 9, and 6.

h-Median: The h-median of a publication is the median of the citation counts in its h-core. For example, the h-median of the publication discussed earlier is 9. The h-median is a measure of the distribution of citations to the articles in the h-core.

h5-index, h5-core, and h5-median: The h5-index, h5-core, and h5-median of a publication are, respectively, the h-index, h-core, and h-median of only those of its articles that were published in the last five complete calendar years.

Self-Assessment/Evaluation

1. concerned with academic study, especially research, exhibiting the methods and attitudes of a scholar, and having the manner and appearance of a scholar.

- a) Substantive
- b) Scholarly
- c) General
- d) Popular

2. having a solid base, being substantial.

- a) General
- b) Scholarly
- c) Substantive
- d) Popular

3. fit for, or reflecting the taste and intelligence of, the people at large.

- a) Scientific
- b) Scholarly
- c) General
- d) Popular

4. arousing or intending to arouse strong curiosity, interest or reaction.

- a) Scientific
- b) Scholarly
- c) General
- d) Sensational

5. are lists of journals, organized by discipline, subject, or type of publication.

- a) Journal Indexes
- b) Abstracting
- c) Impact factor
- d) None of the above

6. are also called bibliographic indexes or bibliographic databases

- a) Journal abstracting
- b) Abstracting
- c) Journal Indexes
- d) None of the above

7. type of indexing index journals that cover various disciplines and a broad variety of topics.

- a) IPR
- b) Journal indexes
- c) General indexes

- d) Popular magazines
8. index popular magazines, newspapers, and some scholarly journals.
- a) Scientific journals
 - b) Journal indexes
 - c) General indexes
 - d) Popular magazines
9. cover a specific topic or discipline and will usually index more scholarly journals.
- a) Scientific journals
 - b) Specialised indexes
 - c) Journal indexes
 - d) Popular magazines
10. The indexation of a journal is based on some basic publishing standards is
- a) Popular Indexing standards
 - b) Commerce journal indexes
 - c) General Indexing standards
 - d) Basic Indexing Standards
11.is a quantitative metric based on analysis of publication data using publications and citations to provide an estimate of the importance, significance, and broad impact of a scientist's cumulative research contributions.
- a) Impact factor
 - b) h Index
 - c) h core
 - d) h median
12. of a publication is a set of top cited h articles from the publication.
- a) Impact factor
 - b) h Index
 - c) h core
 - d) h median
13. of a publication is the median of the citation counts in its h-core.
- a) Impact factor
 - b) h Index
 - c) h core
 - d) h median
14. of a publication are, respectively, the h-index, h-core, and h-median of only those of its articles that were published in the last five complete calendar years.
- a) h median, h core and h5-core
 - b) h5-index, h5-core, and h5-median
 - c) h5-index, h median, and h5-median
 - d) h5-index, h5-core, and h index

15. Indexed journals are a hallmark of its

- a) Circulation
- b) Quantity
- c) Affordability
- d) Quality

1	B	5	A	9	B	13	D
2	C	6	C	10	D	14	B
3	D	7	C	11	B	15	D
4	D	8	C	12	C		

Review Questions

1. How do you define the term journal indexing?
2. What are various significances of journal indexing in researches?
3. Elucidate relevance of indexing of journals in social science researches
4. Critical examine the different types of journal indexing

Further/Suggested Readings



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Unit 06: Journal Citation Indexes

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Objectives

- Examine the scope of journal indexing
- Assess the advantages and disadvantages of indexing in social science researches
- Discern the meaning of impact factors of journals
- Analyze various types of impacts factors and analysis unit
- Evaluate the significance of impact factors in research

Introduction

This unit covers significant topics including Journal Citation Indexes: h-index, h5-index, h5-median, g index, i-10 index, Almetrics, JIF, JIF Percentile, Cite Score, SJR, SNIP and Eigen Factor. The impact factor (IF) is frequently used as an indicator of the importance of a journal to its field. It was first introduced by Eugene Garfield, the founder of the Institute for Scientific Information. Although IF is widely used by institutions and clinicians, people have widespread misconception regarding the method for calculating the journal IF, its significance and how it can be utilized. The IF of a journal is not associated to the factors like quality of peer review process and quality of content of the journal, but is a measure that reflects the average number of citations to articles published in journals, books, thesis, project reports, newspapers, conference/seminar proceedings, documents published in internet, notes, and any other approved documents.

Impact factor is commonly used to evaluate the relative importance of a journal within its field and to measure the frequency with which the average article in a journal has been cited in a particular time period. Journal which publishes more review articles will get highest IFs. Journals with higher IFs believed to be more important than those with lower ones. According to Eugene Garfield impact simply reflects the ability of the journals and editors to attract the best paper available. Journal which publishes more review articles will get maximum IFs. This unit covers various journal impact factors and indexes to make it clear research has its own importance at all streams.

Subject Matter

6.1 Journal Citation Indexes: h-index, h5-index, h5-median, g index, i-10 index and Almetrics

Journal Citation Indexes

A citation is the text reference and acknowledgement of documented information. A scientifically written article comprises a reference section at the end where all the references mentioned in the document are cited serially, and each reference is a citation. A citation count is the frequency of an article cited by other articles. A citation index is a kind of bibliographic database, an index of citations between publications, allowing the user to easily establish which later documents cite which earlier documents. Citation indexing consists of the charting of the text details of each such reference.



Citations are used as a measure of importance of the information source and enables users to gather data on the impact of journals as well as assessing and analyzing particular areas of research activity and publication.

Developments In 1960, Eugene Garfield's Institute for Scientific Information (ISI, formerly Eugene Garfield Associates Inc.) introduced the first citation index for papers published in academic journals, the Science Citation Index (SCI). Later, it was further expanded to produce the Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (AHCI). In 1965, de Solla Price described the inherent linking characteristic of the SCI as Networks of Scientific Papers. The SSCI became one of the first databases to be mounted on the Dialog system in 1972. In 1973, Small published his classic work on Co-Citation analysis, which became a self-organizing classification system and eventually an Atlas of Science later called Research Reviews.

The graphical nature of the worldwide citation network was described by Ralph Garner in 1965. Autonomous citation indexing, introduced in 1998, enabled automatic algorithmic extraction and grouping of citations for any digital academic and scientific document. This led to the creation of new systems for public and automated citation indexing such as, CiteSeer (now CiteSeerX), Cora (Rexa) and Google Scholar.

h5-index and h5-median

The H5-index is created by Google Scholar, and is similar to the h-index explained in Author-level Metrics. H5-index is the largest number h such that h articles published in [the past 5 years] have at least h citations each". Thus, an H5-index of 60 means that that journal has published 60 articles in the previous 5 years that have 60 or more citations each. H5-median is based on H5-index, but instead measures the median (or middle) value of citations for the h number of citations. A journal with an H5-index of 60 and H5-median of 75 means that, of the 60 articles with 60 or more citations, the median of those citation values is 75. To the right is a chart listing the top 20 English-language journals ranked by the H5-index. Both the H5-index and H5-median are available in Google Scholar Metrics. Journals can be browsed by discipline or searched by keyword.

g-index

The g-index is calculated based on the distribution of citations received by a given researcher's publications, such that: given a set of articles ranked in decreasing order of the number of citations that they received, the g-index is the unique largest number such that the top g articles received together at least g^2 citations. A g-index of 20 means that and academic has published at least 20 articles that combined have received at least 400 citations. However, unlike the h-index these citations could be generated by only a small number of articles. For instance an academic with 20 papers, 15 of which have no citations with the remaining five having respectively 350, 35, 10, 3 and 2 citations would have a g-index of 20, but a h-index of 3 (three papers with at least 3 citations each).

Roughly, h is the number of papers of a certain quality threshold, a threshold that rises as h rises; g allows citations from higher-cited papers to be used to bolster lower-cited papers in meeting this threshold. Therefore, in all cases g is at least h, and is in most cases higher. However, unlike the h-index, the g-index saturates whenever the average number of citations for all published papers exceeds the total number of published papers; the way it is defined, the g-index is not adapted to this situation.

i-10 index

It is created by Google Scholar and used in Google's My Citations feature.

i10-Index = the number of publications with at least 10 citations.

This very simple measure is only used by Google Scholar, and is another way to help gauge the productivity of a scholar.

Advantages of i10-Index

Very simple and straightforward to calculate

My Citations in Google Scholar is free and easy to use

Disadvantages of i10-Index

Used only in Google Scholar

Almetrics

Almetrics let us measure and monitor the reach and impact of scholarship and research through online interactions. Almetrics stands for alternative metrics. The alternative part references traditional measurements of academic success such as citation counts, journal prestige (impact factor), and author H-index. Almetrics are meant to compliment, not totally replace, these traditional measures.

Supporters of the altmetrics movement believe that doing so will give a more complete picture of how research and scholarship is used.

6.2 Major Citation Indexing Services

There are two major publishers of general-purpose academic citation indexes: a. Institute for Scientific Information (ISI): Citation indexing has long been dominated by the ISI, which is now part of Thomson Reuters. It publishes the citation indexes in print and compact disc forms, which are generally accessed through the web under the name Web of Science (WOS). WOS provides access to 7 databases: Science Citation Index (SCI), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI), Index Chemicus, Current Chemical Reactions, Conference Proceedings Citation Index: Science and Conference Proceedings Citation Index: Social Science and Humanities. Elsevier which publishes Scopus, is available online only. Scopus is one of the largest abstract and citation database of peer-reviewed literature and web sources with smart tools to track, analyze and visualize research.



There are also a number of other readily available citation databases. Some of the notable ones among these are: CiteSeer is both a citation engine and a digital library. CiteSeer is based on the search engine and provides citation, citation graph analysis, related document retrieval and other searching of scientific literature. Research Papers in Economics (RePec) provides databases in economics and other discipline specific indexes.

Google Scholar (GS) provides citation and search of scholarly literature across many disciplines and sources. Although limited to the recent articles, it is a freely-accessible web search engine. Google Scholar is generally praised for its speed.

EBSCO host is one of the world's foremost, most used, premium, reference database service.

Compendex (Engineering Index, Computerized Engineering index) is the computerized version of the Engineering Index and is one of the most comprehensive engineering literature databases.

Bibliometrics

Bibliometrics are methods or applications used to study or measure an influence of a writer or impact of a scientific paper. Citation analysis and content analysis are most commonly used Bibliometrics methods. Other bibliometrics applications include: Creating thesauri; measuring frequencies; exploring author affiliations; and measuring usage by readers.

Citation analysis

Citations can be counted as measures of usage and impact of the cited work. Data from citation indexes can be analyzed to determine the popularity and impact of specific articles, authors and research publications. This is called citation analysis. Some of the measures

that have emerged from citation analysis are:

- A. **Citation Count** : A Citation Count is the number of times an article is cited by other articles. Sometimes, it is considered to indicate the quality and influence of the article. The citation count may be analyzed for:
- The frequency of citation of an individual article
 - Total citations / average citation count of an author per article
 - The average citation count for the articles in the journal
 - Journal impact factor

Citation counts are correlated with other measures of scholarly/scientific performance and impact and can in some cases be enhanced by making a work open access by self-archiving the complete article on the web, publishing it in an open access journal, or publishing it as an open access article in one of the Hybrid open access journals.

- B. **H-index** : The H-index, sometimes called the Hirsch index or Hirsch number, was first developed by Hirsch as a measure to quantify the impact and quality of the published work of a scientist or scholar. A scientist has index h if h of his N_p papers have at least h citations each, and the other $(N_p - h)$ papers have no more than h citations each. In other words, a scholar with an index of h has published h papers, each of which has been cited in other papers at least h times. For example, if the h -index is 15, you have 15 papers cited 15 times or more. If your h -index is 20, you have 20 papers cited 20 times or more. Citation reports in Web of Science and citation tracker in Scopus calculate the h -index of a search result.

Harzing's Publish or Perish program calculates the h -index based on Google Scholar entries. Various proposals to modify the h -index in order to emphasize different features have been made. Bornmann et al., recently proposed 3 additional metrics, h_{2lower} , $h_{2center}$, and h_{2upper} to give a more accurate representation of the distribution shape. Scientists with high h_{2upper} percentages are perfectionists, whereas scientists with high h_{2lower} percentages are mass producers.

- C. **i10-index**: i10-index is the number of publications with at least 10 citations. In July 2011, Google Scholar started a tool, which allows scholars to keep track of their own citations and also produces an h -index and an i10-index.
- D. **Download counts**: While the number of times a scientific article is cited by other articles is currently the gold standard for ranking its impact, online publishing offers another measure: The number of unique downloads. A recent analysis finds that downloads are a good predictor of citations, and they are available significantly faster. Journal of Vision (JOV) recently began publishing download counts for every published article. The journal also ranks the top 20 articles by download.

Download counts mirror citations, but are available about 2 years earlier and thus download counts predict future impact of scientific papers

- E. **KeyWords Plus**: In 1990, ISI was able to introduce this citationbased method of derivative subject indexing, called KeyWords Plus®. In addition to title words, author-supplied keywords and abstract words supplies words and phrases to enhance retrievability

Journal Impact Factor

An important and predictive measure of research impact in research is the Journal Impact Factor (JIF) of the journal in which the article appears. The JIF is the average number of citations per article per year. It is an indication of the importance and uptake of that research, denoting the relative importance of a journal within its field, like journals with higher impact factors are deemed to be

more important than those with lower ones. Impact factors are generally calculated yearly. In a given year or period, the impact factor of a journal is the average number of citations received per paper published in that journal during the 2 preceding years.



For example, an impact factor 2011 for a journal is calculated as follows: N_1 = Number of times articles published in 2009- 2010 were cited in indexed journals during 2011. N_2 = Number of articles, reviews, proceedings or notes (not editorials or Letters-to-the-Editor) published in 2009-2010. Impact factor 2011 (IF-2011) = N_1 / N_2 .

Related Indices: Some related values, connected with Journal Impact Factor are:

1. Immediacy index Immediacy index measures the average number of times that an article, published in a specific year within a specific journal, is cited over the course of the same year.

2. Cited half-life Cited half-life measures the number of years, going back from the current year that account for half the total citations received by the cited journal in the current year. For example, if a journal's cited half-life in 2005 is 5, that means the citations from 2001-2005 are half of all the citations from that journal and the other half of the citations precede 2001.

3. Aggregate impact factor for a subject category It is calculated taking into account the number of citations to all journals in the subject category and the number of articles from all the journals in the category.

4. Median impact factor

It is the median value of all journal impact factors in the subject category.

5. Year Impact Factor

It is similar in nature to the Journal Impact Factor; however, the citations are counted to the previous 5 years and again divided by the source items published in the previous 5 years. A base of 5 years may be more appropriate for journals in certain fields because the body of citations may not be large enough to make reasonable comparisons, publication schedules may be consistently late, or it may take longer than 2 years to disseminate and respond to published works. For example, 5 year Impact Factor: 32457 citations in 2011 to items published in 2010, 2009, 2008, 2007, and 2006 / 11648 items published in 2006-2010 = 2.392.



C3PO (Citation Performance Per Paper Online) ISI reports the mean number of citations for an ISI journal, namely total citations up to a given day divided by the number of papers published in an ISI journal up to the same day as the "average" number of citations. The C3PO of an ISI journal on any given day is defined as C3PO (Citation Performance Per Paper Online) = Total citations to a journal/Total papers published in a journal.

Impact Factor Inflation (IFI)

The ratio of 2-year impact factor (2YIF) to 2-year impact factor without self-citations (2YIF*) is intended to capture how journal self-citations inflate an impact factor of a journal. An Impact Factor Inflation (IFI) is defined as "IFI = 2YIF / 2YIF*". The minimum value for IFI is 1, with any value above the minimum capturing the effect of journal self-citations on the 2-year impact factor.

Self-citation Threshold Approval Rating (STAR)

ISI has implicitly recognized the inflation in journal self-citations by calculating an impact factor that excludes self-citations, and provides data on journal self-citations, both historically and for the preceding 2 years, in calculating 2YIF. The Self-citation Threshold Approval Rating (STAR) is the difference between citations in other journals and journal self-citations. If S = journal self-citations, STAR is defined as "STAR = (100 - S) - S] = (100 - 2S)". If S = 0, 25, 50 or 100, for example, STAR = 100, 50, 0 and -100, respectively. As STAR can be calculated using journal self-citations, both historically and for the preceding 2 years, historical STAR is H-STAR and a 2-year STAR is 2Y-STAR.

Cited Article Influence (CAI)

Article Influence is intended to measure the average influence of an article across the sciences and social sciences. As an article with zero citations cannot have influence, a more suitable measure of the influence of cited articles is Cited Article Influence (CAI), which is defined as “ $CAI = (1 - PI-BETA)(Article\ Influence)$ ”. If $PI-BETA = 0$, then CAI is equivalent to Article Influence; if $PI-BETA = 1$, then $CAI = 0$. As Article Influence is calculated annually, whereas $PI-BETA$ is updated daily, CAI may be updated daily.

Recursive impact factor

In 1976, a recursive impact factor that gives citations from journals with high impact greater weight than citations from low-impact journals was proposed. It resembles the Page Rank algorithm of the Google search engine.

SCI mago Journal Rank (SJR) indicator

The SJR is an open access, free journal citationmetric, based on citation information from Scopus. SJR indicator is a measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from. The SJR indicator provides an alternative to the Impact Factor (IF).

Journal Citation Reports

Journal Citation Reports (JCR), integrated with the Web of Knowledge, is an annual publication by the healthcare & science division of Thomson Reuters. It provides information about academic journals in the sciences and social sciences subject categories, including impact factors, the journal immediacy index and the journal citing half-life. The JCR citation data on journals provides quantitative tools for ranking, evaluating, categorizing and comparing journals.

Indian Citation Index

Indian Citation Index (ICI) database was developed with specific motives to promote knowledge contents, published in Indian journals and bridge the gap between the content sources and content users via World Wide Web. ICI database covers about 1000 Indian scholarly journals, encompassing all disciplines of knowledge including the sciences, social sciences, arts, and humanities. ICI like other indexes enables user to move back in time to previously published papers, but uniquely one can also look forward in time to determine who has subsequently cited an earlier piece of research.



This feature makes this database a specialized information product and highly useful for researchers, policy makers, decision takers, editors, librarians etc. The ICI database also produces other useful by-products like Indian Science Citation Index (ISCI), Indian Social Science and Humanities Citation Index (ISSHCI), Indian Journals Citation Reports (IJCR), Indian Science and Technology Abstracts (ISTA) and Directory of Indian Journals (DOIJ).

6.3 Citation indexing: Uses and Limitations

Citation indexes provide authoritative, timely and prospective as well as retrospective in-depth access to the literature. Citation indexes also provide various indicators to evaluate the author impact in a subject. Through citation analysis, citation index provides journal ranking by giving information about what articles, themes, and topics were being published, cited, or ignored and also offers unique insight into a particular journal and provides data on historical trends, immediacy index, cited half-life of journals etc.



Citation analysis helps to know the Journal Impact Factor (JIF), Author Self- Citation (ASC) and Journal Self-Citation (JSC). Citation index also helps to determine the latest areas of research through bibliometric indicators. With citations used as the criterion for importance, utmost care should be taken as the authors may cite their own work, thus increasing its apparent academic importance. Secondly, significant articles may appear in obscure places

(non-core journals) and be missed by the indexers.

6.4 JIF, JIF Percentile, Cite Score, SJR, SNIP and Eigen Factor

The impact factor (IF) or journal impact factor (JIF) of an academic journal is a scientometric index calculated by Clarivate that reflects the yearly average number of citations of articles published in the last two years in a given journal. It is frequently used as a proxy for the relative importance of a journal within its field; journals with higher impact factor values are often deemed to be more important, or carry more intrinsic prestige in their respective fields, than those with lower values.

The value of impact factor depends on how to define citations and publications; the latter are often referred to as citable items. In current practice, both citations and publications are defined exclusively by ISI as follows. Publications are items that are classed as article, review or proceedings paper in the Web of Science (WoS) database; other items like editorials, corrections, notes, retractions and discussions are excluded. WoS is accessible to all registered users, who can independently verify the number of citable items for a given journal. In contrast, the number of citations is extracted not from the WoS database, but from a dedicated JCR database, which is not accessible to general readers. Hence, the commonly used JCR Impact Factor is a proprietary value, which is defined and calculated by ISI and cannot be verified by external users.



New journals, which are indexed from their first published issue, will receive an impact factor after two years of indexing; in this case, the citations to the year prior to Volume 1, and the number of articles published in the year prior to Volume 1, are known zero values. Journals that are indexed starting with a volume other than the first volume will not get an impact factor until they have been indexed for three years. Occasionally, Journal Citation Reports assigns an impact factor to new journals with less than two years of indexing, based on partial citation data.

The calculation always uses two complete and known years of item counts, but for new titles one of the known counts is zero. Annuals and other irregular publications sometimes publish no items in a particular year, affecting the count. The impact factor relates to a specific time period; it is possible to calculate it for any desired period. For example, the JCR also includes a five-year impact factor, which is calculated by dividing the number of citations to the journal in a given year by the number of articles published in that journal in the previous five years.

The impact factor is used to compare different journals within a certain field. The Web of Science indexes more than 11,500 science and social science journals. Journal impact factors are often used to evaluate the merit of individual articles and individual researchers.



This use of impact factors was summarised by Hoeffel: Impact Factor is not a perfect tool to measure the quality of articles but there is nothing better and it has the advantage of already being in existence and is, therefore, a good technique for scientific evaluation. Experience has shown that in each specialty the best journals are those in which it is most difficult to have an article accepted, and these are the journals that have a high impact factor. Most of these journals existed long before the impact factor was devised. The use of impact factor as a measure of quality is widespread because it fits well with the opinion we have in each field of the best journals in our specialty. In conclusion, prestigious journals publish papers of high level. Therefore, their impact factor is high, and not the contrary.

As impact factors are a journal-level metric, rather than an article- or individual-level metric, this use is controversial. Garfield agrees with Hoeffel, but warns about the "misuse in evaluating individuals" because there is a wide variation [of citations] from article to article within a single journal.

Numerous critiques have been made regarding the use of impact factors. A 2007 study noted that the most fundamental flaw is that impact factors present the mean of data that are not normally distributed, and suggested that it would be more appropriate to present the median of these data. There is also a more general debate on the validity of the impact factor as a measure of journal importance and the effect of policies that editors may adopt to boost their impact factor (perhaps to the detriment of readers and writers). Other criticism focuses on the effect of the impact factor on behavior of scholars, editors and other stakeholders. Others have

made more general criticisms, arguing that emphasis on impact factor results from negative influence of neoliberal policies on academia claiming that what is needed is not just replacement of the impact factor with more sophisticated metrics for science publications but also discussion on the social value of research assessment and the growing precariousness of scientific careers in higher education.



Validity as a measure of importance

It has been stated that impact factors and citation analysis in general are affected by field-dependent factors which may invalidate comparisons not only across disciplines but even within different fields of research of one discipline. The percentage of total citations occurring in the first two years after publication also varies highly among disciplines from 1–3% in the mathematical and physical sciences to 5–8% in the biological sciences. Thus impact factors cannot be used to compare journals across disciplines.

Impact factors are sometimes used to evaluate not only the journals but the papers therein, thereby devaluing papers in certain subjects. The Higher Education Funding Council for England was urged by the House of Commons Science and Technology Select Committee to remind Research Assessment Exercise panels that they are obliged to assess the quality of the content of individual articles, not the reputation of the journal in which they are published.

The effect of outliers can be seen in the case of the article - A short history of SHELX, which included this sentence: This paper could serve as a general literature citation when one or more of the open-source SHELX programs (and the Bruker AXS version SHELXTL) are employed in the course of a crystal-structure determination. This article received more than 6,600 citations. As a consequence, the impact factor of the journal *Acta Crystallographica Section A* rose from 2.051 in 2008 to 49.926 in 2009, more than *Nature* (at 31.434) and *Science* (at 28.103). The second-most cited article in *Acta Crystallographica Section A* in 2008 only had 28 citations. Additionally, impact factor is a journal metric and should not be used to assess individual researchers or institutions.

Journal rankings constructed based solely on impact factors only moderately correlate with those compiled from the results of expert surveys.



A.E. Cawkell, former Director of Research at the Institute for Scientific Information remarked that the Science Citation Index (SCI), on which the impact factor is based, would work perfectly if every author meticulously cited only the earlier work related to his theme; if it covered every scientific journal published anywhere in the world; and if it were free from economic constraints.

Editorial policies that affect the impact factor

A journal can adopt editorial policies to increase its impact factor. For example, journals may publish a larger percentage of review articles which generally are cited more than research reports.



Journals may also attempt to limit the number of citable items—i.e., the denominator of the impact factor equation—either by declining to publish articles that are unlikely to be cited (such as case reports in medical journals) or by altering articles (e.g., by not allowing an abstract or bibliography in hopes that Journal Citation Reports will not deem it a citable item). As a result of negotiations over whether items are citable, impact factor variations of more than 300% have been observed. Items considered to be uncitable—and thus are not incorporated in impact factor calculations—can, if cited, still enter into the numerator part of the equation despite the ease with which such citations could be excluded. This effect is hard to evaluate, for the distinction between editorial comment and short original articles is not always obvious. For example, letters to the editor may refer to either class.



Another less insidious tactic journals employ is to publish a large portion of its papers, or at least the papers expected to be highly cited, early in the calendar year. This gives those papers more time to gather citations. Several methods, not

necessarily with nefarious intent, exist for a journal to cite articles in the same journal which will increase the journal's impact factor.

Beyond editorial policies that may skew the impact factor, journals can take overt steps to game the system. For example, in 2007, the specialist journal *Folia Phoniatica et Logopaedica*, with an impact factor of 0.66, published an editorial that cited all its articles from 2005 to 2006 in a protest against the absurd scientific situation in some countries related to use of the impact factor. The large number of citations meant that the impact factor for that journal increased to 1.44. As a result of the increase, the journal was not included in the 2008 and 2009 Journal Citation Reports.



Coercive citation is a practice in which an editor forces an author to add extraneous citations to an article before the journal will agree to publish it, in order to inflate the journal's impact factor. A survey published in 2012 indicates that coercive citation has been experienced by one in five researchers working in economics, sociology, psychology, and multiple business disciplines, and it is more common in business and in journals with a lower impact factor. Editors of leading business journals banded together to disavow the practice. However, cases of coercive citation have occasionally been reported for other disciplines

Correlation between impact factor and quality

The journal impact factor (JIF) was originally designed by Eugene Garfield as a metric to help librarians make decisions about which journals were worth subscribing to, as the JIF aggregates the number of citations to articles published in each journal. Since then, the JIF has become associated as a mark of journal "quality", and gained widespread use for evaluation of research and researchers instead, even at the institutional level. It thus has significant impact on steering research practices and behaviours.

Already around 2010, national and international research funding institutions have pointed out that numerical indicators such as the JIF should not be referred to as a measure of quality. In fact, the JIF is a highly manipulated metric, and the justification for its continued widespread use beyond its original narrow purpose seems due to its simplicity (easily calculable and comparable number), rather than any actual relationship to research quality.



Empirical evidence shows that the misuse of the JIF – and journal ranking metrics in general – has a number of negative consequences for the scholarly communication system. These include confusion between outreach of a journal and the quality of individual papers and insufficient coverage of social sciences and humanities as well as research outputs from across Latin America, Africa, and South-East Asia. Additional drawbacks include the marginalization of research in vernacular languages and on locally relevant topics, inducement to unethical authorship and citation practices as well as more generally fostering of a reputation economy in academia based on publisher's prestige rather than actual research qualities such as rigorous methods, replicability and social impact. Using journal prestige and the JIF to cultivate a competition regime in academia has been shown to have deleterious effects on research quality.

JIFs are still regularly used to evaluate research in many countries which is a problem since a number of outstanding issues remain around the opacity of the metric and the fact that it is often negotiated by publishers. However, these integrity problems appear to have done little to curb its widespread misuse.



A number of regional focal points and initiatives are now providing and suggesting alternative research assessment systems, including key documents such as the Leiden Manifesto and the San Francisco Declaration on Research Assessment (DORA). Recent developments around Plan S call on a broader adoption and implementation of such initiatives alongside fundamental changes in the scholarly communication system. Thus, there is little basis for the popular simplification which connects JIFs with any measure of quality, and the ongoing inappropriate association of the two will continue to have deleterious effects. As appropriate measures of quality for authors and research, concepts of research excellence should be re-modelled around transparent workflows and accessible

research results.

Negotiated values

The exact method of calculation of the impact factor by Clarivate is not generally known and the results are therefore not predictable nor reproducible. In particular, the result can change dramatically depending on which items are considered as citable and therefore included in the denominator. One notorious example of this occurred in 1988 when it was decided that meeting abstracts published in FASEB Journal would no longer be included in the denominator. The journal's impact factor jumped from 0.24 in 1988 to 18.3 in 1989. Publishers routinely discuss with Clarivate how to improve the "accuracy" of their journals' impact factor and therefore get higher scores.

Such discussions routinely produce negotiated values which result in dramatic changes in the observed scores for dozens of journals, sometimes after unrelated events like the purchase by one of the big five publishers.

JIF Percentile

The Journal Impact Factor Percentile transforms the rank in category by Journal Impact Factor into a percentile value, allowing more meaningful cross-category comparison. It is calculated by using the following formula:

$$\text{Journal Impact Factor Percentile} = \frac{(N - R + 0.5)}{N}$$

Where:

N is the number of journals in the category

R is the Descending Rank

CiteScore

CiteScore is essentially the average citations per document that a title receives over a three-year period. It is simple to replicate. A CiteScore 2015 value is available for most active serial titles in Scopus — journals, book series, conference proceedings and trade journals — that started publishing in 2014 or earlier.

The calculation of CiteScore is straightforward with no secret algorithms or hidden details. The freely available Source Details screen on Scopus displays the exact figures used to determine the score.



CiteScore metrics calculate the citations from all documents in year one to all documents published in the prior three years for a title. This offers a more robust and accurate indication of a journal's impact. As an example, to calculate a 2015 value, CiteScore counts the citations received in 2015 to documents published in 2012, 2013 or 2014. This number is divided by the number of documents indexed on Scopus published in 2012, 2013 and 2014.

CiteScore is calculated on an annual basis, showing the average citations for a full calendar year. But impact can change faster than that, so CiteScore Tracker provides a current view of how a journal is performing during the course of the year, as it builds up each month.



What's more, new titles can receive CiteScore metrics the year after they are first indexed by Scopus. And because CiteScore automatically covers all applicable serials, there is no complex application process or unclear omissions, keeping the CiteScore indicators that compare journals, such as CiteScore Rank, up-to-date.



CiteScore itself represents a robust approach for two reasons:

The three-year citation window. Research has found that in slower-moving fields, two years' worth of data is too short; yet five years is too long to consider in faster-moving fields. Three years is the best compromise for a broad-scope database, such as Scopus, as it incorporates a representative proportion of citations across all

disciplines while also reflecting relatively recent data.

CiteScore's numerator and denominator both include all document types. This means not only articles and reviews but also letters, notes, editorials, conference papers and other documents indexed by Scopus are included. As a result, the numerator and the denominator used in the CiteScore calculation are consistent. This approach gives a more complete picture of citation impact and makes manipulating the calculation more difficult.

SJR

The SCImago Journal Rank (SJR) indicator is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where the citations come from. A journal's SJR is a numeric value indicating the average number of weighted citations received during a selected year per document published in that journal during the previous three years. Higher SJR values are meant to indicate greater journal prestige.



The SJR indicator is a variant of the eigenvector centrality measure used in network theory. Such measures establish the importance of a node in a network based on the principle that connections to high-scoring nodes contribute more to the score of the node. The SJR indicator has been developed to be used in extremely large and heterogeneous journal citation networks. It is a size-independent indicator and its values order journals by their "average prestige per article" and can be used for journal comparisons in science evaluation processes. The SJR indicator is a free journal metric inspired by, and using an algorithm similar to, PageRank.

SNIP and Eigen Factor

Source-normalized Impact per Paper (SNIP) is a field normalised assessment of journal impact. SNIP scores are the ratio of a source's average citation count and 'citation potential'. Citation potential is measured as the number of citations that a journal would be expected to receive for its subject field. Essentially, the longer the reference list of a citing publication, the lower the value of a citation originating from that publication. SNIP therefore allows for direct comparison between fields of research with different publication and citation practices.



The Scopus database is the source of data used to calculate SNIP scores. SNIP is calculated as the number of citations given in the present year to publications in the past three years divided by the total number of publications in the past three years. A journal with a SNIP of 1.0 has the median (not mean) number of citations for journals in that field.

SNIP only considers for peer reviewed articles, conference papers and reviews. SNIP scores are available from the two databases are CWTS Journal Indicators and Scopus.

Eigen factor

The Eigen factor is another Page Rank-type measure of journal influence with rankings freely available online. The Eigen factor score of a journal is an estimate of the percentage of time that library users spend with that journal.

Summary

The unit reveals information about the relevance of journal indexing and academic understanding of various journal impact factors. Multiple sources are available on the web like Web of Science, Scopus, Google Scholar, and others to evaluate research impact and quality of a research work accurately as well as to find out citation counts, h-index and so on. The h-index has been proposed as the best measure of a scientist's research productivity. Citation analysis has shown that some 90% of papers that have been published in academic journals are never cited, and as many as 50% of papers are never read by anyone other than their authors, referees and journal editors. The citation databases, tools and citation methods mentioned here are just a few of many new and

powerful indicators of research output. Citation index needs to be upgraded from time-to time by creating and designing it for specific subject using latest technology and manual efforts. Such an understanding will definitely strengthen each students' information level on the aforementioned points.

Keywords/Glossary

h5-index and h5-median: The H5-index is created by Google Scholar, and is similar to the h-index explained in Author-level Metrics. H5-index is the largest number h such that h articles published in [the past 5 years] have at least h citations each. Thus, an H5-index of 60 means that that journal has published 60 articles in the previous 5 years that have 60 or more citations each. H5-median is based on H5-index, but instead measures the median (or middle) value of citations for the h number of citations.

g-index: The g-index is calculated based on the distribution of citations received by a given researcher's publications, such that: given a set of articles ranked in decreasing order of the number of citations that they received, the g-index is the unique largest number such that the top g articles received together at least g^2 citations.

i-10 index: It is created by Google Scholar and used in Google's My Citations feature. i10-Index = the number of publications with at least 10 citations.

Almetrics: Almetrics stands for alternative metrics. The alternative part references traditional measurements of academic success such as citation counts, journal prestige (impact factor), and author H-index. Almetrics are meant to compliment, not totally replace, these traditional measures.

Citation Count: A Citation Count is the number of times an article is cited by other articles. Sometimes, it is considered to indicate the quality and influence of the article.

Z-influence: It measures the number of papers in a journal that have never been cited.

SCImago Journal Rank (SJR) indicator: SJR indicator is a measure of scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where such citations come from.

Eigen factor: The Eigen factor is another PageRank-type measure of journal influence with rankings freely available online. The Eigen factor score of a journal is an estimate of the percentage of time that library users spend with that journal.

Self Assessment

- 1) Journal Indexes are lists of journals, organized by discipline, subject, or type of publication.
 - A. Discipline and type of publication
 - B. Discipline and subject
 - C. Discipline, subject, or type of publication
 - D. None of the above

- 2) Journal abstracting are also called
 - A. Journal abstracting
 - B. Abstracting
 - C. Bibliographic indexes
 - D. None of the above

-
- 3) is the h-index for articles published in the last 5 complete years.
- A. i10 index
 - B. h5-index
 - C. h median
 - D. h core
- 4) is based on H5-index, but instead measures the median (or middle) value of citations for the h number of citations.
- A. h index
 - B. h median
 - C. h core
 - D. H5-median
- 5) The g-index is an author-level metric suggested in 2006 by
- A. Pye
 - B. Leo Egghe
 - C. Popper
 - D. None of the above
- 6) The is an alternative for the older h-index
- A. g-index
 - B. h index
 - C. i10 index
 - D. None of the above
- 7) The g-index is an alternative for the older, which does not average the numbers of citations.
- A. i10 index
 - B. h median
 - C. h-index
 - D. None of the above
- 8) i10-Index is the number of publications with at least citations.
- A. 10
 - B. 20
 - C. 30
 - D. 05
- 9) i10-Index is introduced by
- A. Yahoo
 - B. Facebook
 - C. Google
 - D. Research Gate
- 10) Which among the following is very simple and straightforward to calculate
- A. i10
 - B. h core
 - C. h index
 - D. None of the above
- 11) JIF stands for
- A. Journal Impact Factor
 - B. Journal Index Factor
 - C. Journal Impact Fonts

- D. Journal ID Factor
- 12) is a scientometric index calculated by Clarivate that reflects the yearly average number of citations of articles published in the last two years in a given journal.
- A. Journal Impact Factor
B. Journal Index Factor
C. Journal Impact Fonts
D. Journal ID Factor
- 13) of an academic journal is a measure reflecting the yearly average number of citations to recent articles published in that journal.
- A. JIF
B. CiteScore
C. Reviews
D. Cite Factor
- 14) CiteScore is based on the citations recorded in the database.
- A. Scopus
B. JCR
C. Web of Science
D. None of the above
- 15) The indicator is a measure of the scientific influence of scholarly journals that accounts for both the number of citations received by a journal and the importance or prestige of the journals where the citations come from.
- A. Web of Science
B. Scopus
C. JIF
D. SCImago Journal Rank (SJR)
- 16) is a sophisticated metric that intrinsically accounts for field-specific differences in citation practices.
- A. JIF
B. Scopus
C. Source Normalized Impact per Paper (SNIP)
D. None of the Above
- 17) The Eigen factor score, developed by is a rating of the total importance of a scientific journal.
- A. Sigmund
B. R Kothari
C. Lucian Pye
D. Jevin West and Carl Bergstrom

Answer for Self Assessment

- | | | | | | | | | | |
|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1. | C | 2. | C | 3. | B | 4. | D | 5. | B |
| 6. | A | 7. | C | 8. | A | 9. | C | 10. | A |
| 11. | A | 12. | A | 13. | B | 14. | A | 15. | D |
| 16. | C | 17. | D | | | | | | |

Review Questions

1. How do you elaborate the significance of journal indexing particularly in social science researches?
2. What are the major impact factors we often consider while measuring the quality of a journal?
3. Critically analyze the advantages and disadvantages of major impact factors.
4. Differentiate h-5 index and h-median index.

Further Readings

Ackoff, Russell L., *The Design of Social Research*, Chicago: University of Chicago Press, 1961.

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Unit 07: Research Paper Review Process

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Introduction

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Summary

Keywords/Glossary

Self Assessment

Answer for Self Answer

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Further Readings

Objectives

- To examine the relevance of research paper
- To assess the steps in research paper peer review process
- To point out the review process and its significance in research
- To analyze the role of social academic networks in research
- To evaluate the relevance and usage of data in research from virtual platforms

Introduction

This unit discusses relevant points including Research paper review process, citation, self-citation, funding agencies, Manupatra, academic social networks: google scholar, academia research gate etc. Generally, it is understood that the primary goals of a peer review is to determine whether a scholarly work falls within the journal's scope, to check whether the research topic has been clearly formulated, and to decide if a suitable approach has been taken to address the scientific issues involved. In addition, the reviewer will also rate the readability of the work, assessing how logically the argument has been constructed and whether the conclusions are well-founded. Moreover, the author of the work will generally receive useful advice on how to improve their work. These information are very relevant to grasp with once we study fundamentals of research. At the same time, students and researchers are supposed to gather information about the laws of citation and self-citation.

The second session of this unit deals with the academic social networking sites in researches. Academic social-networking sites (ASNS) such as Google scholar, Academia.edu and ResearchGate are becoming very popular among academics. These sites allow uploading academic articles, abstracts, and links to published articles; track demand for published articles, and engage in professional interaction. This unit examines the nature of the use and the perceived utility of the sites for academics. The findings indicate that researchers use ASNS mainly for consumption of information, slightly less for sharing of information, and very scantily for interaction with others. As for the gratifications that motivate users to visit ASNS, four main ones were found: self-promotion and ego-bolstering, acquisition of professional knowledge, belonging to a peer community, and interaction with peers. The following sessions will details each points with examples.

Lecture 1

Research Paper Review Process, Citation, Self-citation, Funding Agencies and Manupatra

7.1 Research Paper Review Process

Scientific findings and discoveries can have far-reaching implications for individuals and society. This is one reason why they undergo a process of quality control known as peer review before they are published.

Peer review involves subjecting the author's scholarly work and research to the scrutiny of other experts in the same field to check its validity and evaluate its suitability for publication. A peer review helps the publisher decide whether a work should be accepted.

When a scholarly work is submitted to a scientific journal, it first undergoes a preliminary check known as a desk review. The editor decides if the manuscript should be sent for peer review or be immediately rejected. The next step is to select experts from the same field who are qualified and able to review the work impartially. Ideally the work is evaluated by multiple experts.

The primary goals of a peer review are to determine whether a scholarly work falls within the journal's scope, to check whether the research topic has been clearly formulated, and to decide if a suitable approach has been taken to address the scientific issues involved. The reviewer also examines the methodology to determine whether the author's results can be reproduced, and he or she assesses the novelty and originality of the research findings. If a work involves patients or animals, then the peer review will also cover ethical aspects. Finally, the reviewer will also rate the readability of the work, assessing how logically the argument has been constructed and whether the conclusions are well-founded. In addition, the author of the work will generally receive useful advice on how to improve their work.

Peer reviewers normally provide their assessment in the form of a questionnaire which they return to the editor. This forms the basis for deciding whether the work should be accepted, considered acceptable with revisions, or rejected. Submissions with serious failings will be rejected, though they can be re-submitted once they have been thoroughly revised.

If a work is rejected, this does not necessarily mean it is of poor quality. A paper may also be rejected because it doesn't fall within the journal's area of specialisation or because it doesn't meet the high standards of novelty and originality required by the journal in question. Some prestigious journals reject over 90 percent of papers submitted to them, while the rejection rate across all scientific journals is somewhere in the region of 50 percent. Another reason a paper may be rejected is that the reviewers do not agree that the approach taken by the author is innovative. There are also some journals which take a more relaxed stance in regard to originality and focus more on the extent to which the author has followed correct scientific procedures. It is therefore common for authors to submit their paper to a different journal after receiving a rejection.



Reviewers are generally not paid for their time since peer review is simply considered to be part of the self-regulatory nature of the world of science and research. Some publishers 'reward' their reviewers by granting them free access to their archives for limited periods of time.

7.2 Types of peer review

The term peer review actually encompasses a number of different approaches, the most common of which are the following:

Single-blind peer review: the name of the reviewer is hidden from the author;

Double-blind peer review: both the reviewer and the author remain anonymous to each other.

There are also considerable differences in the level of detail with which papers are evaluated. For example, some journals make additional use of anti-plagiarism software, organise separate reviews of the author's methods and statistics, or examine the submitted illustrations to detect whether they have been manipulated. There is also an increasing number of journals which focus on scientific software or research datasets, and the peer review process has been adapted to fit these contexts, too.

Peer review is also used by conference organisers to select which contributions to include in their programme. And funding bodies even use peer review methods to assess the eligibility of research proposals for funding.

All the methods mentioned above have their advantages and disadvantages. For example, critics of the double-blind method argue that reviewers can guess who the authors are by looking at the references they cite. They suggest that this could undermine their neutral stance. The evaluation of an academic paper is also affected by the reviewer's scientific beliefs and by the care and effort they choose to invest in the process.

Peer review has recently come in for major criticism following cases where reviewers failed to spot serious errors in the author's methodology. The reasons for 'failures' in the peer review process include peer reviewers' heavy workloads as more papers are published and poor selection of reviewers by editorial boards.

Another objection that is frequently raised is that peer review is not transparent enough, not just because the reviews are inevitably subjective (especially if reviewers are unable to separate themselves adequately from their particular schools of thought), but also because reviewers may not appreciate the value of a new idea or may withhold – or simply not be asked to provide – relevant information on conflicts of interest.

Another key criticism of peer review is that the process may stretch over a long period of time, generally weeks or months, but occasionally even years.

Some people also suspect that journals which claim to have implemented peer review actually carry out very superficial assessments, or none at all. It is generally accepted that peer review cannot completely eliminate cases of fraud and the publication of low-quality papers. Nevertheless, peer review continues to be favoured despite all the criticism because it has ultimately proved its worth and shown that in most cases it can help improve the quality of publications – especially if authors are able to view the report and work through the comments. In the end, of course, responsibility lies with the authors who are required to demonstrate rigour, probity and scientific reproducibility as part of the scientific process. The peer review concept is also constantly being adapted to counter criticism such as the points mentioned above.

This criticism has led to the discussion of new alternatives such as open peer review, a concept which includes crowd sourced peer review. In this case articles are published either immediately or after perfunctory preliminary checks and the actual assessment and evaluation process is left to the scientific community. Although this offers key benefits such as opening up a broader discussion and considerably speeding up the process of publishing comments and assessments, there are also some significant challenges involved in this approach.

The main problem is finding a sufficient number of experts who are capable of offering a professional assessment. It can also be difficult to know how to best organise the platforms used for this purpose to ensure they are manageable and searchable. The current assumption is that open peer review can only work as a supplement to the existing peer review process rather than replacing it altogether. Open peer review also has a number of different variants. Issues that have prompted particular discussion include doubts about the extent to which people should be able to make reviews and comments anonymously, since there is obviously a risk that the process could be muddied by personal feelings and rivalries between individual scientists.

7.3 Citation

A citation is a reference to the source of information used in your research. Any time you directly quote, paraphrase or summarize the essential elements of someone else's idea in your work, an in-text citation should follow. An in-text citation is a brief notation within the text of your paper or presentation which refers the reader to a fuller notation, or end-of-paper citation that provides all necessary details about that source of information.

Direct quotations should be surrounded by quotation marks and are generally used when the idea you want to capture is best expressed by the source. Paraphrasing and summarizing involve rewording an essential idea from someone else's work, usually to either condense the point or to make it better fit your writing style. Researchers do not have to cite their own ideas, unless they have been published. And you do not have to cite common knowledge, or information that most people in the readers community would know without having to look it up.

In-Text Citations

In-text citations alert the reader to an idea from an outside source.

Parenthetical Notes

In MLA and APA styles, in-text citations usually appear as parenthetical notes (sometimes called parenthetical documentation). They are called parenthetical notes because brief information about the source, usually the author's name, year of publication, and page number, is enclosed in parentheses as follows:

MLA style: (Smith 263)

APA style: (Smith, 2013, p. 263)

Note Numbers

In Chicago and CSE styles, in-text citations usually appear as superscript numerals, or note numbers.

These note numbers are associated with full citations that can appear as footnotes (bottom of page), endnotes (end of chapter or paper), or lists of cited references at the end of the paper.

End-of-Paper Citations

End-of-paper citations, as well as footnotes and endnotes, include full details about a source of information. Citations contain different pieces of identifying information about your source depending on what type of source it is. In academic research, your sources will most commonly be articles from scholarly journals, and the citation for an article typically includes:

- author(s)
- article title
- publication information (journal title, date, volume, issue, pages, etc.)
- and, for online sources:
- DOI (digital object identifier).
- URL of the information source itself
- URL of the journal that published the article

There are many other types of sources you might use, including books, book chapters, films, song lyrics, musical scores, interviews, e-mails, blog entries, art works, lectures, websites and more. To determine which details are required for a citation for a particular source type, find that source type within the style guide for the citation style you are using.

At the end of research paper, full citations should be listed in order according to the citation style you are using:

- In MLA style, this list is called a Works Cited page.
- In APA style, it is called a References page.
- In CSE style, it is called a Cited References page.

And, in Chicago style, there may be both a Notes page and a Bibliography page.

Citations in Library Databases

When you search the library's databases for articles or e-books, the list of search results you see is actually a list of full citations. Instead of being formatted according to MLA, APA, CSE, or Chicago style, these citations are formatted according to the database vendor's style. It is up to the researchers to take the source information you find in a library database (or elsewhere) and format it according to the citation style you are using.

Self-citation

Referencing your own previously published work is known as self-citation. It is important to give citations when ideas, data, etc have been discussed in your previous publications. Correct self-citation conveys the level of originality in a publication accurately and enables readers to understand the development of ideas over time.

Academic publication takes many different forms. Researchers will often write up their findings for more than one publication, for example in a thesis and a journal article, or a blog post and book chapter. This is not necessarily a problem, but researchers need to consider their choices carefully. Reusing text word-for-word in multiple pieces of writing is known as self-plagiarism. This may

seem like a contradiction because a researcher cannot 'steal' their own ideas. Citations, however, are not just about giving credit for ideas, they also enable readers to trace the development of an idea over time and honestly represent the originality in a piece of writing.

Norms about what is an acceptable way of acknowledging that you have previously published research have changed significantly, even in the past decade. It is important that researchers are aware of what is considered good practice in their disciplines. A supervisor, mentor, or peers may be able to offer advice.

There is no definitive rule about when it is acceptable for a researcher to re-use text word-for-word. You should consider this carefully on a case-by-case basis taking into consideration:

The norms of your discipline

The conventions of the genre you are writing in (e.g. journal article, blog, thesis etc)

The expectations of editors, publishers, examiners, and readers

Copyright regulations and authorship.

There are three key questions you should ask yourself:

Does the piece of writing represent its own level of originality accurately?

Is that level of originality appropriate to the type of publication?

Who has the right - ethically (authorship) and legally (copyright) - to reproduce?

Many journals have a specific policy about reusing text, such as from a PhD thesis, in the 'Instructions to Authors' section (or similar) of their webpage. You should contact editorial staff of any publication to clarify any questions before submitting.

The La Trobe guide, *Interpreting iThenticate Reports: a Guide for Researchers*, includes a discussion of the expectations of different genres of writing, and suggestions on how iThenticate can help manage self-citation and avoid self-plagiarism.

Discipline approaches to self-plagiarism

Some style guides have a statement and/or guidelines relating to self-citation or self-plagiarism which may be helpful:

From the *MLA Style Manual and Guide to Scholarly Publication*. Modern Language Association of America: New York, 2008. Third edition. pp. 166-167. (Humanities):

"Whereas reprinting one's published work, such as having a journal article appear in a subsequent book of essays, is professionally acceptable... professionals generally disapprove if previously published work is reissued, whether verbatim or slightly revised, under another title or in some other manner that gives the impression it is a new work. Although not the same as plagiarizing someone else's writing, self-plagiarism is another type of unethical activity. If your current work draws on your own previously published work, you must give full bibliographic information about the earlier publication."

From the *Publication Manual of the American Psychological Association*. American Psychological Association: Washington, D.C., 2010. Sixth edition. p. 16. (Social Sciences):

"Just as researchers do not present the work of others as their own (plagiarism), they do not present their own previously published work as new scholarship (self-plagiarism). There are, however, limited circumstances ... under which authors may wish to duplicate without attribution (citation) their previously used words, feeling that extensive self-referencing is undesirable or awkward. The general view is that the core of the new document must constitute an original contribution to knowledge, and only the amount of previously published material necessary to understand that contribution should be included, primarily in the discussion of theory and methodology."

Funding Agencies

A Funding Agency is any external organization, public or private, which undertakes a contractual agreement with the University to sponsor research or an entrepreneurial activity. The funding agency often dictates how their funds may be used, what deliverables are expected, and what

reports are required. Funding agencies bear the entire cost of research at Carleton and provide overhead funding to cover the indirect costs of research.

Research funding is a term generally covering any funding for scientific research, in the areas of both hard science and technology and social science. It is a competitive process, in which potential research projects are evaluated and only the most promising receive funding. Such processes, which are run by government, corporations or foundations, allocate scarce funds. Most research funding comes from two major sources, corporations (through research and development departments) and government (primarily carried out through universities and specialized government agencies). Some small amounts of scientific research are carried out (or funded) by charitable foundations, especially in relation to developing cures for diseases such as cancer, malaria and AIDS.

Different funding agencies are:

All India Council for Social Science Research (ICSSR)

All India Council for Technical Education (AICTE)

Council of Scientific and Industrial Research (CSIR)

Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)

Department of Biotechnology (DBT)

Department of Science and Technology (DST)

Technology Information, Forecasting and Assessment Council (TIFAC)

Indian Council of Medical Research (ICMR)

Gujarat Council on Science and Technology (GUJCOST)

Indian National Science Academy (INSA)

7.4 Manupatra

Manupatra is a comprehensive database of the law of India. It contains federal Supreme Court decisions, state high court decisions, court rules, decisions of various administrative tribunals and commissions, federal and state statutes, rules and regulations, pending federal bills and parliamentary committee reports, databases of materials related to business enterprises and corporate taxation, secondary materials comprising commentaries and e-books, as well as cases and statutes from a variety of other countries, including Bangladesh, Hong Kong, Pakistan, South Africa, and Sri Lanka, among others.

Key Features

Search Analytics: It helps in searching and sorting out case laws by keywords, and topics. It covers cases from Supreme Court and High Courts. On a click of a button you can see the citing references, that is number of times a case has been cited as well as the number of times it has cited judgments from related cases. Besides this significant keywords and applied legislations are also displayed.

Judge Analytics: This presents an expansive insight on every Supreme Court and High Court judge in the country, covering the cases that they have adjudicated along with the case citations. It graphically details year wise and subject wise pronounced judgments, number of judgments written and number of judgments cited in. Besides this, it also entails the names of the attorneys and number of times they have appeared before a particular judge.

Interactive Timeline: A visually rich interactive timeline that represents connected cases in chronological order.

Case Mapping: This displays the geographic spread of lawsuits, including case profiling. Summaries of the proceedings, along with information on the issues involved, legislations exercised and dates are provided for an effortless research. It allows filtering and tailor search results by these measures.

Legal Analytics is a handy tool for lawyers to explore the best strategy and line of approach before they file a lawsuit or argue a motion before a judge. It can also be a helpful guide for law students to do research for their term papers or law firms' to prepare a more cost-effective representation for their clients and compete with their opponents.

Lecture 2

7.5 Academic Social Networks: Google Scholar and Academia Research Gate

Academic Social Networks

ASNS have the potential of revolutionizing the patterns of information publication and sharing in the academic world. By offering platforms for interrelations among scholars around the world, they may influence the structure and dynamic of the research community. Official academic publishing is based on acceptance of articles by refereed academic journals - either in print or in online academic databases that are accessible mainly to those who are active in an academic establishment - for which a fee is usually charged. The time that passes between research and the publication of its findings in such a journal is lengthy and may exceed one year. Academic social networks challenge this model and circumvent the hurdles that impede exposure to the public. What is more, they do so easily and at no charge. They encourage authors to upload full-text articles that appeared in academic journals, lectures presented at conferences, and even drafts, and make them accessible to the public. They also allow readers to respond to an article or ask the author about it, thereby encouraging interaction between readers and researchers.

The literature relates to five main affordances of academic social networks for researchers:

1. Management of an online persona:

The first and most important component of a digital social network is the personal profile, which includes particulars such as name, photo, and other identifying information that the user elects to upload. In ASNS, the platform provides, in addition to these details, a place where the researcher may present his or her professional experience, ideas, and capabilities, including the number of citations and downloads of his or her articles, thereby cultivating an online identity and promoting his or her professional reputation (Barbour & Marshall, 2012).

2. Diffusion of studies:

The platform provides a place where account holders can upload articles to the cybersphere. It also sends direct e-mail alerts to interested users whenever a new article in a field that they define as of interest to them is published. Two mechanisms exist for this purpose. One is active: members of the network choose to follow authors of their acquaintance or those whose research topics are of interest to them. The other is passive: the network itself proposes (via the site and the user's e-mail address) new articles for the user to follow, either by authors associated with the user's area of interest or those who belong to a circle of direct contacts such as a shared institution or department. In this manner, knowledge about a new article rapidly reaches the community that takes an interest in its topic and, accordingly, may be read.

3. Collaboration:

As the academic research field has become networked and collaborative in recent decades, it has been argued that one-person research has virtually disappeared. The ability of digital technology to bridge distances encourages cross-disciplinary and cross-border collaborations. Some scholars argue that academic social networks replicate, and in certain cases even improve, the experience of social activity at a conference by helping to create and expand researchers' professional networks. The two networks discussed in this study provide tools (e-mail and internal messaging systems) for direct communication and presentation of details for the establishment of personal relations among researchers.

4. Information management:

Studies suggest that ASNS serve as a source for the collection and organization of personal academic information including ideas, drafts, and anything else that a researcher on the network gleans from articles, references, and citations. Due to this characteristic, an academic social-network site may be seen as a collaborative information-management system. Some scholars do not accept this statement; indeed, while both networks, Academia.edu and ResearchGate, provide tools for publication and for the tracking and organization of publications; they are not designed for the management of citations.

5. Measurement of impact:

Academic impact is measured in terms of the number of citations of an article and the quality of the journals in which the article appears. Online academic networks offer additional metrics, such as number of persons who read or download an article.

7.6 Google Scholar, Research Gate and Academia.edu

The three networks examined here, Research Gate and Academia.edu, have similar characteristics. They are specific to researchers affiliated with academic institutes and specialize in academic activities such as sharing studies, articles, and information. They also provide tools that allow users to track their publications, see how often they are viewed and cited, and facilitate information exchange. Both allow users to post public queries to the community and organize researchers by their institutional affiliation. Research Gate established in 2008 in Berlin by IjadMadisch, Horst Fickenschner, and Sören Hofmayer.

Its purpose is to connect geographically distant researchers and allow them to communicate continuously on the basis of the open-world concept and the elimination of distance as an important factor in working relations. A secondary goal is to create access to studies even before they are completed for purposes of peer review and exchange of ideas. According to statistics on its site, Research Gate had more than eight million users in 2015. It organizes itself mainly around research topics. Research Gate maintains its own index based on the user's contribution to content, profile details, and participation in interaction on the site, such as asking questions and offering answers. Academia.edu established in 2008 in San Francisco by Richard Price as part of the Open Science movement, defines its goal as encouraging and stimulating the publication of studies.

In January 2016, it reported having 31,000,000 registered account-holders. Academia.edu includes an analytics dashboard by which users may see the influence and diffusion of their studies in real time. Academia.edu has an alert service that sends account holders an e-mail whenever a researcher whom they are following publishes a new study, allows readers to tag articles, and alerts anyone who is following a certain topic. In this way the alert system is raising awareness to an article by potential citators. A study by an Academia.edu sponsored team found that citations of published articles for which alerts were sent increased by 41%. Despite the large difference between the networks in the number of declared users, the Alexa rank, produced by Alexa.com, a company that provides commercial web traffic data analytics, finds Research Gate slightly more popular than Academia.edu.

Google Scholar is a web-search engine that is free and simultaneously indexes full-text scholarly literature across many disciplines and databases. Google Scholar indexes individual academic papers from journal and conference papers, theses and dissertations, academic books, pre-prints, abstracts, technical reports and other scholarly literature from all broad areas of research. This search engine can also be accessed via a university library, which allows researchers to link to articles found in Google Scholar through library resources. Google Scholar includes capabilities to produce links to other articles citing a particular article, connect users to related publications, allow users to set alerts to track publications for research areas of interest, and allow users to maintain a customized library of articles. This search engine also ranks individual papers similar to academic databases using factors like the publication source, author, "weighing the full text of each document", as well as frequency and recency of citations.

Unlike many academic databases, Google Scholar couples numerous social components with its search engine capabilities, which can expand how a researcher uses this database for designing, conducting, and disseminating research. Within Google Scholar, authors can create profiles with a range of privacy settings similar to social media outlets; affiliate with an institution's library, thereby joining and expanding a social network; allow customizable access to one's curated articles library; access other authors' public libraries; and finally, track who is citing their work. These social components, combined with the multitude of literature-specific search engine aspects, potentially can expand the outreach for individual papers through Google Scholar beyond traditional means, such as presenting or networking at academic conferences.

Summary

In conclusion, it says that there are various processes researchers have to go through in order to publish a paper. Peer review is the system used to assess the quality of a manuscript before it is published. Independent researchers in the relevant research area assess submitted manuscripts for originality, validity and significance to help editors determine whether a manuscript should be published in their journal. When a manuscript is submitted to a journal, it is assessed to see if it meets the criteria for submission. If it does, the editorial team will select potential peer reviewers within the field of research to peer-review the manuscript and make recommendations. Peer review is an integral part of scientific publishing that confirms the validity of the manuscript. Peer reviewers are experts who volunteer their time to help improve the manuscripts they review.

This unit has investigated how social networks are being used by scholars. The unit states that the investigated academics' use and perceived utility of ASNSs. It found that ASNSs are primarily being used to consume information and that interacting with others is rarely happening through ASNSs. The researchers concluded that ASNSs do not function as do other social networks, in which the main use is interaction. It examined how academics use social networks in the workplace for communication purposes either internally or externally. It found that Twitter, Facebook and LinkedIn were the three most widely used social networks. Furthermore, the researchers stated that very few respondents use academic social networks, including Academia.edu and Mendeley. It is also reported that scientists generally use these social networks for exchanging scientific knowledge. Along with these studies, there is an existing literature on how ASNSs might have the potential to supplement scientific inquiry. What ASNSs promise for the organization of collaborative study and how they enable researchers to establish their aspirations regarding academic responsibilities lie behind the potential benefits offered by ASNSs. Therefore, it is understood that academic social networks effectively helps researchers to successfully complete their tasks.

Keywords/Glossary

Research Paper Review: Research paper peer review involves subjecting the author's scholarly work and research to the scrutiny of other experts in the same field to check its validity and evaluate its suitability for publication.

Citation: A citation is a reference to the source of information used in your research. Any time you directly quote, paraphrase or summarize the essential elements of someone else's idea in your work, an in-text citation should follow.

Self-citation: Referencing your own previously published work is known as self-citation. It is important to give citations when ideas, data, etc have been discussed in your previous publications.

Funding Agencies: A Funding Agency is any external organization, public or private, which undertakes a contractual agreement with the University to sponsor research or an entrepreneurial activity.

Manupatra: Manupatra is a comprehensive database of the law of India.

Self Assessment

- 1)is an essay in which you explain what you have learned after exploring the topic in depth.
 - A. News
 - B. Article
 - C. Research paper
 - D. Monologue

- 2) In a, you include information from sources such as books, articles, interviews, and Internet sites.
 - A. Sports news
 - B. Articles
 - C. Research paper
 - D. Monologue

- 3) is the system used to assess the quality of a manuscript before it is published.
 - A. Reviews
 - B. Peer review
 - C. Analysis
 - D. Observation

- 4) Independent researchers in the relevant research area assess submitted manuscripts for, and to help editors determine whether a manuscript should be published in their journal.
- A. Originality
 - B. Originality Significance
 - C. Originality, Validity and Significance
 - D. Originality and Validity
- 5) A is a reference to the source of information used in your research.
- A. In-text
 - B. Citation
 - C. Bibliography
 - D. None of the Above
- 6) Referencing your own previously published work is known as
- A. Citation
 - B. Reference
 - C. Self-citation
 - D. None of the Above
- 7) A is any external organization, public or private, which undertakes a contractual agreement with the University/institutes to sponsor research or an entrepreneurial activity.
- A. Funding Agency
 - B. NGOs
 - C. INGOs
 - D. MNCs
- 8) enables legal professionals to retrieve cases, statutes, and other documents from its vast library of legal and business materials.
- A. Universities
 - B. Research Institutes
 - C. Manupatra
 - D. None of the Above
- 9) Academia.edu and Research Gate are
- A. Social networks
 - B. Google platforms
 - C. Academic social-networking sites (ASNS)
 - D. Academic sites
- 10) These sites allow uploading
- A. Academic articles, abstracts, and links to published articles
 - B. Abstracts, and links to published articles
 - C. Academic articles and links to published articles
 - D. Academic articles

- 11) track demand for published articles and engage in professional interaction.
- Social networks
 - Google platforms
 - Academic social-networking sites (ASNS)
 - Academic sites
- 12) is an online, freely accessible search engine that lets users look for both physical and digital copies of articles.
- Google Scholar
 - Scopus
 - Social networks
 - Google platforms
- 13) It searches scholarly works from a variety of sources, including academic publishers and universities looking for Peer-reviewed articles.
- Scopus
 - Google Scholar
 - Social networks
 - Google platforms
- 14) is a European commercial social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators.
- Acamedia
 - Research Gate
 - Stanford dictionary
 - Scopus
- 15) According to a 2014 study by Nature and a 2016 article in Times Higher Education,is the largest academic social network in terms of active users.
- Jstor
 - Stanford dictionary
 - Scopus
 - Research Gate

Answer for Self Answer

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. C | 2. C | 3. B | 4. C | 5. B |
| 6. C | 7. A | 8. C | 9. C | 10. A |
| 11. C | 12. A | 13. B | 14. B | 15. D |

Review Questions

- Define research paper peer review process.
- What are the major significances of research paper peer reviews in researches?
- How do you differentiate citation from self-citation? What are the major consequences of self-citation?
- Assess the importance of academic social networks in research.

Further Readings

Miller, Delbert C., *Handbook of Research Design & Social Measurement*, 3rd ed., New York: David Mckay Company, Inc., 1977.

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Sharma, B.A.V., et al., *Research Methods in Social Sciences*, New Delhi: Sterling Publishers Pvt. Ltd., 1983.

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Unit 08: Objectivity and Subjectivity in Research

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Summary

Keywords/Glossary

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Objectives

- To understand the meaning of objectivity and subjectivity in research
- To analyze the relevance of integrity, carefulness & openness in research
- To assess the meaning of and respect for intellectual property rights in research
- To analyze the significance of social responsibility and competence in research
- To examine the meaning of legality and informed consent in research
- To evaluate the significance of legal sanction and informed consent in research

Introduction

This unit examines relevant topics including Objectivity and subjectivity in research, integrity, carefulness, openness, and respect for intellectual property, confidentiality, social responsibility, competence, legality and informed consent. The unit explains the perspective taken by the researcher also depends on whether the researcher believes that there is an objective world out there that can be objectively known; for example, profit can be viewed as an objective measure of business performance. Alternatively the researcher may believe that concepts such as culture, motivation, leadership, performance result from human categorisation of the world and that their meaning can change depending on the circumstances. For example, performance can mean different things to different people. For one it may refer to a hard measure such as levels of sales. For another it may include good relationships with customers.

According to this latter view, a researcher can only take a subjective perspective because the nature of these concepts is the result of human processes. Subjective research generally refers to the subjective experiences of research participants and to the fact that the researcher's perspective is embedded within the research process, rather than seen as fully detached from it.

It explains the various issues related with subjective research. Subjective research is generally referred to as phenomenological research. This is because it is concerned with the study of experiences from the perspective of an individual, and emphasises the importance of personal

perspectives and interpretations. Subjective research is generally based on data derived from observations of events as they take place or from unstructured or semi-structured interviews.

A session of the unit reveals Intellectual Property Rights (IPRs) related aspects in research. IPRs are the legally recognized exclusive rights to creations of the mind. Under these rights, like any other form of a conventional property, intellectual property can be bought, sold, licensed or exchanged. Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets, such as musical, literary, and artistic works; discoveries and inventions; words, phrases, symbols and designs. These laws protect the legal rights of creators and owners, in relation to intellectual creativity. IPR is a prerequisite for better identification, planning, commercialization, rendering and thereby protection of invention or creativity.

The unit examines confidentiality refers to a condition in which the researcher knows the identity of a research subject, but takes steps to protect that identity from being discovered by others. Most human subject's research requires the collection of a signed consent agreement from participants, and the collection of other personally identifiable data, and thus researchers are aware of the identity of their subjects. In such cases, maintaining confidentiality is a key measure to ensure the protection of private information.

Social responsibility has been identified as the responsibility embodied in the Paramountcy principle, the fundamental and primary ethical principle of engineering included in the professional engineers code of ethics: Engineers, in the fulfillment of their professional duties shall hold paramount the safety, health and welfare of the public. The social responsibility of scientists requires that they also attend to the foreseeable societal impacts of their work, particularly as these impacts affect the safety, health or welfare of the society. In part that responsibility flows from privileged status. For example, researchers are allowed to carry out experiments as they deem appropriate with relatively little oversight.

The ethical and legal issues in research are the most important considerations for every researcher. These issues should be considered on every step of the research: be it the problem formulation stage; data collection phase; or the data analysis and interpretation phase of the research. The researcher should take into account that none of the ethical and legal issues have been violated.

Informed consent is the process of telling potential research participants about the key elements of a research study and what their participation will involve. The informed consent process is one of the central components of the ethical conduct of research with human subjects. The consent process typically includes providing a written consent document containing the required information (i.e., elements of informed consent) and the presentation of that information to prospective participants. All these various points are explained in detail in following pages.

Subject Matter

Lecture 1

8.1 Objective and Subjective in Research

Research in social science requires the collection of data in order to understand a phenomenon. This can be done in a number of ways, and will depend on the state of existing knowledge of the topic area. The researcher can: Explore a little known issue. The researcher has an idea or has observed something and seeks to understand more about it (exploratory research). Connect ideas to understand the relationships between the different aspects of an issue, i.e. explain what is going on (explanatory research). Describe what is happening in more detail and expand the initial understanding (descriptive research). Exploratory research is often done through observation and other methods such as interviews or surveys that allow the researcher to gather preliminary information.

Explanatory research, on the other hand, generally tests hypotheses about cause and effect relationships. Hypotheses are statements developed by the researcher that will be tested during the research. The distinction between exploratory and explanatory research is linked to the distinction between inductive and deductive research. Explanatory research tends to be deductive and exploratory research tends to be inductive. This is not always the case but, for simplicity, we shall not explore the exceptions here.

Descriptive research may support an explanatory or exploratory study. On its own, descriptive research is not sufficient for an academic project. Academic research is aimed at progressing current knowledge.

The perspective taken by the researcher also depends on whether the researcher believes that there is an objective world out there that can be objectively known; for example, profit can be viewed as an objective measure of business performance. Alternatively the researcher may believe that concepts such as 'culture', 'motivation', 'leadership', 'performance' result from human categorisation of the world and that their 'meaning' can change depending on the circumstances. For example, performance can mean different things to different people. For one it may refer to a hard measure such as levels of sales. For another it may include good relationships with customers. According to this latter view, a researcher can only take a subjective perspective because the nature of these concepts is the result of human processes. Subjective research generally refers to the subjective experiences of research participants and to the fact that the researcher's perspective is embedded within the research process, rather than seen as fully detached from it.

On the other hand, objective research claims to describe a true and correct reality, which is independent of those involved in the research process. Although this is a simplified view of the way in which research can be approached, it is an important distinction to think about. Whether you think about your research topic in objective or subjective terms will determine the development of the research questions, the type of data collected, the methods of data collection and analysis you adopt and the conclusions that you draw. This is why it is important to consider your own perspective when planning your project.

Subjective research is generally referred to as phenomenological research. This is because it is concerned with the study of experiences from the perspective of an individual, and emphasises the importance of personal perspectives and interpretations. Subjective research is generally based on data derived from observations of events as they take place or from unstructured or semi-structured interviews. In unstructured interviews the questions emerged from the discussion between the interviewer and the interviewee. In semi-structured interviews the interviewer prepares an outline of the interview topics or general questions, adding more as needs emerged during the interview.

Structured interviews include the full list of questions. Interviewers do not deviate from this list. Subjective research can also be based on examinations of documents. The researcher will attribute personal interpretations of the experiences and phenomena during the process of both collecting and analysing data. This approach is also referred to as interpretivist research. Interpretivists believe that in order to understand and explain specific management and HR situations, one needs to focus on the viewpoints, experiences, feelings and interpretations of the people involved in the specific situation.

Conversely, objective research tends to be modelled on the methods of the natural sciences such as experiments or large scale surveys. Objective research seeks to establish law-like generalisations which can be applied to the same phenomenon in different contexts. This perspective, which privileges objectivity, is called positivism and is based on data that can be subject to statistical analysis and generalisation. Positivist researchers use quantitative methodologies, which are based on measurement and numbers, to collect and analyse data. Interpretivists are more concerned with language and other forms of qualitative data, which are based on words or images. Having said that, researchers using objectivist and positivist assumptions sometimes use qualitative data while Interpretivists sometimes use quantitative data. (Quantitative and qualitative methodologies will be discussed in more detail in the final part of this course.) The key is to understand the perspective you intend to adopt and realise the limitations and opportunities it offers.

8.2 Integrity in Research

Research integrity may be defined as active adherence to the ethical principles and professional standards essential for the responsible practice of research.

By active adherence we mean adoption of the principles and practices as a personal credo, not simply accepting them as impositions by rulemakers.

By ethical principles we mean honesty, the golden rule, trustworthiness, and high regard for the scientific record.

NAS report definition: For individuals research integrity is an aspect of moral character and experience. It involves above all a commitment to intellectual honesty and personal responsibility for ones actions and to a range of practices that characterize responsible research conduct." These

practices

include:

Honesty and fairness in proposing, performing, and reporting research;

Accuracy and fairness in representing contributions to research proposals and reports;

Proficiency and fairness in peer review;

Collegiality in scientific interactions, communications and sharing of resources;

Disclosure of conflicts of interest;

Protection of human subjects in the conduct of research;

Humane care of animals in the conduct of research;

Adherence to the mutual responsibilities of mentors and trainees."

While researchers in any streams encourages (no, requires) vigorous defense of one's ideas and work, ultimately research integrity means examining the data with objectivity and being guided by the results rather than by preconceived notions.

8.3 Carefulness in Research

Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities, such as data collection, research design, and correspondence with agencies or journals.

Research should be conducted in a precise manner to avoid mistakes and errors

- Researchers should critically examine their own work as well as the research of peers
- Researchers must avoid self-deception, bias, and conflicts of interest
- All research activities, such as consent forms, data collection, and data analysis should be well documented.

Take care in carrying out research to avoid careless mistakes. Researchers should also review their work carefully and critically to ensure that your results are credible. It is also important to keep full records of research. If you are asked to act as a peer reviewer, researchers should take the time to do the job effectively and fully.

8.4 Openness in Research

Refers to the principle of freedom of access by all interested persons to the underlying data, to the processes, and to the final results of research.

The principles of open scholarly exchange and academic freedom are integral to every academic missions. These principles are referred to as openness in research.

- It reserves the right to publish and disseminate information resulting from sponsored research;
- It can maintain the confidentiality of the sponsor's confidential information, when necessary;
- It does not conduct research that restricts the freedom to disclose the existence of the agreement.

8.5 Respect for Intellectual Property

The term Intellectual Property applies to intellectual creativity of a creator such as invention, musical, literary, symbols, names, designs, images and even ideas. Intellectual property is an intangible asset of a person. It is a legal concept which refers to creations of the mind for which exclusive rights are recognized. Intellectual property, like any other form of conventional forms of property, is an asset. The owner has the right to prevent the unauthorized use or sale of the property. Since Intellectual property is intangible, that is, it cannot be defined or identified by its own physical parameters, thus intellectual property must be expressed in some discernible way for enabling it to be protected.

Intellectual Property Rights (IPRs) are the legally recognized exclusive rights to creations of the mind. Under these rights, like any other form of a conventional property, intellectual property can be bought, sold, licensed or exchanged. Under intellectual property law, owners are granted certain exclusive rights to a variety of intangible assets, such as musical, literary, and artistic works; discoveries and inventions; words, phrases, symbols and designs. These laws protect the legal rights of creators and owners, in relation to intellectual creativity. IPR is a prerequisite for better identification, planning, commercialization, rendering and thereby protection of invention or creativity. The objective of intellectual property law is to grant incentive to the creator of a work. Inventive activity is supposed to result in innovation, which further leads to technological advancement, industrial development and economic welfare (Reddy and Kadri, 2013).

8.6 Need for IPR

Every creation requires time, energy and effort. The time involved varies greatly between projects. It may vary from a few minutes to a few years. In addition, any creative work also requires certain amount of real capital and of course the education or knowledge. All these things add up to a huge investment on the part of any creative professional. Thus, it is necessary to recognize and respect the intellectual creations of a creator. Although many of the legal principles, governing intellectual property rights, have evolved over centuries, it was not until the 19th century that the term intellectual property began to be used. It was in the late 20th century that it became common in the most part of the world. The World Intellectual Property Organization (WIPO) was established, in 1967, as an agency of the United Nations. Since then the term really began to be used in the United States. There is an extensive international system for defining, protecting, and enforcing intellectual property rights, comprising both multilateral treaty schemes and international organizations such as Trade-Related Aspects of Intellectual Property Rights (TRIPs), World Intellectual Property Organization (WIPO), World Customs Organization (WCO), United Nations Commission on International Trade Law (UNCITRAL), World Trade Organization (WTO) and European Union (EU).

8.7 Respect for IPR

IPRs play very important role in the progress and development of the society. IPRs not only provide incentive to the creator of his creation but also lead to a healthy competition among creators which ultimately leads to the progress of the society. Some of the positive impacts of IPR are: IPRs are important for free flow for energy for enhancing invention and research. IPRs provide incentive to the individuals for new creations. IPRs provide due recognition to the creators and inventors. These laws provide them both the means and incentive to create newer works, products and services. Intellectual Property Rights enhance innovation and creativity by protecting the rights of inventors and artists. Since the filing of patents requires the disclosure of information that would enable others to replicate the inventor's discovery, others can use and build upon this shared knowledge to create newer and/better products.

IPRs ensure material reward for intellectual property. IPRs ensure the availability of the genuine and original products. Intellectual Property rights, such as patent and copyrights, are an important means used by firms to help protect their investments in innovation. IPRs may be helpful in the solution to global challenges like in the field of alternate sources of energy, new products to the farmers and development of low cost drugs for poor people. IPRs are necessary to stimulate economic growth. Protection of intellectual property rights is essential in maintaining economic growth. They encourage fair trading which would contribute to economic and social development. Effective enforcement of intellectual property rights is critical to sustaining economic growth across all industries and globally.

Confidentiality

The terms anonymity and confidentiality are frequently confused in human subjects research. The distinction between the two terms, however, is critical in the design of protocols that protect participant privacy and provide for adequate informed consent.

Confidentiality refers to a condition in which the researcher knows the identity of a research subject, but takes steps to protect that identity from being discovered by others. Most human subjects research requires the collection of a signed consent agreement from participants, and the collection of other personally identifiable data, and thus researchers are aware of the identity of their subjects. In such cases, maintaining confidentiality is a key measure to ensure the protection of private information.

Researchers employ a number of methods to keep their subjects' identity confidential. Foremost, they keep their records secure through the use of password protected files, encryption when

sending information over the internet, and even old-fashioned locked doors and drawers. They frequently do not record information in a way that links subject responses with identifying information (usually by use of a code known only to them). And because subjects may not be identified by names alone, but by other identifiers or by combinations of information about subjects, researchers will often only report aggregate findings, not individual-level data, to the public.

Anonymity is a condition in which the identity of individual subjects is not known to researchers. Because most human subjects research requires signed documentation of consent, subject anonymity is not as common in human subjects research. Federal law does allow an IRB to waive the requirement for signed consent documents in cases where the collection of that document is the only identifying information linking the subject to the project. Such documentation is most often waived for projects such as online survey that present no more than minimal risk to subjects.

As you develop your human subjects review application, please be certain you understand the distinction between confidentiality and anonymity, and that you use the appropriate terms in your project description and consent documents.

Social Responsibility

The research community is a part of, not apart from, the larger society. Like other professionals, scientists contribute to society through their work in a manner that reflects their interests, talents and expertise. Some benefits and privileges accompany their professional role, as well as some responsibilities. The social responsibilities of researchers arise not simply because research is funded (directly or indirectly) by the public. Research is carried out in the name of society as an expression and reflection of the society's needs, interests, priorities and expected impacts. Like anyone claiming to act in the name or interests of society, there is a largely unwritten, unexpressed contract. While researchers are compensated financially, with intellectual rewards and social status, society expects more than a high quality product. This expectation is expressed to some degree in the "broader impacts" criterion for evaluation and funding of National Science Foundation grant proposals, the inclusion of significance as a criterion for evaluating National Institutes of Health applications, and in the various formulations of the America COMPETES Act 2007.

Social responsibility has been identified as the responsibility embodied in the paramount principle, the fundamental and primary ethical principle of engineering included in the professional engineers code of ethics: Engineers, in the fulfilment of their professional duties shall hold paramount the safety, health and welfare of the public. The social responsibility of scientists requires that they also attend to the foreseeable societal impacts of their work, particularly as these impacts affect the safety, health or welfare of the society. In part that responsibility flows from privileged status. For example, researchers are allowed to carry out experiments as they deem appropriate with relatively little oversight.

An exception is research that involves research subjects whose humane treatment, whether laboratory animals or humans, is a responsibility that goes with the privilege and is explicitly expected under the rubric of the responsible conduct of research as well as spelled out in regulations that codify the principles of bioethics. But the social responsibilities of researchers extend beyond upholding the ethical standards of society. The Uppsala Code of Ethics for Scientists highlights the responsibility of scientists to refrain from, and speak out against, weapons research and other scientific research with the potential for detrimental consequences for the environment, and for present and future generations. Furthermore, researchers' special knowledge that comes from their work, education and expertise enables them to understand the limits of the science and when its application (e.g., in the development or support of public policy) is a misuse or even abuse of the science. Researchers have a responsibility to oppose the misuse of their work.

Moreover, because of their special knowledge researchers are in a position to contribute substantially to public understanding of science and technology, and thereby to a democratic society, by promoting an informed citizenry. It seems plausible that these larger notions of responsibility underlie the relatively recent addition of discussions of the scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research as appropriate elements of education in the responsible conduct of research.

Competence

A word that is finding increasing use in the any research sector is competence. But what does it mean and what is its significance? Competence can be defined as the ability of an individual to

demonstrate knowledge, skills and behaviors. When someone is competent in a particular job role they have mastered all the knowledge skills and behaviors required for that position or function.

Most of us have had some kind of competence assessment during our adult lives. When we learn to drive a car we must prove to the relevant authorities that we have the appropriate knowledge (of road signs, rules of the road, relevant laws), and the skills to manoeuvre and control the car. We also need to demonstrate the correct behaviors such as respect for other motorists, keeping to the speed limits, not driving recklessly and driving with "due care and attention". Once we have proved we are competent we are given a driving license and are allowed to drive unaccompanied on our country's roads.

One common misconception of competence is that it can be demonstrated by a person passing a multiple-choice test or writing essays in response to hypothetical scenarios. True, these assessments can demonstrate knowledge but they are not reliable measures of skills or behaviors. Another fallacy is that experience equates to competence. Naturally the right experience contributes to the gaining of competence but in no way does it guarantee it.

Legality and Informed Consent

Legality: The ethical and legal issues in research are the most important considerations for every researcher. These issues should be considered on every step of the research: be it the problem formulation stage; data collection phase; or the data analysis and interpretation phase of the research. The researcher should take into account that none of the ethical and legal issues have been violated. None of the journals approve manuscript for publication until the research is proved to be ethically and legally correct. Here we will see about some of the common ethical and legal issues in research and how to safeguard against failure to abide by these rules.

These are internationally accepted guidelines that deal with the issues that can lead to ethical and legal issues in research. There might be some regional ethics and legal issues that should also be consulted with some local committee to make sure that you do not violate any ethical or legal requirement of the research. These regulations are particularly related to the research participants, research sponsors, research investigators consent and authorship, and avoiding bias, prejudice and fraud in research.

Issues related to research participants

The most important ethical and legal considerations are related to the research participants. It is the researcher's responsibility to safeguard and maintain the privacy, dignity, respect, privacy, and protection of the research participants. There are issues that are controversial in nature the author should take consent form the research participants before publishing any controversial or personal information about the research participants. It is better to avoid disclosing the names and identities of the research participants in the research.

The author should take consent form the research participants about the participation in the research. The research should also take consent about the part of the information that the participant provides and will be published in the research. No information can be published in the research without research participant's consent.

The researcher should make sure that the identities of the research participants are kept anonymous. When it is required to show the identity the research participant should be informed and a written consent should be taken.

The subjects or participants of the research should not be forced to participate or to provide any information. They should not be forced to give consent for any publication of information they have provided.

The researcher should make sure that any disclosure of information provided by the participant will not lead to any harm to the participant.

In any way the participants of the research should benefit form the research and its outcomes. There should not be any possibility that the research will provide any harm if not good to them.

If the research participants are children a written consent should be asked from the parents or guardians of the children.

The researcher can express thanks to the participants by different means. The researcher can even pay the respondents for their participants, the participants can also be given incentives for their participation, or the researcher can verbally or in written form thank the participants.

Issues

The issues related to the researcher include avoiding bias, prejudice, avoiding any fraud, authorship consent, copyright issues, and protection of the sponsors.

A scientific research has no place for personal biases and prejudices. The researcher can introduce bias at any stage of the research. The researcher should be well aware of the biases that he can introduce in the research. He should make sure that the analysis and interpretation of the research should be free of personal biases. Biases can be introduced in the research due to some preconceived views of the topic. In qualitative research the researcher can use various ways to improve the validity and reliability of the research. In quantitative research the researcher should make sure each step of the research has been taken precisely to avoid any bias.

Fraud is cheating and a crime. The researcher can do fraud by deceiving the publication body, the audience, and the sponsors. A fraud in research can be the publication of someone else's work by your own name. A fraud can also be the publication of someone else's research findings or experimental data in your research. The researcher can also fraud by duplicate publication of almost same research in different journals. Some of the fraud can be easily detected by the publication journals while others are very difficult to identify.

The ethical and legal issues in research also include the authorship and the order of authorship in research. When there is only one investigator involved in the research the authorship naturally goes to that one. When there are more than one authors involved the order of authorship should be discussed among them. Each contributor of the research should be well aware of his position in the final manuscript. It is a crime to provide false authorship to a manuscript. The roles of the authors and their order in the final manuscript should be decided well in the beginning of the research. This will help in having any conflicts at the end of the research.

The copyright protection of the research can help the researchers in protecting their work from any commercial or noncommercial use. The authors and the publishers should define and sign the copyright protection so that other users can use the work accordingly.

The sponsors of the research can be the private organization that has sponsored the research, or the university under which the research is conducting the research, it can also be a government organization. The sponsors should be clearly identified and acknowledged in the research. Any other person who contributed in any form to the research should also be acknowledged in the research.

Informed Consent

Informed consent is the process of telling potential research participants about the key elements of a research study and what their participation will involve. The informed consent process is one of the central components of the ethical conduct of research with human subjects. The consent process typically includes providing a written consent document containing the required information (i.e., elements of informed consent) and the presentation of that information to prospective participants.

Informed consent is one of the founding principles of research ethics. Its intent is that human participants can enter research freely (voluntarily) with full information about what it means for them to take part, and that they give consent before they enter the research.

Consent should be obtained before the participant enters the research (prospectively). The minimum requirements for consent to be informed are that the participant understands what the research is and what they are consenting to.

There are two distinct stages to a standard consent process for competent adults:

Stage 1 (giving information): the person reflects on the information given; they are under no pressure to respond to the researcher immediately.

Stage 2 (obtaining consent): the researcher reiterates the terms of the research, often as separate bullet points or clauses; the person agrees to each term (giving explicit consent) before agreeing to take part in the project as a whole. Consent has been obtained.

Researchers should ensure that they comply with the General Data Protection Regulation (GDPR) during and after the consent process, especially if they will be collecting special category

data or personal data in the course of their research (also refer to the advice on consent in research involving children). See also the guidance on data protection and research and the data protection checklist for use when preparing an application for ethical review.

Summary

In conclusion, it is observed that to be objective, a researcher must not allow their values, their bias or their views to impact on their research, analysis or findings. For research to be reliable and to be considered scientific, objectivity is paramount.

However, some question whether social science researches can ever be entirely objective, as researchers' views and values are likely to affect their choice of topic. Weber argued that while sociologists should be interested in the subjective views of their subjects, they should remain objective in their research; others argue that objectivity is impossible at all stages of research. Many social science researchers – not just those who consider their activities to be scientific – argue that sociological research needs to be objective; that their biases and values should never influence their research design, interpretation or analysis.

But interpretivist social scientists are interested in the subjective views and interpretations of their subjects, believing that it is impossible to objectively establish social facts. Nonetheless, most would still urge social science researchers to be objective in their research, even though postmodernists argue that all research is inevitably subjective.

When it comes to integrity in research, the reputation of the University as an elite, research-intensive institution is built on the consistently high-quality research conducted by our staff and students. In order for us to maintain that reputation, it is important that everyone involved in undertaking research continues to meet the highest accepted standards. Research integrity means conducting research in a way which allows others to have trust and confidence in the methods used and the findings that result from this. Within the University, conducting research with integrity also means meeting the professional standards expected of our researchers.

With regard to the carefulness in research, a researcher should avoid careless errors and negligence, carefully and critically examine own and peers' work. He/she should keep good records of research activities such as data collection, research design and correspondence with journals and agencies.

At the same time, a researcher should share data, results, ideas, tools and resources. He/she should be open to criticism and new ideas. Moreover, a researcher should honour patents, copyrights and other forms of intellectual property. He/she should not use unpublished materials, methods or results without permission. He/she should give credit where due, proper acknowledgement and should never plagiarize. In addition, a researcher should protect confidential communication such as personnel records, patient records, etc.

Some of the positive impacts of IPR are: IPRs are important for free flow for energy for enhancing invention and research. IPRs provide incentive to the individuals for new creations. IPRs provide due recognition to the creators and inventors. These laws provide them both the means and incentive to create newer works, products and services. Intellectual Property Rights enhance innovation and creativity by protecting the rights of inventors and artists. Since the filing of patents requires the disclosure of information that would enable others to replicate the inventor's discovery, others can use and build upon this shared knowledge to create newer and/better products.

Social responsibility and competence in research have also well understood in this unit. The social responsibility of scientists requires that they also attend to the foreseeable societal impacts of their work, particularly as these impacts affect the safety, health or welfare of the society. In part that responsibility flows from privileged status. Competence defined as the ability of an individual to demonstrate knowledge, skills and behaviors. When someone is competent in a particular job role they have mastered all the knowledge skills and behaviors required for that position or function. In social science researches, competence for a positive cause is very much appreciated.

This unit addressed the importance of legality and ethical responsibility to the participants in research or to the institution. It should be noted again that ethical obligations are not invariably coextensive with legal obligations and vice versa. The overriding theme is the protection of the research participants and the consequences of a failure to do so. However, it is also clear from the discussion in the unit that there are legally-imposed limits on the extent to which participants may be protected from the disclosure of information about them and/or their behavior.

Informed consent is an ethical and legal requirement for research involving human participants. Informed consent is an inevitable requirement prior to every research involving human being as subjects for study. Obtaining consent involves informing the subject about his or her rights, the purpose of the study, procedures to be undertaken, potential risks and benefits of participation, expected duration of study, extent of confidentiality of personal identification and demographic data, so that the participation of subjects in the study is entirely voluntary. All these various points have been well explained in the unit with examples.

Keywords/Glossary

Objective research: Objective research claims to describe a true and correct reality, which is independent of those involved in the research process.

Subjective research: Subjective research generally refers to the subjective experiences of research participants and to the fact that the researcher's perspective is embedded within the research process, rather than seen as fully detached from it.

Integrity in Research: Research integrity may be defined as active adherence to the ethical principles and professional standards essential for the responsible practice of research.

Openness in Research: Refers to the principle of freedom of access by all interested persons to the underlying data, to the processes, and to the final results of research.

Intellectual Property: The term Intellectual Property applies to intellectual creativity of a creator such as invention, musical, literary, symbols, names, designs, images and even ideas. Intellectual property is an intangible asset of a person.

Confidentiality: Confidentiality refers to a condition in which the researcher knows the identity of a research subject, but takes steps to protect that identity from being discovered by others.

Social responsibility: Social responsibility has been identified as the responsibility embodied in the paramount principle, the fundamental and primary ethical principle of engineering included in the professional engineers code of ethics.

Informed Consent: Informed consent is the process of telling potential research participants about the key elements of a research study and what their participation will involve.

Review Questions

1. How do you elaborate the meaning of objectivity and subjectivity in research?
2. Critically analyse the relevance of integrity, carefulness & openness in research.
3. How do you assess the meaning of and respect for intellectual property rights in research?
4. What are the features and significances of social responsibility and competence in research?
5. Examine the meaning of legality and informed consent in research.
6. Elucidate the significance of legal sanction and informed consent in research

Self-Assessment

1. is personal neutrality
 - A. Objectivity
 - B. Subjectivity
 - C. Logic
 - D. Norms

-
2. allows the facts to speak for themselves and not be influenced by the personal values and biases of the researcher.
- A. Logic
 - B. Norms
 - C. Objectivity
 - D. Morality
3.is judgment based on individual personal impressions and feelings and opinions rather than external facts.
- A. Norms
 - B. Subjectivity
 - C. Objectivity
 - D. Morality
4. What in research keep promises and agreements; act with sincerity; strive for consistency of thought and action.
- A. Integrity
 - B. Carefulness
 - C. Subjectivity
 - D. None of the above
5. avoids careless errors and negligence; carefully and critically examine your own work and the work of your peers.
- A. Objectivity
 - B. Carefulness
 - C. Subjectivity
 - D. None of the above
6. Do not use unpublished data, methods, or results without permission as it comes under
- A. Responsible publication
 - B. Objectivity
 - C. Integrity
 - D. Intellectual Property Rights
7. directs researchers to publish in order to advance research and scholarship, not to advance just your own career.
- A. Objectivity

- B. Integrity
 - C. Intellectual Property Rights
 - D. Responsible publication
8. Protecting confidential communications, such as papers or grants submitted for publication, personnel records, trade or military secrets, and patient records may fall under
- A. Social Responsibility
 - B. Confidentiality
 - C. Intellectual Property Rights
 - D. None of the above
9. What is in research an attempt to promote social good and prevent or mitigate social harms through research, public education, and advocacy.
- A. Social Responsibility
 - B. IPR
 - C. Confidentiality
 - D. None of the Above
10. help to educate, mentor, and advise students. Promote their welfare and allow them to make their own decisions.
- A. IPR
 - B. Confidentiality
 - C. Responsible mentoring
 - D. Social Responsibility
11. In research,..... is to know and obey relevant laws and institutional and governmental policies.
- A. Objectivity
 - B. Integrity
 - C. Legality
 - D. None of the Above
12. Showing proper respect and care for animals when using them in research is known as.....
- A. Animal protection
 - B. Animal care
 - C. Respect for animals
 - D. None of the Above

13. When conducting research on human subjects,minimizes harms and risks and maximize benefits; respect human dignity, privacy, and autonomy.
- IPR
 - Human care
 - Human subjects protection
 - None of the Above
14. is one of the founding principles of research ethics.
- Consent
 - Permission
 - Informed consent
 - None of the Above
15. intent is that human participants can enter research freely with full information about what it means for them to take part, and that they give consent before they enter the research.
- Informed consent
 - Consent
 - Written Permission
 - None of the Above

Answer for Self Assessment

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. A | 2. C | 3. B | 4. A | 5. B |
| 6. D | 7. D | 8. B | 9. A | 10. C |
| 11. C | 12. B | 13. C | 14. C | 15. A |

Further Readings



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Unit 09: Plagiarism

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Objectives

- To define the term plagiarism and its variance
- To examine the types of plagiarism in researches
- To analyze the use of turnitin and other authenticate software's
- To sketch the consequences and penalties of plagiarism
- To examine the University Grants Commission's (UGC) policy for curbing plagiarism

Introduction

The unit dedicates to understand various points - plagiarism, use of turn tin/authenticate software, role of referencing/bibliography in handling plagiarism, penalties and consequences, University Grants Commission's (UGC) policy for curbing plagiarism - in details. The primary question that bothers many individuals is, is plagiarism illegal? Not when it concerns students. Well, if they stole their entire dissertation from someone else or presented funded research for publication that possesses borrowed and uncited ideas of others, they might face legal penalties, but in the majority of instances, this principle doesn't apply. It doesn't matter that you could remain unpunished, though. So, what is plagiarism?

Plagiarism is intentional or unintentional borrowing of ideas from other authors without giving them credit and presenting their information or findings as something you came up with yourself. You might be completely unaware of the fact that you've plagiarized something, which is going to hurt more since you will be taken aback when all hell breaks loose. There are different types of plagiarism, with some of them severe and others not so. But one thing is undeniable: if you engage in it and it's revealed, you will be wishing it had never happened because the hassle is just not worth it.

This unit explains plagiarism is an issue of great concern amongst the academicians. Plagiarism is a moral, ethical, and legal issue. Plagiarism has been around for centuries, but the Internet and the subsequent proliferation of information have made the problem more serious. Plagiarism is taking someone else's work and passing it off as one's own. Many people think of plagiarism as copying

another's work, or borrowing someone else's original ideas. But terms like "copying" and "borrowing" can disguise the seriousness of the offense. In order to avoid plagiarism, there are so many tools available. Turnitin, a plagiarism.org partner, considers themselves to be "the world's most widely recognized and trusted resource to prevent Internet plagiarism". Free trials are also available, and subscription costs vary depending on the type of plan chosen. Turnitin is currently the subject of a copyright controversy.

The unit examines the policy of University Grants Commission in India to curb plagiarism. The UGC had constituted a committee to look into the issue of plagiarism and this committee framed a draft regulation known as the University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions) Regulations, 2017, which was publicly notified by the UGC on 1st September 2017. On 20th March 2018, the regulations were approved by the UGC awaiting notification after the approval of the Ministry of Human Resource Development (MHRD). All such points well explained in following paragraphs with examples.

Subject Matter

Lecture 1

9.1 Definition of Plagiarism

Merriam-Webster dictionary defines plagiarism as the theft and use of other people's ideas or words as yours; Use of sources without attribution; literary theft and presenting some ideas as own and as it is new, while this idea already exists in other source. There are many ways in which misconduct in medical research can be defined and the presence of thousands of journals worldwide and ease of access of these articles across the globe has not led to any common name to define this problem. The first attempt to address plagiarism was in 1992 in the USA by the Office of Research Integrity (ORI) and then later in 1997 in the UK by Committee on Publication Ethics (COPE) both of which gave guidelines for research, scientific integrity and a set of principles to detect and present plagiarism.

The commonly used definitions by some of the leading bodies worldwide are given below. COPE describes misconduct as the "intention to cause others to regard as true that which is not true. The Royal College of Physicians of Edinburgh: definition was "Behaviour by a researcher, intentional or not, that falls short of good ethical and scientific standard". ORI: defines research misconduct using the FFP model, that include: Fabrication - Making up data or results and recording or reporting them. Falsification - Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record. Person's ideas, processes, results, or words without giving appropriate credit. Research misconduct does not include honest error or differences of opinion The World Association of Medical Editors (WAME) definition: "the use of others published and unpublished ideas or words (or other intellectual property) without attribution or permission, and presenting them as new and original rather than derived from an existing source"

Types of plagiarism: Plagiarism can be defined in many ways. Intentional or Unintentional, Intentional plagiarism occurs when the author deliberately, intentionally or knowingly copies entire text, paragraph or data and presents as its own. Unintentional occurs when the author either is not aware of such research, is unaware of the ethics in writing or does not know how to cite and thus presents similar articles. The commonest form of plagiarism is of text known as "copy-cut-paste" or "word-to-word" writing wherein complete sentences, paragraph, tables or even pictures are reproduced without acknowledgement. Described as "...copying a portion of text from another source without giving credit to its author and without enclosing the borrowed text in quotation marks." Although previous research need to be discussed complete copying of text is to be avoided.

With use of computers and the internet this form of plagiarism is very prevalent. Copying of ideas is a common form of plagiarism wherein someone else's ideas, presentations, audio or video files, thoughts, inferences or suggestions are made into research and presented as own without proper acknowledgement. This is of course very difficult to detect or prove. Some other methods are taking ideas from books, previously published thesis, journals, magazines, conferences or meetings.

Source

This type of plagiarism uses previous article's citations without actually reading or cross referencing the bibliography. Mosaic/patch writing, This happens when a new author uses the previous article text by replacing, reordering or rephrasing the words or sentences to give it new look without acknowledging the original author. The American Medical Association Manual of Style describes mosaic plagiarism as "... borrowing the ideas and opinions from an original source and a few verbatim words or phrases without crediting the original author. In this case, the

plagiarist intertwines his or her own ideas and opinions with those of the original author, creating a confused, plagiarized mass.”

9.2 Self-Plagiarism

This happens when the author has added research on a previously published article, book, contributed chapter, journal, and presents it as a new without acknowledging the first article or taking permission from the previous publisher. Submission of the same article to multiple journals to increase the chances of publication or making multiple articles from a single article, known as, “salami slicing” is another form of plagiarism. WAME’s Ethics Committee says: “With respect to the issue of how much overlap is too much...a rule of thumb that some editors have applied when considering the amount of overlap between two review articles (not book chapters) has been overlap of more than one-third of the material.”

Ghost writing: In this type the main contributor is not given due acknowledgement or someone who has not contributed is given due credit.

Collusional: In this type the author asks a professional agent or institution to write an article and then claims as its own. There are many reasons for plagiarism starting from individual and not limiting to institutions, journals, textbooks, research funding agencies or international trials. An inherent desire or urge to be successful, cultural, psychological, aggressive nature towards success, fear of discrimination for failure, promotion, financial or job gains, peer pressure and need to increase one’s record number of publications are some of the individual causes for plagiarism. Lack of education at the undergraduate level regarding plagiarism and the dogmatic view expressed in textbook without the ability to self support are other reasons for this trend.

The demand of publication during interviews are also another cause for plagiarism. To get university or research grants, incentives from pharmaceutical companies, increase the academic and social performance of the department, gain access to international research, aim of publishing in indexed journals are other causes at institutional level. Shortage of time, inadequate preparation, poor English or writing skills and the pressure to publish more articles than to consider the quality, in shorter time are other causes for plagiarism. Poor quality/maintenance of the journal, lack of proper guideline following regarding publication, poor reviewing methods or uneducated reviewer, competition amongst journal to publish more articles are some of the other factors that can lead to non-detection of plagiarized contents.

9.3 Detection of Plagiarism

Previously the only method to detect plagiarism was the ability/experience of the editor or reviewer to detect copies from the original. This involved extensive study of the literature, experience of the patterns of writing styles of different authors and cross checking them. In today’s world there are many software and websites that help in detecting plagiarism. Reuse of words and text can be easily checked with computer aided programs. The high cost of using such programs is a major limitation for use by smaller budget journals and in developing countries. iThenticate® is one of the common plagiarism detection program that has access to nearly 226,000 journals, and more than 1,300 publishers worldwide employ its similarity check services and could cost 6,800 USD per annum. Although these programs detect major copies, articles where the text has been rephrased or substituted by synonyms it may fail to detect the copies.

Newer and more sophisticated computer methods that analyse lexical, syntactic, and semantic features, tracking of paraphrasing, citation based detection, analysing the graphics, cross language text borrowing by non-English speakers and copying of references will aid to detect plagiarism. Until there is a single detection system that is universally used worldwide, 100% prevention of plagiarism is difficult.

Penalties for Plagiarism

Retraction of the article, blacklisting of the author with or without institution and expulsion from the institute, criminal charges, apology letter are some of the penalties for plagiarism. The extent of penalty depends on the journal or editor or editorial board policies. Generally, an explanation letter along with correction from the author is sought in mild cases with banning from further publishing in severe cases. The extent of plagiarism could determine the severity whether its simple text copying, self-plagiarism or idea plagiarism. The former is considered milder than the latter and plagiarism by seniors is considered more severe than juniors.

Avoiding Plagiarism in writing articles

Plagiarism is widespread even in developed countries and can be avoided by being honest while writing articles. Some of the ways to do this is by being original, taking time to write articles, writing in your own words, acknowledging all the studied articles, proper reference and strict adherence to the author or journal guidelines. Avoid copy paste type of writing and always write in the cover letter to Editor of any similarities with other article in literature.

Use of Turnitin/Authenticate Software

Checking of plagiarism by the researcher before submitting his/her research article or project is an ethical practice in research. In an internet era, the easily available reading material and copy and paste approach by beginners in research activities lead to duplication of research as well as finding similarity in the results of Research and Development (R &D). It is the effective use of anti-plagiarism software as preventive measures that shows the similarity in Percentages and direct link to original sources where the similarity is matched. The practical implementation requires support by well proven plagiarism detection software and well thought of Plagiarism Policy of concerned research institute and its effective implementation for bringing out research in the quality.

Turnitin is a text-matching tool first developed by Dr. John Barrie at the University of Berkeley in 1994, now used in 85 countries, principally as a method of plagiarism detection. As an online resource, it does not require downloading of software: student assignments are simply uploaded to the Turnitin website, which generates an originality report showing up all sections of the assignment that match text on its database of web sources, books and periodicals, and student work.

It uses colour coding of a 5-point scale from blue (<20 words) through green (0-24%), yellow (25-49%), orange (50-74%) and red (75-100%) to indicate overall similarity, then provides colour-coded web-based links to each source it identifies to allow for direct comparison. These functions allow for in-depth analysis of the use of sources in student work; features of this analysis include the amount of textual borrowing, the degree of reliance on sources, the accuracy of citation, the effectiveness of paraphrasing and the competence of the student in avoiding plagiarism.

Turnitin was incorporated for the first time in the 2006 run of the academic writing module. It was not intended as an isolated measure but rather formed part of a plagiarism education programme, which included at least 6 hours' instruction, a focus in online discussions, handbook self-study exercises, library guidelines and institutional warnings. The written task in itself was carefully designed to deter plagiarism in that it was based on an individual research question guided by the tutor to be evaluative rather than descriptive (to avoid information simply being copied and pasted).

Therefore, after students' first drafts were submitted to Turnitin in week 9 of the module, the originality reports generated were used in individual tutorial feedback with ample opportunities to discuss the students' own results using the visual evidence on the screen. The one-on-one discussion was entirely open, without any threat of assessment; no penalties were imposed, unlike in the study by Barrett and Malcolm (2006) in which a heavily plagiarised first draft could only achieve a bare pass of 40% in the final results. Following the feedback, the students had a period of 4 weeks (including the Easter break) to work on improving their drafts.

In order to assess the perceived improvements in drafts, the final assignments were also uploaded to Turnitin and the drafts were compared. The data was gathered from the originality reports in the form of the percentages of overall similarity and individual sources, and the highlighting of paraphrasing and evidence or lack of citation. Further quantitative feedback was gathered from both 2006 and 2007 in the form of questionnaires of eight positive and negative statements to answer on a Likert scale and two open questions, and qualitative feedback from focus groups using seven closed questions and three open questions. The study in 2007 developed a more in-depth approach to specific areas of improvement, such as paraphrasing and reducing over-reliance on some sources.

9.4 Role of Referencing/Bibliography in Handling Plagiarism

Every time you refer to somebody else's thoughts and arguments you need to both identify clearly whom you are referring to and from where you found this material. You need to do this whenever you:

- quote somebody else's work directly;
- closely summarize a passage from another writer; or

- draw directly upon somebody else's writing and ideas. It is important that you indicate the source of the information that you use in your written work for at least three reasons.
- Information in one sense 'belongs' to the person who discovered it or formulated it: to take it from someone else and claim it as your own is like stealing. This is known as plagiarism.
- Readers of your work who wish to find out more about the subject will often want to locate your sources to learn more about the background. For this reason, referencing must be comprehensive and accurate.
- If there is an error in the work that you quote, referencing enables you to pass on the blame to the original author! Please refer to this section frequently during the preparation and writing of your coursework assignments, so that you develop good referencing habits.

There is no excuse for poor referencing! When you read information relevant to a coursework or your research dissertation, record all details of references and page numbers carefully. Write details of the source on any materials that you photocopy. Do not rely on memory, or plan to find the sources again later. You may well forget, and you may not be able to find the document or exact page again when you need it. Keep a clear and complete list with correct spellings.

Some documents may not state the publication date; these should be referenced as undated documents using no date as described in citing information earlier. Also, you should make sure that you understand how books, papers, personal communications, electronic sources and lecture notes should be referenced. The remainder of this section offers you appropriate guidance. Referencing should provide sufficient information to enable the reader to trace the source. Providing them with the relevant page number in the original document makes this task much easier and this practice should be followed wherever possible.

Referencing allows you to acknowledge the contribution of other writers and researchers in your work. Any university assignments that draw on the ideas, words or research of other writers must contain citations.

Referencing is also a way to give credit to the writers from whom you have borrowed words and ideas. By citing the work of a particular scholar, you acknowledge and respect the intellectual property rights of that researcher. As a student or academic, you can draw on any of the millions of ideas, insights and arguments published by other writers, many of whom have spent years researching and writing. All you need to do is acknowledge their contribution to your assignment.

Referencing is a way to provide evidence to support the assertions and claims in your own assignments. By citing experts in your field, you are showing your marker that you are aware of the field in which you are operating. Your citations map the space of your discipline and allow you to navigate your way through your chosen field of study, in the same way that sailors steer by the stars.

References should always be accurate, allowing your readers to trace the sources of information you have used. The best way to make sure you reference accurately is to keep a record of all the sources you used when reading and researching for an assignment.

9.5 Plagiarism: Penalties and Consequences

The consequences of plagiarism can be personal, professional, ethical, and legal. With plagiarism detection software so readily available and in use, plagiarists are being caught at an alarming rate. Once accused of plagiarism, a person will most likely always be regarded with suspicion. Ignorance is not an excuse. Plagiarists include academics, professionals, students, journalists, authors, and others.

9.6 Consequences of plagiarism include:

Destroyed Student Reputation

Plagiarism allegations can cause a student to be suspended or expelled. Their academic record can reflect the ethics offense, possibly causing the student to be barred from entering college from high school or another college. Schools, colleges, and universities take plagiarism very seriously. Most educational institutions have academic integrity committees who police students. Many schools suspend students for their first violation. Students are usually expelled for further offences.

Destroyed Professional Reputation

A professional business person, politician, or public figure may find that the damage from plagiarism follows them for their entire career. Not only will they likely be fired or asked to step down from their present position, but they will surely find it difficult to obtain another respectable job. Depending on the offense and the plagiarist's public stature, his or her name may become ruined, making any kind of meaningful career impossible.

Destroyed Academic Reputation

The consequences of plagiarism have been widely reported in the world of academia. Once scarred with plagiarism allegations, an academic's career can be ruined. Publishing is an integral part of a prestigious academic career. To lose the ability to publish most likely means the end of an academic position and a destroyed reputation.

Legal Repercussions

The legal repercussions of plagiarism can be quite serious. Copyright laws are absolute. One cannot use another person's material without citation and reference. An author has the right to sue a plagiarist. Some plagiarism may also be deemed a criminal offense, possibly leading to a prison sentence. Those who write for a living, such as journalists or authors, are particularly susceptible to plagiarism issues. Those who write frequently must be ever-vigilant not to err. Writers are well-aware of copyright laws and ways to avoid plagiarism. As a professional writer, to plagiarize is a serious ethical and perhaps legal issue.

Monetary Repercussions

Many recent news reports and articles have exposed plagiarism by journalists, authors, public figures, and researchers. In the case where an author sues a plagiarist, the author may be granted monetary restitution. In the case where a journalist works for a magazine, newspaper or other publisher, or even if a student is found plagiarizing in school, the offending plagiarist could have to pay monetary penalties.

Plagiarized Research

Plagiarized research is an especially egregious form of plagiarism. If the research is medical in nature, the consequences of plagiarism could mean the loss of peoples' lives. This kind of plagiarism is particularly heinous.

The consequences of plagiarism are far-reaching and no one is immune. Neither ignorance nor stature excuses a person from the ethical and legal ramifications of committing plagiarism. Before attempting any writing project, learn about plagiarism. Find out what constitutes plagiarism and how to avoid it. The rules are easy to understand and follow. If there is any question about missing attribution, try using an online plagiarism checker or plagiarism detection software to check your writing for plagiarism before turning it in. Laziness or dishonesty can lead to a ruined reputation, the loss of a career, and legal problems.

9.7 University Grants Commission's (UGC) Policy for Curbing Plagiarism

Plagiarism is one of the biggest issues that educational institutions and academia are facing, not only due to the fact that it is basically stealing someone else's work, but also because this practice is so widespread in higher education, be it Ph.D. scholars or the average undergraduate. Plagiarism is a stain upon the legitimacy of education in India, thus the UGC has recently drafted certain regulations to control and punish plagiarism.

The University Grants Commission

The University Grants Commission or the UGC was set up in 1956 by an act passed by the legislature called the University Grants Commission Act, 1956 under the Ministry of Human Resource Development. It was created in order to regulate the higher education system of India. The UGC is thus responsible for the rules and guidelines that a college or university is supposed to follow.

Functions of the UGC

The powers and functions of the UGC have been described in Chapter II of the UGC Act, 1956 as follows:

- Maintaining the standards for teaching, examination, and research. The law has further provided certain powers to ensure such standards. The UGC can;
- Inquire about the financial situation of a university.
- Allocate funding to universities established or incorporated by a central act.
- Allocate funding to any other universities as they may deem fit.
- Recommend any measure for the improvement of education of a university.
- Advise the State or Centre on the issue of allocation of grants to universities or any other matter referred to the UGC by centre or state.
- Prescribe minimum standards of qualification for both students and teachers.
- Prescribe regulations regarding the fees and course of study.
- Under Section 26 of this act, the UGC has the power to frame any rules or regulations in order to fulfill the above functions.
- Procedure of Passing Rules and Regulations under Section 26 of UGC Act, 1956
- Sections 26, 27 and 28 of UGC Act 1956 have provided certain conditions which must be fulfilled before a binding regulation can be made. The conditions are as follows:
- The rules and regulations must be notified in the Official Gazette.
- The permission of the Central Government must be taken before it can be made.

Such rule or regulation has to be placed before both the houses of parliament for a total period of 30 days and if both the houses recommend modifying the rules or regulations, then it shall have effect only in the modified form or have no effect if the parliament rejects it.

UGC Rules Regarding Plagiarism

The UGC had constituted a committee to look into the issue of plagiarism and this committee framed a draft regulation known as the University Grants Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Education Institutions) Regulations, 2017, which was publicly notified by the UGC on 1st September 2017. On 20th March 2018, the regulations were approved by the UGC awaiting notification after the approval of the Ministry of Human Resource Development (MHRD).

Objectives of the Guideline

The objectives of the guidelines have been given in Section 3 of the draft as:

- Creating awareness of responsible conduct in academia and prevention of misconduct including plagiarism.
- Establishing an institutional mechanism for the promotion of academic integrity, responsible conduct, and prevention of plagiarism.
- Setting up a system for catching plagiarism and mechanism for punishing the act of plagiarism.

Plagiarism Defined

The definition of plagiarism has been defined in Section 2 (k) of UGC Act 1956, the regulation as, "...an act of academic dishonesty and a breach of ethics. It involves using someone else's work as one's own. It also includes data plagiarism and self-plagiarism."

Self-Plagiarism

The inclusion of self-plagiarism is an interesting addition as it means that using your own previous work without adequately citing it has also been brought within the ambit of the definition. This idea may appear counterintuitive to the very soul of plagiarism which is stealing someone else's work but it is important to understand that representing old work as new work is stealing from yourself. It also defeats the purpose of research papers which is to present original work and the integrity of the work is marred. Most publishers will not allow for self-plagiarism as there is no

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differentiation made between your published work and other people's published work. One of the most important facets to consider is that the copyright for published works are usually held by the journal rather than the author and plagiarizing from your own work would mean the violation of such copyright.

Scope of the Guidelines

The guidelines have been restricted to Higher Education Institutions which are as follows:

Universities, which are the institutions that have been incorporated by a Central, Provincial or State Act or any institution that has been deemed as such.

Any institute that has been declared by the parliament to be of national importance.

Or any constituent unit within such institutions that provide education after 12 years of schooling and which provides degrees or diplomas after completion of said education.

Further the guidelines are applicable only on "scripts", the definition of which has been provided in Section 2 (n) as any "...research paper, thesis, study, project report, assignment, dissertation and any other such work submitted for assessment/opinion leading to the award of degree or publication in print or electronic media by students or faculty or staff of an Institution of Higher Education;" the guidelines have also provided that exam scripts are exempt.

9.8 Duties of Higher Education Institutes (HEI) for Curbing of Plagiarism

The guidelines have provided in Section 4 and 5 that HEIs must perform certain duties in order to fulfill the objectives specified in the guidelines. HEIs must:

- They must establish a mechanism in order to spread awareness so as to promote responsible conduct, deterrence of plagiarism and academic integrity.
- The HEIs are to hold sensitization seminars for students, faculty and other members every semester for responsible conduct in pursuit of academia as well as teach academic ethics to students.
- The HEIs must put academic ethics in the coursework for Undergraduate, Postgraduate, and Masters degrees. They must also include research and publication ethics for coursework of Ph.D. and M.Phil scholars.
- The HEIs must provide training for using plagiarism detection technology.
- The institutions must establish facilities for the detection of plagiarism.

Methods for Curbing Plagiarism

Section 6 provides the various ways in which plagiarism is to be deterred by the various Higher Education Institutes. They are as follows:

- All HEIs are to implement a mechanism in order to detect plagiarism at the time the scripts are submitted to the institution.
- Every student who is submitting such scripts must also provide an undertaking which says that the work is original and no content has been plagiarised. The undertaking will also include that the work has been checked for plagiarism.
- All the members of the faculty, Ph.D. or M.Phil students are to be given access to such plagiarism detection tool.
- The institutions will come up with a plagiarism policy that has to be approved by the relevant statutory bodies.
- All supervisors will provide a certificate which states that the student or researcher under him/her has not plagiarised any content.
- All soft copies of the dissertations and theses by M.Phil and Ph.D. scholars after degree is awarded are to be submitting on the Information and Library Network Centre (INFLIBNET) for hosting by the HEIs.

- The institutions will set up an online repository for dissertations, theses, paper, publication and all other in-house publications.

Exemptions

Certain content will be exempted from the charge of plagiarism even though they are reproductions of other works. The said exemptions are as follow:

- Quoted work which is either in the public domain or has been attributed adequately or permission has been granted for its use.
- All references, table of content, preface, acknowledgement, and bibliography are exempted.
- Similar content which is minor.
- Standard equations and symbols, laws and generic terms.
- Tolerance of Plagiarism
- Tolerance of plagiarism has been divided into two part under Sections 8 and 9, they are:
- Zero-tolerance areas: This means that plagiarism of any degree will not be tolerated. Zero tolerance is restricted to core areas. Core areas are the hypothesis, the recommendations, the abstract, the summary, the conclusion, the results and the observations.
- Tolerance areas: Plagiarism in all areas but the core areas is tolerable to a certain extent. The various levels of plagiarism have been quantified and given below;
- Up to 10%- Excluded
- Between 10% and 40%- Level 1
- Between 40% and 60%- Level 2
- Above 60%- Level 3

Reporting of Plagiarism and Procedure to be followed

In case plagiarism is suspected and there is proof of such, any member of the academic community may approach the relevant institution after which the institution will refer it to the Academic Misconduct Panel (AMP). The AMP is to be set up by all HEIs in order to investigate and submit a report. After the AMP has thoroughly investigated the situation, they will make a report to the Plagiarism Disciplinary Authority (PDA), preferably within a period of 45 days. The PDA is to be formed by the HEI and their job is to take appropriate decision after consideration of both the recommendations of the AMP as well as the hearing of the accused. Their decision will be final and binding.

Penalties for the Act of Plagiarism

The various penalties for plagiarism have been provided in Section 13 of the guidelines. Different penalties have been given for different tiers of plagiarism severity. Section 13 provides that penalties shall be awarded only when there is no doubt that the accused has committed the act and after all other avenues of appeal have been exhausted. The accused must also be given adequate opportunity to defend himself/herself. Further, the proceedings are to be held in camera, meaning that proceedings are to be closed to the public. The penalties given should be in proportion to the severity of plagiarism.

Penalties for Students

Penalties will be given to students according to the decision of the Plagiarism Disciplinary Authority (PDA). The punishments given to students for plagiarism for different levels of severity are given below:

- Level 1 (10%-40%)- the student will not be given any mark or credit and revised script must be resubmitted within a stipulated time period which does not exceed 6 months.
- Level 2 (40%-60%)- the student will not be given any mark or credit and the revised script is to be resubmitted between 1 year and 18 months.

- Level 3 (above 60%)- the student will not be given any mark or credit and their registration for that course will be cancelled.

If a student repeats such act of plagiarism then the punishment will be for the next level to the one previously committed. In cases where the highest level of plagiarisation occurs then the punishment remains the same and the registration will be cancelled.

If degree or credit has already been obtained and the accused has been proven to have plagiarized content then said degree or credit will be suspended for a stipulated time period.

Penalties for Faculty, Staff or Researcher

Penalties for faculty, staff or researcher of Higher Education Institutes will also be given according to the severity of plagiarism.

Level 1 (10%-40%)- he/she will be asked to withdraw the manuscript submitted for publication and will not be allowed to publish any work for a minimum time period of 1 year.

Level 2 (40%-60%)- he/she will be asked to withdraw manuscript submitted for publication and will not be allowed to publish their work for a minimum time period of 2 years. He/she will also be denied any annual increment that they have been receiving, he/she will also not be allowed to act as a supervisor for students or scholars for 2 years.

Level 3 (above 60%)- he/she will be asked to withdraw manuscript submitted for publication and will not be allowed to publish any work for a minimum time period of 3 years. He/she will also be denied any annual increment they are receiving for 2 years, he/she will not be allowed to act as a supervisor for students or scholars for a period of 3 years.

If a person repeats the same act of plagiarisation then he/she will be subject to punishment of the next level from the level which the person was previously punished for. If Level 3 plagiarism is repeated than the person committing it will be dismissed from their job.

If a person has already attained any benefit or credit before plagiarism was proved then such benefit or credit will be suspended for a time period that is to be decided by the AMP and PDA.

Head of Higher Education Institute

If the head of an HEI is accused of plagiarising then the guidelines have provided that appropriate shall be taken by the concerned authority.

Summary

At the end, it is understood that plagiarism is a common but avoidable malpractice prevalent in the world. It affects all from students to seniorteachers and from developing to developed countries. Strict adherence to the journal guidelines and being honest can help to reduce this burden on the scientific society. Use of the common computer aided tools to detect plagiarism followed by severe punishment to the guilty, blacklisting the authors, worldwide notice of their activity, are some ways to address this problem. School syllabus to avoid plagiarism in medical courses can also help the younger generation and the demand for "quantity" rather than "quality" of published articles in jobs, interview, promotion and academics can further ease this problem.

Previously the only method to detect plagiarism was the ability or experience of the editor or reviewer to detect copies from the original. This involved extensive study of the literature, experience of the patterns of writing styles of different authors and cross checking them. In today's world there are many software and websites that help in detecting plagiarism.

In order to assess the perceived improvements in drafts, these days software tools like Turnitin would help. The data was gathered from the originality reports in the form of the percentages of overall similarity and individual sources, and the highlighting of paraphrasing and evidence or lack of citation.

When it comes to Indian context, there is a strict guideline introduced by the UGC. The current draft guidelines have provided a recourse for the problem of plagiarism which has been allowed to run rampant throughout institutions all across the country. These guidelines will be the first of its kind to be introduced in India and as with other regulatory legislations, its effectiveness can only be determined after it is applied. Thus the UGC must make sure that it is properly implemented by the institutions and the institutions, in turn, must comply with the guidelines before any positive result towards significant reduction of plagiarism can be seen.

Therefore, plagiarism is widespread even in developed countries and can be avoided by being honest while writing articles. Some of the ways to do this is by being original, taking time to write articles, writing in your own words, acknowledging all the studied articles, proper reference and strict adherence to the author or journal guidelines. Avoid copy paste type of writing and always write in the cover letter to Editor of any similarities with other article in literature. In doing so, plagiarism can be checked effectively.

Keywords/Glossary

Plagiarism: Merriam-Webster dictionary defines plagiarism as the theft and use of other people's ideas or words as yours; Use of sources without attribution; literary theft and presenting some ideas as own and as it is new, while this idea already exists in other source.

Intentional plagiarism: Intentional plagiarism occurs when the author deliberately, intentionally or knowingly copies entire text, paragraph or data and presents as its own.

Unintentional plagiarism: Unintentional occurs when the author either is not aware of such research, is unaware of the ethics in writing or does not know how to cite and thus presents similar articles.

Self-Plagiarism: This happens when the author has added research on a previously published article, book, contributed chapter, journal, and presents it as a new without acknowledging the first article or taking permission from the previous publisher.

Collusional: In this type the author asks a professional agent or institution to write an article and then claims as its own.

Turnitin: Turnitin is a text-matching tool first developed by Dr. John Barrie at the University of Berkeley in 1994, now used in 85 countries, principally as a method of plagiarism detection.

Referencing: Referencing is also a way to give credit to the writers from whom you have borrowed words and ideas. By citing the work of a particular scholar, you acknowledge and respect the intellectual property rights of that researcher.

Self-Assessment

1. is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement.
 - A. Referencing
 - B. Quoting
 - C. Abstracting
 - D. Plagiarism

2. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under the definition of
 - A. Plagiarism
 - B. Referencing
 - C. Quoting
 - D. Abstracting

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3. is an originality checking and plagiarism prevention service that checks your writing for citation mistakes or inappropriate copying.
- A. Twitter
 - B. Google
 - C. Turnitin
 - D. None of the Above
4. When you submit your paper, Turnitin compares it to text in its massive database of student work, websites, books, articles, etc.
- A. Academia.com
 - B. Jstor
 - C. Turnitin
 - D. Google
5. is the process of acknowledging the sources you have used in writing your essay, assignment or piece of work.
- A. Referencing
 - B. Quoting
 - C. Copying
 - D. None of the Above
6. allows the reader to access your source documents as quickly and easily as possible in order to verify, if necessary, the validity of your arguments and the evidence on which they are based.
- A. Indexing
 - B. Quoting
 - C. Copying
 - D. Referencing
7.referencing is important in all academic work.
- A. Inaccurate
 - B. Partial
 - C. Accurate
 - D. None of the Above

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8. As a student you will need to understand the general principles to apply when citing sources and take steps to avoid
- A. Referencing
 - B. Publishing
 - C. Plagiarism
 - D. None of the Above
9. Most cases of is considered misdemeanors and punishable in Western Countries.
- A. Plagiarism
 - B. Referencing
 - C. Criticism
 - D. None of the Above
10. In Western countries, most cases of plagiarism are considered misdemeanors, punishable by fines of anywhere between \$100 and \$50,000 and up to one year in jail.
- A. \$1000 and \$50,000
 - B. \$100 and \$50,000
 - C. \$100 and \$250,000
 - D. \$100 and \$10,000
11. In India, every student submitting a thesis, dissertation, term papers, reports or any other such documents to theshall submit an undertaking.
- A. NAAC
 - B. ICSSR
 - C. HEI
 - D. IDSA
12. Submitting an undertaking to the HEI indicates that the document has been prepared by him or her and that the document is his/herwork and free of any plagiarism.
- A. Plagiarized
 - B. Original
 - C. Dubious
 - D. None of the Above
13. Each shall certify that work done by the researcher under him/her is plagiarism free.
- A. UGC
 - B. ICSSR

- C. Supervisor
- D. Parents

14. All HEIs in India shall submit to INFLIBNET soft copies of all M.Phil., Ph.D. dissertations.

- A. CLAWS
- B. UGC
- C. INFLIBNET
- D. NUEPA

15. All HEIs in India shall submit to INFLIBNET soft copies of all M.Phil., Ph.D. dissertations and theses carried out in its various departments after the award of degrees for hosting in the digital repository under theprogramme.

- A. Shodh Ganga e-repository
- B. CLAWS
- C. UGC
- D. NCERT

Answer for Self Assessment

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. D | 2. A | 3. C | 4. C | 5. A |
| 6. D | 7. C | 8. C | 9. A | 10. B |
| 11. C | 12. B | 13. C | 14. C | 15. A |

Review Questions

1. How do you define the term plagiarism and its variance?
2. Critically examine the types of plagiarism in researches.
3. Elaborate the ways to curb plagiarism and analyse the use of turnitin and other authenticate software's.
4. What are the consequences and penalties of plagiarism?
5. Assess the University Grants Commission's (UGC) policy for curbing plagiarism

Further Readings



Ader, H.J., Mellenbergh, G.J., & Hand, D.J. (2008). *Advising on Research Methods: A Consultant's Companion*. Huizen, The Netherlands: Johannes van kessel Publishing.

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Unit 10: Research Writing

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Objectives

- To understand the meaning and steps involved in research writing.
- To assess the significance of writing a research paper and its various steps.
- To analyze the steps involved in the process of research proposal.
- To examine the steps involved in the process of thesis writing
- To elucidate the significance of software's and other technical assistance in research.
- To define the terms reference and types of reference styles.



Introduction

The unit examines some of the important information related to research writing, research paper and proposal preparation. It also carries out an enquiry into the major steps to be followed in the preparation of thesis/dissertation and the various types of reference styles. Research writing including research paper, research proposal, review writing. Research writing is writing that uses evidence to persuade or inform an audience about a particular point. Research writing exists in a variety of different forms. For example, academics, journalists, or other researchers write articles for journals or magazines; academics, professional writers and almost anyone create web pages that both use research to make some sort of point and that show readers how to find more research on a particular topic. All of these types of writing projects can be done by a single writer who seeks advice from others, or by a number of writers who collaborate on the project.

The unit vividly explains academic research writing as a form of research writing. How is academic research writing different from other kinds of writing that involve research? Academic research projects come in a variety of shapes and forms. It describes a research paper as a product of seeking information, analysis, human thinking, and time. Basically, when scholars want to get answers to

Fundamentals of Research

questions, they start to search for information to expand, use, approve, or deny findings. In simple words, research papers are results of processes by considering writing works and following specific requirements. Besides, scientists research and expand many theories, developing social or technological aspects in human science. However, in order to write relevant papers, they need to know a definition of the research, structure, characteristics, and types.

A research paper is a common assignment. It comes to a situation when students, scholars, and scientists need to answer specific questions by using sources. Basically, a research paper is one of the types of papers where scholars analyze questions or topics, look for secondary sources, and write papers on defined themes. For example, if an assignment is to write a research paper on some causes of global warming or any other topic, a person must write a research proposal on it, analyzing important points and credible sources. Although essays focus on personal knowledge, writing a research paper cover sources by following academic standards. Moreover, scientists must meet the structure of research papers. Therefore, research writers need to analyze their topics, research, cover key aspects, process credible articles, and organize final studies properly.



The goal of a research proposal is twofold: to present and justify the need to study a research problem and to present the practical ways in which the proposed study should be conducted. The design elements and procedures for conducting research are governed by standards of the predominant discipline in which the problem resides, therefore, the guidelines for research proposals are more exacting and less formal than a general project proposal. Research proposals contain extensive literature reviews. They must provide persuasive evidence that a need exists for the proposed study. In addition to providing a rationale, a proposal describes detailed methodology for conducting the research consistent with requirements of the professional or academic field and a statement on anticipated outcomes and/or benefits derived from the study's completion.

A scholarly review describes, analyzes, and evaluates an article, book, film, or performance (through this guide we will use the term “work” to refer to the text or piece to be reviewed). A review also shows how a work fits into its disciplines and explains the value or contribution of the work to the field.

Reviews play an important role in scholarship. They give scholars the opportunity to respond to one another's research, ideas and interpretations. They also provide an up-to-date view of a discipline. We recommend you seek out reviews in current scholarly journals to become familiar with recent scholarship on a topic and to understand the forms review writing takes in your discipline. Published scholarly reviews are helpful models for beginner review-writers. However, we remind you that you are to write your own assessment of the work, not rely on the assessment from a review you found in a journal or on a blog.

As a review-writer, your objective is to: understand a work on its own terms (analyze it), bring your own knowledge to bear on a work (respond to it), critique the work while considering validity, truth, and slant (evaluate it) and to place the work in context (compare it to other works).



The second session of the unit focusses more on thesis writing. The aim of the thesis is to produce an original piece of research work on a clearly defined topic. Usually a dissertation is the most substantial piece of independent work in the undergraduate programme, while a thesis is usually associated with master's degrees, although these terms can be interchangeable and may vary between countries and universities. A dissertation or thesis is likely to be the longest and most difficult piece of work a student has ever completed. It can, however, also be a very rewarding piece of work since, unlike essays and other assignments, the student is able to pick a topic of special interest and work on their own initiative. Writing a thesis/dissertation requires a range of planning and research skills that will be of great value in your future career and within organisations.



The third session of the unit examines Microsoft Word a tool to assist researchers in their studies. Microsoft Word is a word processing software that allows users to create and edit text documents. Users can start with blank documents or work from pre-configured templates for projects with frequently used formats. Microsoft Word is often packaged with the Microsoft Office Suite, but it is also sold independently. Microsoft Office Word (MS) is important software to expedite research writing. It's easy to write a thesis in the best format whenever researchers know about all the features of MS word.



The fourth session of the unit examines about referencing and reference styles, particularly in social science researches. A referencing style is a set of rules on how to acknowledge the thoughts, ideas and works of others in a particular way. Referencing is a crucial part of successful academic writing, avoiding plagiarism and maintaining academic integrity in your assignments and research. There are different referencing styles, which use different formats to provide the same information. Referencing is a method of giving credit to people whose intellectual work you have used to support any research you have carried out. It can also be used to locate sources and avoid plagiarism. Referencing styles dictate the information needed for the citation and how it is ordered, including punctuation. There are many citation styles but these are the most common including APA, MLA, Chicago/Turabian. All these various points are well explained in coming paragraphs.

10.1 Research Writing

Not all useful and valuable writing automatically involves research or can be called academic research writing. Research writing is writing that uses evidence (from journals, books, magazines, the Internet, experts, etc.) to persuade or inform an audience about a particular point. Research writing exists in a variety of different forms. For example, academics, journalists, or other researchers write articles for journals or magazines; academics, professional writers and almost anyone create web pages that both use research to make some sort of point and that show readers how to find more research on a particular topic. All of these types of writing projects can be done by a single writer who seeks advice from others, or by a number of writers who collaborate on the project.



Academic research writing— is a form of research writing. How is academic research writing different from other kinds of writing that involve research? Academic research projects come in a variety of shapes and forms. But in brief, academic research writing projects are a bit different from other kinds of research writing projects in three significant ways:

- **Thesis:** Academic research projects are organized around a point or a “thesis” that members of the intended audience would not accept as “common sense.” What an audience accepts as “common sense” depends a great deal on the audience, which is one of the many reasons why what “counts” as academic research varies from field to field. But audiences want to learn something new either by being informed about something they knew nothing about before or by reading a unique interpretation on the issue or the evidence.
- **Evidence:** Academic research projects rely almost exclusively on evidence in order to support this point. Academic research writers use evidence in order to convince their audiences that the point they are making is right. Of course, all writing uses other means of persuasion—appeals to emotion, to logic, to the credibility of the author, and so forth. But the readers of academic research writing projects are likely to be more persuaded by good evidence than by anything else. “Evidence,” the information you use to support your point, includes readings you find in the library (journal and magazine articles, books, newspapers, and many other kinds of documents); materials from the Internet (web pages,

information from databases, other Internet-based forums); and information you might be able to gather in other ways (interviews, field research, experiments, and so forth).

- **Citation:** Academic research projects use a detailed citation process in order to demonstrate to their readers where the evidence that supports the writer's point came from. Unlike most types of "non-academic" research writing, academic research writers provide their readers with a great deal of detail about where they found the evidence they are using to support their point. This process is called citation, or "citing" of evidence. It can sometimes seem intimidating and confusing to writers new to the process of academic research writing, but it is really nothing more than explaining to your reader where your evidence came from.

10.2 The Process of Research Writing



Writing as a Process: A Brief Explanation and Map

No essay, story, or book simply "appeared" one day from the writer's brain; rather, all writings are made after the writer, with the help of others, works through the process of writing.

Generally speaking, the process of writing involves:

- Coming up with an idea (sometimes called brainstorming, invention or "pre-writing");
- Writing a rough draft of that idea;
- Showing that rough draft to others to get feedback (peers, instructors, colleagues, etc.);
- Revising the draft (sometimes many times); and
- Proof-reading and editing to correct minor mistakes and errors.

Research Paper

10.3 What is a Research Paper?

What image comes into mind as we hear the words 'Research Paper': working with stacks of articles and books; hunting the 'treasure' of others' thoughts; preparing research report on the basis of primary or secondary data? Whatever image we create, it's a sure bet that we're envisioning sources of information—articles, books, people, and artworks. Yet a research paper is more than the sum of sources, more than a collection of different pieces of information about a topic, and more than a review of the literature in a field. A research paper analyzes a perspective or argues a point. Regardless of the type of research paper the researcher is writing, the researcher should present his own thinking backed up by others' ideas and information. A research paper involves surveying a field of knowledge in order to find the best possible information in that field and that survey can be orderly and focused.



The research paper is an original essay presenting your ideas in response to information found in library sources. As you gather research material, your ever-increasing knowledge of a topic will allow you to make informed judgments and original interpretations. At each stage of research, you will have a more complete idea of what you have already found and what you are looking for. Midway through the process, the writing tasks of creating a review of the literature and a proposal will help you focus the direction of your research.



Intentions for Writing the Research Papers

One may ask why researchers have to write down what they have been doing, or what they are currently working on. Still, it may be asked why researchers have to turn their writing into formal papers. Writing for others is more demanding than writing for oneself but it can help to get a better understanding of the own ideas. As publications have system-maintaining roles in their respective sciences, additional motivations for researchers to write and publish their research work were discussed by Booth et al.



He listed three obvious reasons: To remember, because once something is forgotten, it cannot be reproduced correctly without having written notice; To understand, as writing about a subject can only be accomplished by approaching the subject in a structured way, which itself leads to better understanding thereof; To gain perspective, as writing includes looking at something from different points of view. O'Connor points out that writing and publishing research papers is essential if management science is to progress. Peat et al provided a list of some pragmatic reasons for writing down and publishing research results. Among them are: - The Researcher has some results that are worth reporting. - The Researcher wants to contribute in the progress of scientific thought. - The Researcher wants his work to reach a broader audience. - The Research will improve the chances of promotion. - It is unethical to conduct a study and not report the findings.



Research Proposal

If you have ever read a news article online where it included the phrase "In a recent study..." you got a small glimpse of a parallel world. Out in this world, scholars and scientists are putting the scientific method to good use. Unless you know to look for it, you wouldn't know it was there.



Think about where you get your information on a daily basis. It's probably the internet, tv, social media, and from your friends and family. There are other sources of information that you might have never encountered (directly) before coming to actual researches. Before diving into a research project, scholars often have to write research proposals. Even experts need to prove that their research is important and valuable. Research proposals are required when applying for grant money from different organizations, so scholars need to make a good argument that proves their project deserves to be funded. Sometimes there is fierce competition for limited funds. Even a good research project needs a good research proposal to help it be completed.



What is a research proposal?

A research proposal is a great way to introduce you to research without making you write a long research paper (sounds nice, no?). It is preparing you for future classes where you might have to write a paper whether you research the same topic or not. If you do research the same topic, a research proposal gives you a huge head start because you end up having done a lot of prep work for the final project. This makes the entire process less stressful for you. If you don't use the same topic, you still have a better idea of how the process works for a new research project.

Research proposals force you to think about why the topic matters, not just to yourself, but to a wider audience. You get to learn about the scholarly conversation already going on and how you might be able to contribute to it with your own research.



Research proposal writing

A research proposal is a document proposing a research project, generally in the sciences or academia, and generally constitutes a request for sponsorship of that research. Proposals are evaluated on the cost and potential impact of the proposed research, and on the soundness of the proposed plan for carrying it out. Research proposals generally address several key points:

What research question(s) will be addressed, and how they will be addressed

How much time and expense will be required for the research

What prior research has been done on the topic

How the results of the research will be evaluated

How the research will benefit the sponsoring organization and other parties



Students are asked to write a research proposal in order to help you focus and define what it is you want to do (research plan). The department in your faculty asks you to do this so they can get an indication of your research direction, and to demonstrate the level of discipline that will need to employ for the research task.

To summarize, the research proposal should demonstrate or suggest to the faculty assessors that:

- you are engaging in genuine and worthwhile enquiry, that there is a need for the research, that it is significant and important, and that it contributes something original to the field you are working in
- you are aware of the breadth and depth of the major schools of thought relevant to your proposed area of work
- you are able to justify and establish a particular theoretical orientation, and develop a methodological approach
- there is enough funding or available equipment to be able to collect the data
- the topic aligns with your interests and capabilities, and there are supervisors available who are open to working with you
- you can complete the research in the expected time period
- the Ethics Committee has considered the relevant issues and approval has been given



Note that the research plan you are submitting is not inflexible, and that it will probably change in focus and perhaps substance as you develop your ideas and progress in through the necessary stages of conducting the research.



Review Writing

A scholarly review describes, analyzes, and evaluates an article, book, film, or performance (through this guide we will use the term “work” to refer to the text or piece to be reviewed). A review also shows how a work fits into its disciplines and explains the value or contribution of the work to the field.

Reviews play an important role in scholarship. They give scholars the opportunity to respond to one another’s research, ideas and interpretations. They also provide an up-to-date view of a discipline. We recommend you seek out reviews in current scholarly journals to become familiar with recent scholarship on a topic and to understand the forms review writing takes in your discipline. Published scholarly reviews are helpful models for beginner review-writers. However,

we remind you that you are to write your own assessment of the work, not rely on the assessment from a review you found in a journal or on a blog.



As a review-writer, your objective is to:

- understand a work on its own terms (analyze it)
- bring your own knowledge to bear on a work (respond to it)
- critique the work while considering validity, truth, and slant (evaluate it)
- place the work in context (compare it to other works).
- Common Problems with Academic Reviews
- A review is not a research paper

Rather than a research paper on the subject of the work, an academic review is an evaluation about the work's message, strengths, and value. For example, a review of Finis Dunaway's Seeing Green would not include your own research about media coverage of the environmental movement; instead, your review would assess Dunaway's argument and its significance to the field.



A review is not a summary

It is important to synthesize the contents and significance of the work you review, but the main purpose of a review is to evaluate, critically analyze, or comment on the text. Keep your summary of the work brief, and make specific references to its message and evidence in your assessment of the work.



A review is not an off-the-cuff, unfair personal response

An effective review must be fair and accurate. It is important to see what is actually in front of you when your first reaction to the tone, argument, or subject of what you are reviewing is extremely negative or positive.

One will present your personal views on the work, but they must be explained and supported with evidence. Rather than writing, "I thought the book was interesting," one can explain why the book was interesting and how it might offer new insights or important ideas. Further, you can expand on a statement such as "The movie was boring," by explaining how it failed to interest you and pointing toward specific disappointing moments.



Lecture 2

10.4 Thesis Writing

The purpose of a thesis is to demonstrate your proficiency in academic research and appropriate academic communication, both written and oral. A thesis demonstrates your mastery of a particular subject area and your ability to independently create new scientific knowledge. When writing your thesis, your information retrieval skills are developed and your facility for critical and analytical thinking, problem solving and argumentation is strengthened – all of which are skills required for success in your future working life.

Fundamentals of Research

The purpose of academic texts is to present new information or, at least, a fresh perspective on the research topic. At the start of writing your master's thesis, you will already be conversant with the established conventions of academic writing, and so it will be easier for you to devote more attention to the academic content of your work. The process of writing a master's thesis develops your skills to gather, analyse and make conclusions from data and your ability to independently create new scientific knowledge. Master's thesis is a way to show your expertise in the topic of your choice on the levels of both theory and practice.

Academic writing has its own particular style, with the emphasis on the subject matter along with precision of expression and the use of grammatically correct language. In addition, academic texts follow rules and conventions that have been generally agreed.



What is a Master's Thesis?

Unlike thesis projects for undergraduates, which are shorter in length and scope, a master's thesis is an extensive scholarly paper that allows you to dig into a topic, expand on it and demonstrate how you've grown as a graduate student throughout the program. Graduate schools often require a thesis for students in research-oriented degrees to apply their practical skills before culmination.

For instance, a psychology major may investigate how colors affect mood, or an education major might write about a new teaching strategy. Depending on your program, the faculty might weigh the bulk of your research differently.



Regardless of the topic or field of study, your thesis statement should allow you to:

- Help prove your idea or statement on paper
- Organize and develop your argument
- Provide a guide for the reader to follow
- Once the thesis is completed, students usually must defend their work for a panel of two or more department faculty members.

Thesis vs. Dissertation

It's common for graduate students to mistakenly use the words "thesis" and "dissertation" interchangeably, but they are generally two different types of academic papers. As stated above, a thesis is the final project required in the completion of many master's degrees. The thesis is a research paper, but it only involves using research from others and crafting your own analytical points. On the other hand, the dissertation is a more in-depth scholarly research paper completed mostly by doctoral students. Dissertations require candidates create their own research, predict a hypothesis, and carry out the study. Whereas a master's thesis is usually around 100 pages, the doctoral dissertation is at least double that length.



10.5 Benefits of Writing a Thesis

There are several advantages that you can reap from choosing a master's program that requires the completion of a thesis project. A thesis gives you the valuable opportunity to delve into interesting research for greater depth of learning in your career area. Employers often prefer students with a thesis paper in their portfolio, because it showcases their gained writing skills, authoritative awareness of the field, and ambition to learn. Defending your thesis will also fine-tune critical communication and public speaking skills, which can be applied in any career. In fact, many graduates eventually publish their thesis work in academic journals to gain a higher level of credibility for leadership positions too.



10.6 Microsoft word (grammar checking, formatting of documents, incorporating references)

Microsoft Word is a sophisticated word processing application program/package specially designed for performing various word processing tasks, such as typing, editing and printing out of textual information. It allows adequate control over the creation and presentation of the typographic work. Microsoft Word also offers facilities for basic graphic design, statistical report of a document, spelling and grammar checking tasks, etc. These and numerous other features and facilities Word offers make it stand out among word processing programs, as well as make the difference between it and other mechanical devices for word processing (e.g. typewriter).



Importance of Microsoft Word

Microsoft Word is an effective tool for creating all kinds of documents like letters, memos, reports, term papers, and typesetting novels and magazines, etc.

Microsoft Word offers you specialized tools for formatting your document in various ways; perform spelling and grammar check to produce standard and error-free documents; in-built thesaurus for finding appropriate synonyms to replace repetitive words/phrases; word count feature for a statistical report of your document; drawing and graphics editing tools to add a touch of graphics or images to go with your documents; sounds and video handling tools to add multimedia feature to a document; numerous wizards and tools for creating and distributing merged faxes, form letters, labels and envelopes, etc.

Microsoft Word is highly useful for creating text of large volume.

You can easily create and maintain mailing lists, create personalized documents and create newsletters in Word.

It also helps you send documents to a group of people for feedback.

Word provides customized assistance in many ways.

With Word, you can import files or objects from other programs and use them in your documents.

Fundamentals of Research

Word also offers facilities for exporting documents to other packages, e.g. Lotus Notes, WordPerfect, etc.

Etc.



10.7 Formatting of documents

To help understand Microsoft Word formatting, let's look at the four types of formatting:

- Character or Font Formatting
- Paragraph Formatting
- Document or Page Formatting
- Section Formatting

Microsoft Word Formatting for Characters or Font

In Microsoft Word documents, character or font formatting includes:

- Font typeface (such as Calibri, Arial, Times New Roman)
- Size
- Style
- Color
- and other font enhancements

What It Is: The smallest *unit* character formatting can be applied to is one character (letter, number, or other). With this, a line of text could have a different style of font formatting for every single letter and number including spaces. Although you shouldn't have text that is randomly formatted like the example below, it is possible with character formatting in Microsoft Word.

Paragraph Formatting

Paragraph Formatting includes:

- Text alignment
- Line spacing
- Tabs
- Indents
- Bullets & Numbering
- Borders & Shading
- and other paragraph enhancements



References Tab

Reference Tab can add a footnote to document from the References tab. It contains resources for researchers and anyone in the professional field. The References Tab allows you to now create a table of contents, footnotes, citations, cross-references, select MLA or APA or ISO formats and so on. You can also turn your Works Cited into a collection of records and use them in the future.

Here's how to add a footnote in Word 2007

- Place the cursor after the word or phrase to which you desire to add the footnote.
- On the References tab, in the Footnotes group, click the Footnote button. A superscript footnote reference is added next to the text and a footnote divider is placed at the bottom of the page.
- All you do next is type the text of your footnote.

How Do Review the Footnotes created?

- In the Footnotes group, click Show Notes.
- If the document has both footnotes and endnotes, when you see the Dialog box, select the type of note you want to review and click OK.

How Does the Table of Contents Work?

- Open a document. The document should contain text formatted with the heading styles found in the Home tab.
- Place the cursor where you wish to insert a table of contents.
- In the Table of Contents group, click the Table of Contents button. You will see several styles that you can use to create a Table of Contents. • Select the style you desire.
- If you had no formatting in your document using the styles found in the Home tab, click Manual Table. A table will be inserted into your document.

Selecting Citation Styles

- Before defining citations, first select the style of your document; APA or MLA and so on. Click the References tab.
- In the Citations & Bibliography group, select the proper style.

Creating a New Citation Source & Inserting it in a Document

- Place your cursor where you want the citation to be inserted.
- In the Citations & Bibliography Group, click the Arrow located on the Insert Citation button.
- Click Add New Source.
- In the dialog box that will pop-up, from the Type of Source list, select the type of citation and then fill in the required fields.
- Click OK when you're done.

To Use a Citation from the List

- In the Citations & Bibliography group, click Manage Sources.
- Select the appropriate citation from the Master List and then Click Copy. This will add the citation to your document.
- Place the cursor where you want to insert the citation.
- In the Citations & Bibliography group, click the arrow on the Insert Citation button.
- Click the desired citation to be inserted.
- You can reuse a citation in your document repeating the steps in Bold letters.

How Do Edit Citation Sources?

- In the Citations & Bibliography group, click Manage Sources.
- Select the citation you want to edit and Click Edit.
- Click OK twice in order to save your changes.

To Create a Bibliography

- Place your cursor where you want the bibliography
- In the Citations & Bibliography group, click Biography
- Then select the type of bibliography you desire.
- Word does an automatic insert.

**Lecture 4****10.8 Reference Styles**

Referencing has become an integral part of all sorts of academic writing, the major purposes of which are to discourage plagiarism and give credit to the scholars, researchers etc. for their efforts in the growth of knowledge.

What is Referencing?

Referencing is also called as citation.

Referencing can be defined as a method of acknowledging and recognizing someone for his or her innovative work that you used in you research to back and support you idea.

A reference usually includes the name of author, date of publication, name and location of the publishing company, title of the journal or name of the book, title of the research or chapter's name, and DOI (Digital Object Identifier)

In your document, referencing is done at two levels; first you need to give a brief reference in the body of text called as “in-text citation”, and secondly a detailed reference is provided at the end of the document in the form of a list.



What are the Purposes of Referencing?

Referencing has become a necessary element of academic writing.

It is used to locate the original source of work so that everyone may access the material and understand it in his/her own way.

Another purpose of it is to fight with plagiarism.

What is a citation and citation style?

A **citation** is a way of giving credit to individuals for their creative and intellectual works that you utilized to support your research. It can also be used to locate particular sources and combat plagiarism. Typically, a citation can include the author's name, date, location of the publishing company, journal title, or DOI (Digital Object Identifier).

A **citation style** dictates the information necessary for a citation and how the information is ordered, as well as punctuation and other formatting.



How to do choose a citation style?

There are many different ways of citing resources from your research. The citation style sometimes depends on the academic discipline involved. For example:

- APA (American Psychological Association) is used by Education, Psychology, and Sciences



For example: Sapolsky, R. M. (2017). *Behave: The biology of humans at our best and worst*. Penguin Books.

- MLA (Modern Language Association) style is used by the Humanities



For example: Gleick, James. *Chaos: Making a New Science*. Penguin, 1987.

- Chicago style is generally used by Business, History, and the Fine Arts



For example: Rhys, Jean. *Wide Sargasso Sea*. London: Penguin, 1997.



Why to Cite?

Citing or documenting the sources used in your research serves three purposes:

1. It gives proper credit to the authors of the words or ideas that you incorporated into your paper.

2. It allows those who are reading your work to locate your sources, in order to learn more about the ideas that you include in your paper.
3. Citing your sources consistently and accurately helps you avoid committing plagiarism in your writing.

To be precise, the aim of a citation is to provide enough bibliographic information for the reader to be able to identify and, if necessary, obtain the original resource. Complete, correct and consistent citations are therefore very important. You may reference a wide variety of resources in your assignment, including books, e-journal articles, checklists and websites. By using citations and references, you acknowledge the work of others and show how their ideas have contributed to your own work. It is also a way of demonstrating that you have read and understood key texts relating to the area you are writing about. The terms reference list and bibliography are usually used interchangeably, although strictly speaking, a bibliography refers to all the reading you have undertaken for your assignment, not just the work you have referred to in your writing. The terms reference and citation are also often used to refer to the same thing although a citation tends to mean the part of the text within your assignment where you acknowledge the source; whilst a reference usually refers to the full bibliographic information at the end.

Summary

To sum up, it is understood that there are important structures and formalities to be followed in research. We examined some of the important information related to research writing, research paper and proposal preparation. It enquired into the major steps to be followed in the preparation of thesis/dissertation and the various types of reference styles. Research writing including research paper, research proposal, review writing. Now it is clear that research writing is writing that uses evidence to persuade or inform an audience about a particular point. Research writing exists in a variety of different forms. The unit clearly explained academic research writing as a form of research writing.

The unit observed that a research paper as a product of seeking information, analysis, human thinking, and time. Basically, when scholars want to get answers to questions, they start to search for information to expand, use, approve, or deny findings. In simple words, research papers are results of processes by considering writing works and following specific requirements. Besides, scientists research and expand many theories, developing social or technological aspects in human science. However, in order to write relevant papers, they need to know a definition of the research, structure, characteristics, and types.

The goal of a research proposal is twofold: to present and justify the need to study a research problem and to present the practical ways in which the proposed study should be conducted. A scholarly review describes, analyzes, and evaluates an article, book, film, or performance. A review also shows how a work fits into its disciplines and explains the value or contribution of the work to the field.

We also learnt about the aim of the dissertation or thesis is to produce an original piece of research work on a clearly defined topic. Usually a dissertation is the most substantial piece of independent work in the undergraduate programme, while a thesis is usually associated with master's degrees, although these terms can be interchangeable and may vary between countries and universities. A dissertation or thesis is likely to be the longest and most difficult piece of work a student has ever completed. In addition, the unit studied the role of MS word in research. Microsoft Word is a word processing software that allows users to create and edit text documents. Users can start with blank documents or work from pre-configured templates for projects with frequently used formats. Microsoft Word is often packaged with the Microsoft Office Suite, but it is also sold independently. Microsoft Office Word (MS) is important software to expedite research writing.

It also brought light into the referencing related queries. A referencing style is a set of rules on how to acknowledge the thoughts, ideas and works of others in a particular way. Referencing is a crucial part of successful academic writing, avoiding plagiarism and maintaining academic integrity in your assignments and research. There are different referencing styles, which use different formats to provide the same information. Referencing is a method of giving credit to people whose intellectual work you have used to support any research you have carried out. It can also be used to locate sources and avoid plagiarism. Referencing styles dictate the information needed for the citation and how it is ordered, including punctuation. There are many citation styles but these are the most common including APA- American Psychological Association. This style is used by in the fields of psychology, science, and education. MLA-(Modern Language Association). The style is

used in the field of humanities. Chicago/Turabian. The style is mainly used in the fields of history, business, and fine arts.

Keywords/Glossary

Research Writing: Research writing is writing that uses evidence from journals, books, magazines, the Internet, experts, etc. to persuade or inform an audience about a particular point.

Descriptive writing: The simplest type of academic writing is descriptive. Its purpose is to provide facts or information. An example would be a summary of an article or a report of the results of an experiment.

Analytical writing: Analytical writing includes descriptive writing, but also requires you to re-organise the facts and information you describe into categories, groups, parts, types or relationships.

Persuasive writing: Persuasive writing has all the features of analytical writing (that is, information plus re-organising the information), with the addition of your own point of view.

Research Paper: The research paper is an original essay presenting your ideas in response to information found in library sources.

Research Proposal: A research proposal is a great way to introduce you to research without making you write a long research paper. It is preparing you for future classes where you might have to write a paper whether you research the same topic or not.

Review Writing: A scholarly review describes, analyses, and evaluates an article, book, film, or performance. A review also shows how a work fits into its disciplines and explains the value or contribution of the work to the field.

Thesis Writing: The purpose of a thesis is to demonstrate your proficiency in academic research and appropriate academic communication, both written and oral. A thesis demonstrates your mastery of a particular subject area and your ability to independently create new scientific knowledge.

Referencing: Referencing can be defined as a method of acknowledging and recognizing someone for his or her innovative work that you used in your research to back and support your idea.

Self Assessment

- The process of sharing the answer to your research question along with the evidence on which your answer is based, the sources you used, and your own reasoning and explanation is called
 - Term paper
 - Thesis
 - Research proposal
 - Research writing
- The goal of a is not to inform the reader what others have to say about a topic, but to draw on what others have to say about a topic and engage the sources in order to thoughtfully offer a unique perspective on the issue at hand.
 - Research paper
 - Dissertation
 - Research proposal
 - Research writing
- A is an essay in which you explain what you have learned after exploring your topic in depth.
 - Dissertation
 - Research paper

- C. Thesis
 - D. Research writing
4. A research proposal is a document proposing a research project, generally in the sciences or academia, and generally constitutes a request for sponsorship of that research.
- A. Term paper
 - B. Thesis
 - C. Research proposal
 - D. Research writing
5. The aim of the is to produce an original piece of research work on a clearly defined topic.
- A. Dissertation
 - B. News
 - C. Reading
 - D. None of the Above
6. Most universities and colleges provide very specificto their students about their preferred approach in the dissertation.
- A. Research motto
 - B. Research guidelines
 - C. Reference style
 - D. Methodology
7. Writing arequires a range of research skills that will be of great value in future career and within organisations.
- A. Fiction
 - B. Dissertation
 - C. Novel
 - D. Poem
8. is an important requirement in every researches.
- A. Observation
 - B. Imagination
 - C. Proper citation
 - D. None of the Above
9. References is an option available in
- A. MS Paint
 - B. MS PowerPoint
 - C. MS Word
 - D. None of the Above
10. MS Word can assist researchers in their
- A. Academic writing
 - B. Entertainment
 - C. Sports
 - D. None of the Above
11. The techniques learned by using templates, styles, and special document breaks can greatly assist in using MS Word more efficiently for research papers, journal articles, proposals, lab reports, or any other writing project.
- A. MS Paint
 - B. MS PowerPoint

- C. MS Word
D. MS Excel
12. A is a set of rules on how to acknowledge the thoughts, ideas and works of others in a particular way.
- A. Thesis
B. Term paper
C. Research proposal
D. Referencing style
13. Referencing is a crucial part of successful academic writing, avoiding plagiarism and maintaining academic integrity in your assignments and research.
- A. Referencing
B. Term paper
C. Research proposal
D. None of the Above
14. Given below which one is a reference style?
- A. QS
B. Scopus
C. UGC
D. MLA
15. Doe, J. (1999). Causes of the Civil War. Ohio: Smith Books. This reference style is an example of
- A. SIS research manual
B. APA
C. MLA
D. None of the Above

Answer for Self Assessment

1. D 2. A 3. B 4. C 5. A
6. B 7. B 8. C 9. C 10. A
11. C 12. D 13. A 14. D 15. B

Review Questions

1. Define the word research writing. What are the major steps involved in research writing?
2. How do you assess the significance of writing a research paper and its various steps?
3. Write a short essay on the steps involved in the process of research proposal.
4. Elucidate the significant steps involved in the process of thesis writing
5. What are the significances of software's and other technical assistance in research?
6. Define the terms reference and types of reference styles.

Further Readings



Miller, Delbert C., *Handbook of Research Design & Social Measurement*, 3rd ed., New York: David McKay Company, Inc., 1977.

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Macmillan Company, 1971.

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Unit 11: Poster Preparation

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Objectives

To understand the meaning of poster preparation and research poster

To examine the meaning of coherence ideas in research

To analyse the relevance of ideas and coherence of ideas in research

To examine the meaning and significance of theory in research

To evaluate the role and use of MS PowerPoint in research

Introduction

The unit examines some of the relevant points in the study of research methodology. The unit discusses the importance of poster preparation, coherence of ideas, use of theory and micro soft power point in researches. Posters are widely used in the academic community. Research posters summarize information or research concisely and attractively to help publicize it and generate discussion. The poster is usually a mixture of a brief text mixed with tables, graphs, pictures, and other presentation formats. At a conference, the researcher stands by the poster display while other participants can come and view the presentation and interact with the author. It typically contains the same components as an academic paper, but modified for the different medium. This means: less text, shorter sentences, bullets and graphics when possible and don't forget your references section.

The unit looks at coherence as an essential quality for good academic writing. In academic writing, the flow of ideas from one sentence to the next should be smooth and logical. Without cohesion, the reader will not understand the main points that you are trying to make. It also hampers readability. Cohesion necessarily precedes coherence. There is a difference between cohesion and coherence: cohesion is achieved when sentences are connected at the sentence level, whereas as coherence is achieved when ideas are connected. In addition, cohesion focuses on the grammar and style of your paper.

Coherence also means "clarity of expression" and it is created when correct vocabulary and grammar are used. After all, the goal of writing is to benefit the readers. Without both coherence and cohesion, the readers may detect choppiness in the text and feel as if there are gaps in the ideas

presented. Needless to say, texts without coherence are difficult to read and understand. It defeats the whole purpose of writing, which is to relay ideas in a clear and efficient manner. There are strategies that you can use to ensure coherence and cohesion in academic writing.

It also carries an enquiry in to the relevance of theory in research. Theory provides significant guidelines and trails for the conduct of research by pointing to areas that are most likely to be fruitful, that is, areas in which meaningful relationships among variables are likely to be found. If the variables come to be selected such that no relationships between them obtain, the research will be sterile no matter how meticulous the subsequent observations and inferences.

A theoretic system narrows down the range of facts to be studied. Theory provides the researcher with a definite view point a direction which goes a long way toward helping him enquire into relationships between certain variables selected from among an almost infinite array of variables. Another session of the unit affirms the significance of Microsoft PowerPoint in doing researches. Microsoft PowerPoint is an easy program to use and a powerful tool for giving a presentation. Whether your presentation needs a visual kick, tools for collaboration, easy access or the ability to share information beyond the initial meeting, PowerPoint is a good option. It can even help reduce speaking anxiety by drawing eyes away from the speaker and towards a screen. Just do not expect this technology to substitute for sound and dynamic speaking skills.

PowerPoint can be used in a number of different effective ways to communicate with your audience. Slides are completely customizable to fit your needs. Depending on your approach, you may want to have a presentation that is text-heavy, image-heavy or some combination of both. Text-heavy presentations are generally good if you are giving a lecture to a group within your company and want them to take notes. Image-heavy presentations can help to make your presentation more conversational in style since there only visual cues. Combining the two approaches gives listeners the benefits of both visual aids and notes. All aforementioned pointed examined in nutshell have been explained in detail in the following sessions.

Subject Matter

11.1 Poster Preparation

Posters are a common way to present results of a statistical analysis, program evaluation, or other project at professional conferences. Often, researchers fail to recognize the unique nature of the format, which is a hybrid of a published paper and an oral presentation. This methods note demonstrates how to design research posters to convey study objectives, methods, findings, and implications effectively to varied professional audiences.

A review of existing literature on research communication and poster design is used to identify and demonstrate important considerations for poster content and layout. Guidelines on how to write about statistical methods, results, and statistical significance are illustrated with samples of ineffective writing annotated to point out weaknesses, accompanied by concrete examples and explanations of improved presentation. A comparison of the content and format of papers, speeches, and posters is also provided.

An assortment of posters is a common way to present research results to viewers at a professional conference. Too often, however, researchers treat posters as poor cousins to oral presentations or published papers, failing to recognize the opportunity to convey their findings while interacting with individual viewers. By neglecting to adapt detailed paragraphs and statistical tables into text bullets and charts, they make it harder for their audience to quickly grasp the key points of the poster. By simply posting pages from the paper, they risk having people merely skim their work while standing in the conference hall. By failing to devise narrative descriptions of their poster, they overlook the chance to learn from conversations with their audience.

Even researchers who adapt their paper into a well-designed poster often forget to address the range of substantive and statistical training of their viewers. This step is essential for those presenting to non-researchers but also pertains when addressing interdisciplinary research audiences. Studies of policymakers have demonstrated the importance of making it readily apparent how research findings apply to real-world issues rather than imposing on readers to translate statistical findings themselves.

This methods note is intended to help researchers avoid such pitfalls as they create posters for professional conferences. The first section describes objectives of research posters. The second shows how to describe statistical results to viewers with varied levels of statistical training, and the third provides guidelines on the contents and organization of the poster. Later sections address how to prepare a narrative and handouts to accompany a research poster. Because researchers often

present the same results as published research papers, spoken conference presentations, and posters, it compares similarities and differences in the content, format, and audience interaction of these three modes of presenting research results. Although the focus of this note is on presentation of quantitative research results, many of the guidelines about how to prepare and present posters apply equally well to qualitative studies.

Preparing a poster involves not only creating pages to be mounted in a conference hall, but also writing an associated narrative and handouts, and anticipating the questions you are likely to encounter during the session. Each of these elements should be adapted to the audience, which may include people with different levels of familiarity with your topic and methods. For example, the annual meeting of the American Public Health Association draws academics who conduct complex statistical analyses along with practitioners, program planners, policymakers, and journalists who typically do not.

Posters are a hybrid form—more detailed than a speech but less than a paper, more interactive than either. In a speech, the presenter determine the focus of the presentation, but in a poster session, the viewer's drive that focus. Different people will ask about different facets of your research. Some might do policy work or research on a similar topic or with related data or methods. Others will have ideas about how to apply or extend your work, raising new questions or suggesting different contrasts, ways of classifying data, or presenting results. Research describes the experience of giving a poster as a dialogue between you and your viewers.

By the end of an active poster session, you may have learned as much from your viewers as they have from you, especially if the topic, methods, or audience are new to you. For instance, at David Snowden's first poster presentation on educational attainment and longevity using data from The Nun Study, another researcher returned several times to talk with Snowden, eventually suggesting that he extend his research to focus on Alzheimer's disease, which led to an important new direction in his research. In addition, presenting a poster provides excellent practice in explaining quickly and clearly why your project is important and what your findings mean—a useful skill to apply when revising a speech or paper on the same topic.

Audiences at professional conferences vary considerably in their substantive and methodological backgrounds. Some will be experts on your topic but not your methods, some will be experts on your methods but not your topic, and most will fall somewhere in between. In addition, advances in research methods imply that even researchers who received cutting-edge methodological training 10 or 20 years ago might not be conversant with the latest approaches. As you design your poster, provide enough background on both the topic and the methods to convey the purpose, findings, and implications of your research to the expected range of readers.

11.2 Telling a Simple, Clear Story

Write so your audience can understand why your work is of interest to them, providing them with a clear take-home message that they can grasp in the few minutes they will spend at your poster. Experts in communications and poster design recommend planning your poster around two to three key points that you want your audience to walk away with, then designing the title, charts, and text to emphasize those points. Start by introducing the two or three key questions you have decided will be the focus of your poster, and then provide a brief overview of data and methods before presenting the evidence to answer those questions. Close with a summary of your findings and their implications for research and policy.

A 2001 survey of government policymakers showed that they prefer summaries of research to be written so they can immediately see how the findings relate to issues currently facing their constituencies, without wading through a formal research paper. Complaints that surfaced about many research reports included that they were “too long, dense, or detailed,” or “too theoretical, technical, or jargony.” On average, respondents said they read only about a quarter of the research material they receive for detail, skim about half of it, and never get to the rest.

To ensure that your poster is one viewers will read, understand, and remember, present your analyses to match the issues and questions of concern to them, rather than making readers translate your statistical results to fit their interests. Often, their questions will affect how you code your data, specify your model, or design your intervention and evaluation, so plan ahead by familiarizing yourself with your audience's interests and likely applications of your study findings. In an academic journal article, you might report parameter estimates and standard errors for each independent variable in your regression model. In the poster version, emphasize findings for specific program design features, demographic, or geographic groups, using straightforward means of presenting effect size and statistical significance; see “Describing Numeric Patterns and Contrasts” and “Presenting Statistical Test Results” below.

11.3 Coherence of the Ideas

Coherence is an essential quality for good academic writing. In academic writing, the flow of ideas from one sentence to the next should be smooth and logical. Without cohesion, the reader will not understand the main points that you are trying to make. It also hampers readability. Cohesion necessarily precedes coherence. There is a difference between cohesion and coherence: cohesion is achieved when sentences are connected at the sentence level, whereas as coherence is achieved when ideas are connected. In addition, cohesion focuses on the grammar and style of your paper.

What is Coherence in Writing?

Coherence also means “clarity of expression” and it is created when correct vocabulary and grammar are used. After all, the goal of writing is to benefit the readers. Without both coherence and cohesion, the readers may detect choppiness in the text and feel as if there are gaps in the ideas presented. Needless to say, texts without coherence are difficult to read and understand. It defeats the whole purpose of writing, which is to relay ideas in a clear and efficient manner. There are strategies that you can use to ensure coherence and cohesion in academic writing.

11.4 Examples of Cohesive and Non-Cohesive Paragraphs

Paragraph coherence and cohesion results in paragraph unity. To ensure that your paragraphs have unity, there are two things to keep in mind: it must have a single topic and sentences provide more detail than the topic sentence, while maintaining the focus on the idea presented. The paragraph below shows a lack of unity:

Non-cohesive sample: Dogs are canines that people domesticated a long time ago. Wolves are predecessors of dogs and they help people in a variety of ways. There are various reasons for owning a dog, and the most important is companionship.

Cohesive sample: Dogs are canines that people domesticated a long time ago, primarily for practical reasons. Even though dogs descended from wolves, they are tame and can be kept in households. Since they are tame, people have various reasons for owning a dog, such as companionship.

Notice that the ideas in the non-cohesive sample are not arranged logically. The sentences are not connected by transitions and give the readers new ideas that are not found in the topic sentence. Thus, the paragraph is hard to read, leaving readers confused about the topic. On the other hand, the cohesive sample has ideas arranged logically. All ideas in this sample flow from the topic sentence. In addition, they give more details about the topic while maintaining their focus on the topic sentence.

Establishing Coherence

It is important to focus on coherence when writing at the sentence level. However, cohesion smoothens the flow of writing and should be established. There are various ways to ensure coherent writing:

Write sentences that flow by varying the lengths and structures, the use of correct punctuation, and broadening your word choices

Use simple transitions, such as “in addition, additionally, furthermore, therefore, thus, on the contrary, by the same token, at the same time, in other words, etc.”

Repeat your keywords but be careful of excessive repetition

Repeat sentence structures, which is used as a rhetorical technique rather than cohesion to highlight parallelism between sentences

Ensure thematic consistency

Start every sentence or paragraph with information that hints at the content of the next sentence

Academic writing is improved by coherence and cohesion. Without coherence and cohesion, readers will become confused and eventually disinterested in the article. Your ideas then become lost and the primary objective of writing is not achieved.

11.5 Tips and Strategies

There are six ways for creating coherence, which you will find useful while polishing your manuscript. Creating coherence is not as difficult as it seems, but you will need the right tools and strategies to achieve it.

Lexis creates cohesion using synonyms, hyponyms, and superordinates. The use of lexical chains creates variety in writing and avoids monotony.

Reference creates cohesion by using possessive pronouns (e.g. your, their, etc.), pronouns (e.g. she, me, etc.), and determiners (e.g. those, these, etc.).

Substitution, which is the use of a different word in place of a previously mentioned word (e.g. "I bought a designer bag today. She did the same.")

Ellipsis is the removal or omission of words because their meaning is implied through context (e.g. "He goes to yoga classes in the afternoon. I hope I can too.")

Cohesive nouns are also called umbrella nouns because they summarize many words in one.

Conjunctions include words that list ideas (e.g. first, next, then, lastly, etc.)

Academic writing should be concise, coherent, and cohesive. Maintaining these three qualities involves using a number of strategies to impart ideas to the reader. After all, that is the whole point of any type of writing.

11.6 Use of Theory

Theories are formulated to explain, predict and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study. The theoretical framework introduces and describes the theory that explains why the research problem under study exists. A theoretical framework consists of concepts and, together with their definitions and reference to relevant scholarly literature, existing theory that is used for your particular study. The theoretical framework must demonstrate an understanding of theories and concepts that are relevant to the topic of your research paper and that relate to the broader areas of knowledge being considered.

The theoretical framework is most often not something readily found within the literature. You must review course readings and pertinent research studies for theories and analytic models that are relevant to the research problem you are investigating. The selection of a theory should depend on its appropriateness, ease of application, and explanatory power.

The theoretical framework strengthens the study in the following ways:

An explicit statement of theoretical assumptions permits the reader to evaluate them critically.

The theoretical framework connects the researcher to existing knowledge. Guided by a relevant theory, you are given a basis for your hypotheses and choice of research methods.

Articulating the theoretical assumptions of a research study forces you to address questions of why and how. It permits you to intellectually transition from simply describing a phenomenon you have observed to generalizing about various aspects of that phenomenon.

Having a theory helps you identify the limits to those generalizations. A theoretical framework specifies which key variables influence a phenomenon of interest and highlights the need to examine how those key variables might differ and under what circumstances.

By virtue of its applicative nature, good theory in the social sciences is of value precisely because it fulfils one primary purpose: to explain the meaning, nature, and challenges associated with a phenomenon, often experienced but unexplained in the world in which we live, so that we may use that knowledge and understanding to act in more informed and effective ways.

Theories such as interactionism, phenomenology, and critical theory can be used to help design a research question, guide the selection of relevant data, interpret the data, and propose explanations of causes or influences.

Theories such as interactionism, phenomenology, and critical theory can be used to help design a research question, guide the selection of relevant data, interpret the data, and propose explanations of causes or influences

Qualitative researchers also rely heavily on theories drawn from the social sciences and humanities to guide their research process and illuminate their findings. This session discusses the role and use of three theoretical approaches commonly used by qualitative researchers in health domains: interactionism, phenomenology, and critical theory. It also explains why such theories are important for clinicians, for health policy, and for patient care.

Why is theory useful?

Theories provide complex and comprehensive conceptual understandings of things that cannot be pinned down: how societies work, how organisations operate, why people interact in certain ways. Theories give researchers different “lenses” through which to look at complicated problems and social issues, focusing their attention on different aspects of the data and providing a framework within which to conduct their analysis.

Just as there is no one way to understand why, for instance, a culture has formed in a certain way, many lenses can be applied to a problem, each focusing on a different aspect of it. For example, to study doctor-nurse interactions on medical wards, various theories can provide insights into different aspects of hospital and ward cultures.

Think of theories as the conceptual basis for understanding, analyzing, and designing ways to investigate relationships within social systems. To that end, the following roles served by a theory can help guide the development of your framework.

Means by which new research data can be interpreted and coded for future use,

Response to new problems that have no previously identified solutions strategy,

Means for identifying and defining research problems,

Means for prescribing or evaluating solutions to research problems,

Ways of discerning certain facts among the accumulated knowledge that are important and which facts are not,

Means of giving old data new interpretations and new meaning,

Means by which to identify important new issues and prescribe the most critical research questions that need to be answered to maximize understanding of the issue,

Means of providing members of a professional discipline with a common language and a frame of reference for defining the boundaries of their profession, and

Means to guide and inform research so that it can, in turn, guide research efforts and improve professional practice.

11.7 Microsoft PowerPoint

Microsoft PowerPoint is a powerful slide show presentation program. It is a standard component of the company’s Microsoft Office suite software, and is bundled together with Word, Excel, and other office productivity tools. The program uses slides to convey information rich in multimedia. The term slide refers to the old slide projector, which this software effectively replaces.

What can you do with PowerPoint?

PowerPoint gives you the ability to share your presentation with others in real time on the web. You would supply the user with a link to the presentation. After selecting the link, the user(s) will be able to follow you and your presentation online.

- Custom animation
- Add photos, videos and sound effects
- Save as a webpage
- Print presentations as handouts
- Embed YouTube videos

Through the use of animation, graphics and text, this Presentation software package allows the user to make informational and dynamic slides. Further on, the slides are displayed on projection screens for educational, training or business Presentations. With a little creativity, you can also create macros, tables, charts and inserts videos, audios and images as well.

Different Uses for PowerPoint

There are a lot of effective uses of PowerPoint for play and work. Thus, you can create a PowerPoint presentation for just about any juncture. The Different Uses for PowerPoint are confined only by the imagination; take a look at some of them:

- **Use PowerPoint to Make Tutorials:** For the purpose of training or educational contexts, PowerPoint can be easily used to create worksheets and tutorials. Further on, the simple vocabulary worksheet may use clip art of different objects for scholars to do the labeling with their names. The tutorials can also be given to individual students when they are printed onto paper.
- **Use PowerPoint Presentations as a Digital Portfolio:** If an artist or designer wants to create a polished electronic portfolio, then with the help of PowerPoint, they can showcase their work by making slides which includes multiple graphics and visual image. Not just this, an electronic portfolio can also be sent via email which gives you a lot of convenience as well. There are some alternatives to publish your portfolio online like Behance, as a simple web page using HTML/CSS and Javascript or even SlideOnline.com if you have your portfolio in a PowerPoint presentations.
- **Prepare nice Animations using PowerPoint:** No doubt, PowerPoint being a valuable tool enables you adding music, sound and effects to your animation. Therefore, you can simply use PowerPoint to make interesting and unique animations. You can also animate elements from the clip art library or from your own drawings. You can download free animations for PowerPoint as animated templates or purchase a good animation background for PowerPoint from any subscription-based service like Presenter Media.
- **Use PowerPoint as a Photo Slide Show:** By using PowerPoint, you can create photo slide shows or digital album for personal promotional uses. For instance, you can create a touching tribute to your family member or can also make a fun Presentation featuring childhood photos of newly wedded couple during their wedding reception.

The above mentioned are just some of the uses for PowerPoint. By doing a research on web, you may discover more enticing uses for Microsoft PowerPoint. Henceforth, now you can make a Presentation as per your experience and skills and can take full advantage of your own expertise. You can discover other uses of PowerPoint including those related to educational presentations, games for education purposes in the school or even professional PowerPoint presentations to strike a deal or an important business.

Summary

To be precise, the unit covered some of the relevant points in the study of research methodology. It analysed the importance of poster preparation, coherence of ideas, use of theory and micro soft power point in researches. Posters are widely used in the academic community. It is understood that research posters summarize information or research concisely and attractively to help publicize it and generate discussion. The poster is usually a mixture of a brief text mixed with tables, graphs, pictures, and other presentation formats. This session also analysed coherence in writing as an essential quality for good academic writing. In academic writing, the flow of ideas from one sentence to the next should be smooth and logical. Without cohesion, the reader will not understand the main points that you are trying to make. It also hampers readability. After all, the goal of writing is to benefit the readers. Without both coherence and cohesion, the readers may detect choppiness in the text and feel as if there are gaps in the ideas presented. Needless to say, texts without coherence are difficult to read and understand. It defeats the whole purpose of writing, which is to relay ideas in a clear and efficient manner.

The unit studied the relevance of theory in research. We understood the fact that theory provides significant guidelines and trails for the conduct of research by pointing to areas that are most likely to be fruitful, that is, areas in which meaningful relationships among variables are likely to be found. The unit discussed the significance of Microsoft PowerPoint in doing researches. It is concluded that Microsoft PowerPoint is an easy program to use and a powerful tool for giving a

presentation. It can even help reduce speaking anxiety by drawing eyes away from the speaker and towards a screen. Just do not expect this technology to substitute for sound and dynamic speaking skills.

PowerPoint can be used in a number of different effective ways to communicate with your audience. Slides are completely customizable to fit your needs. Text-heavy presentations are generally good if you are giving a lecture to a group within your company and want them to take notes. Image-heavy presentations can help to make your presentation more conversational in style since there only visual cues. Combining the two approaches gives listeners the benefits of both visual aids and notes. All these points have been well sketched and analysed in the unit in details.

Keywords/Glossary

Poster: Posters are a common way to present results of a statistical analysis, program evaluation, or other project at professional conferences.

Coherence: Coherence also means “clarity of expression” and it is created when correct vocabulary and grammar are used. After all, the goal of writing is to benefit the readers. Without both coherence and cohesion, the readers may detect choppiness in the text and feel as if there are gaps in the ideas presented.

Theory: Theories are formulated to explain, predict and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study.

Microsoft PowerPoint: Microsoft PowerPoint is a powerful slide show presentation program. It is a standard component of the company’s Microsoft Office suite software, and is bundled together with Word, Excel, and other office productivity tools. The program uses slides to convey information rich in multimedia. The term slide refers to the old slide projector, which this software effectively replaces.

Self-Assessment

1. The should outline research with interesting commentary about what you learned along the way.
 - A. Poster
 - B. Banner
 - C. Hand out
 - D. None of the Above

2. should be a balance of visuals and text.
 - A. Screening
 - B. Banner
 - C. Hand out
 - D. Poster

3. The handout should be double-sided and the front side of the paper should include a picture of the poster.
 - A. Handout
 - B. Screening

- C. Banner
- D. Poster

4. A is the presentation of research by an individual or group for a class or academic/professional conference.

- A. Poster session
- B. Screening
- C. Banner
- D. Poster

5. The term refers to the smooth flow of ideas in a text.

- A. Theory
- B. Coherence
- C. Concept
- D. None of the Above

6. There are two main strategies that will make your writing coherent: organizing your ideas in a and connecting them effectively by using transition words and phrases.

- A. Logical order
- B. Order
- C. Spatial order
- D. None of the Above

7. When your ideas are set down in a, it is much easier for your reader to follow your train of thought.

- A. Order
- B. Spatial order
- C. Logical order
- D. Reasoned way

8. Description uses in which details are organized according to their physical location.

- A. Theoretical order
- B. Spatial order
- C. Logical order
- D. Reasoned way

9. is a supposition or a system of ideas intended to explain something, especially one based on general principles independent of the thing to be explained.
- A. Idea
 - B. Concept
 - C. Theory
 - D. Thesis
10. are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions.
- A. Theories
 - B. Ideas
 - C. Observations
 - D. None of the Above
11. The is the structure that can hold or support a theory of a research study.
- A. Conceptual idea
 - B. Theoretical framework
 - C. Themes
 - D. None of the Above
12. The theoretical framework connects the researcher to existing
- A. Information
 - B. Knowledge
 - C. Observation
 - D. None of the Above
13. The uses slides to convey information rich in multimedia.
- A. MS Word
 - B. MS Excel
 - C. MS Paint
 - D. MS PowerPoint
14. is a software application that is particularly used to present data and information by using text, diagrams with animation, images, and transitional effects etc., in the form of slides.
- A. MS PowerPoint
 - B. MS Word
 - C. MS Excel
 - D. MS Paint

15. MS PowerPoint used for data and information

- A. Tabulation
- B. Visualization
- C. Calculation
- D. None of the Above

Answers for Self Assessment

1. A 2. D 3. A 4. A 5. B
 6. A 7. C 8. B 9. C 10. A
 11. B 12. B 13. D 14. A 15. B

Review Questions

1. How do you explain the meaning of poster preparation and research poster?
2. Examine the meaning of coherence ideas in research
3. What are the significances of ideas and coherence of ideas in research?
4. Elucidate the meaning and significance of theory in research
5. What are the roles and uses of MS PowerPoint in research?

Further Readings



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Unit 12: Introduction to Intellectual Property Rights

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Objectives

- To understand the meaning of intellectual property rights
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Introduction

A property may be tangible or intangible, the intellectual property is a type of such intangible property. Intellectual property is concern with the skill and labour of human intellect. The concept of intellectual property is based on the Idea that one should have the proprietary rights in something which he creates by applying his skill, labour and intellect. The concept of Intellectual property, basically, confers some rights on the person concerned, so the concept is generally, called the 'intellectual property rights' and more popularly known as the 'IPR' There is nothing wrong to say that IPR is a synthesis of the 'culture of commoditization and industrialization'. The concept of IPR had emerged to protect the industrial property like, trade names, inventions etc. But, with the pace of time the concept has become more and more popular and, today, it covers a numerous things to protect such as, copyright; geographical indications; plant varieties; former's rights; biodiversity etc.

Because of the widening horizons, the concept of IPR, today, has become one of the most discussing legal issues in international arena. Several conventions, treaties and, protocols have been took place on various issues of IPR protection and regulation. Almost all the civilized countries have been formed the laws to ensure the IPR protection. The twenty-first century will be the century of knowledge, indeed the century of the intellect. A nation's ability to translate knowledge into wealth and social good through innovations will determine its future. Thus innovations hold the key to the creation as well as processing of knowledge. Consequently issues of generation, evaluation, protection and exploitation of intellectual property would become critically important all over the world.

This unit analyses of intellectual property rights (IPRs) is presented in two sections - in the first we deal with the concept of intellectual property rights and the rationale behind them. In the second section, we focus on the intellectual property rights in the Indian context.

12.1 Introduction to Intellectual Property Rights: Concept and Theories

Property is very complex concept to understand. It can be divided into many ways: Movable-Immovable, Tangible-Non Tangible etc. The division of property as movable and immovable, if it is tangible, was known in Roman law and has been adopted by modern Civil Codes. However, "as a result of the industrial revolution and the rapid development made in the fields of science, technology and culture, new kinds of property came into existence". New rights and properties like patents, copyright and industrial designs, which came to be known as Intellectual Property Rights (IPRs) received attention due to their unique characteristics. Intellectual property is so broad that it has many aspects. It stands for groupings of rights which individually constitute distinct rights. However, its conception differs from time and it to time. It is subject to various influences.

The change in information technology, market reality (globalization) and generality have affected the contents of intellectual property. For instance, in olden days because of religion creation of life, say plants or animals were not protected. Thus, defining IP is difficult as its conception changes. It is diverse, challenging and has application in own day today life. IP is a section of law which protects creations of the mind, and deals with intellectual creations. Is it a workable definition? It is also commonly said that one cannot patent or copyright ideas. Intellectual property, as a concept, "was originally designed to cover ownership of literary and artistic works, inventions and trademarks". What is protected in intellectual property is the form of the work, the invention, the relationship between a symbol and a business.

However, the concept of intellectual property now covers patents, trademarks, literary and artistic works, designs and models, trade names, neighboring rights, plant production rights, topographies of semi-conductor products, databases, when protected by a sui generis right, unfair competition, geographical indications, trade secrets, etc. Those types of intellectual property have been characterized as "pieces of information which can be incorporated in tangible objects at the same time in an unlimited number of copies at different time and at different locations anywhere in the world". In other words, intellectual property rights are intangible in nature, different from the objects they are embodied in. The property right is not in those copies but in the information which creates in them.

In today's world, the international dimension of intellectual property is of ever increasing importance for three compelling reasons. First, the composition of world trade is changing. Currently, commerce in intellectual property has become an even greater component of trade between nations. The value of information products has been enhanced greatly by the new technologies of the semiconductor chip, computer software and biotechnology.

Second, the world commerce has become even more interdependent, establishing a need for international cooperation. No longer can a single country impose its economic will on the rest of the world. Accordingly, countries have recognized this interdependence and have called for a broadening of international agreements/arrangements involving intellectual property. Third, new reprographic and information storage technologies permit unauthorized copying to take place faster and more efficiently than ever, undermining the creator's work. There is a general feeling in the developed countries that much of this sort of copying takes place in the third world due to the relaxation of legal standards.

All these factors have prompted the international community as a whole to accord due recognition to intellectual property and intellectual property regime. Thus, the above reasons widen the scope of intellectual property rights. Among the bundles of intellectual property rights, copyright that deals with the protection of literary, artistic and scientific works.

12.2 The Concept of Intellectual Property

Intellectual property, very broadly, means the legal property which results from intellectual activity in the industrial, scientific and artistic fields. Countries have laws to protect intellectual property for two main reasons. One is to give statutory expression to the moral and economic rights of creators in their creations and such rights of the public in access to those creations. The second is to promote, as a deliberate act of government policy, creativity and the dissemination and application of its results and to encourage fair trading which would contribute to economic and social development. Generally speaking, IP law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time limited rights to control the use made

of those productions. These rights do not apply to the physical object in which the creation may be embodied but instead to the intellectual creation as such.

IP is traditionally divided into two branches: “industrial property and copyright”. The convention establishing the World Intellectual Property Organization (WIPO) concluded in Stockholm on July 14, 7 1967 Art. 2(viii) provides that “intellectual property shall include rights relating to:

- 1) literary, artistic and scientific works;
- 2) performances of performing artists, phonograms and broadcasts;
- 3) inventions in all fields of human behavior;
- 4) scientific discoveries;
- 5) industrial designs;
- 6) trademarks, service marks, and commercial names and designations;
- 7) protection against unfair competition and all other rights resulting from intellectual activity in industrial scientific, literary or artistic fields”.

The areas mentioned under: (1) belong to the copyright branch of intellectual property. The areas mentioned in (2) are usually called “neighboring rights”, i.e., rights neighboring on copyright. The areas mentioned under (3), (5) and (6) constitute the industrial property branch of IP. The areas mentioned may also be considered as belonging to that branch. The expression industrial property covers inventions and industrial designs. Simply stated, inventions are new solutions to technical problems, and industrial designs are aesthetic creations determining the appearance of industrial products. In addition, industrial property includes trademarks, service marks, commercial names and designations, including indications of source and appellations of origin, and protection against unfair competition.

Hence the aspect of intellectual creations although existent is less prominent, but what counts here is that the object of industrial property typically consists of signs transmitting information to consumers, in particular, as regards products and services offered on the market, and that the protection is directed against unauthorized use of such signs which is likely to mislead consumers and misleading practices in general. Scientific discoveries are not the same as inventions. The general treaty on the international recording of scientific discoveries (1978) defines a scientific discovery as ‘the recognition of phenomena, properties or laws of the material universe not hitherto recognized and capable of verification’.

Inventions are new solutions to specific technical problems. Such solutions must, naturally rely on the properties or laws of the materials universe /otherwise they could not be materially or ‘technically’ applied, but those properties or laws need not be ‘properties or laws’ not hitherto ‘recognized’. An invention puts to new use, to new technical use, the said properties or laws, whether they are recognized (“discovered”) simultaneously with making the invention or whether they were already recognized (“discovered”) before and independently from the invention. Industrial and cultural development may be favored by stimulating creative activity and facilitating the transfer of technology and the dissemination of literary and artistic works. In the Ethiopian legal system too, the protection of intellectual property rights is afforded at constitutional level.

The FDRE Constitution recognizes that every Ethiopian citizen has the right to ownership of private property with certain restrictions. Article 40(2) defines private property as any tangible or intangible product which has value and is produced by the labour, creativity, enterprise or capital of an individual citizen, associations which enjoy juridical personality under the law. Thus, the constitution declares protection for every property whether it is tangible or intangible. That means protection is afforded equally for intellectual property rights as any other property since they are intangible products.

It is difficult to determine what types of ownership we should allow for non-corporeal, intellectual objects, such as writings, inventions and secret business information. There are intellectual properties which are not products of the mind. For instance, all trademarks are not products of the mind. Trademarks creation does not necessarily require intellectual activity. The same holds true for geographic indication. They don’t require the work of the mind like patent and copyright. IP is a bundle of legal rights resulting from intellectual creativity in industrial, scientific, artistic and literary fields. This definition is from the point of view of rights.

IP is legal protection accorded to works of the mind in distinction from manual work (result of physical labour). It is a legal protection accorded to incorporeal ownership. Regarding protection of IP rights, there were historical, philosophical and epistemological problems. Historically,

reservation exists as to the protection of such rights as they don't exhibit essential characteristics of property, i.e. material existence.

They consider corporeal chattels only as propriety. For them property should be subject to appropriation/occupancy. The other problem is related to problems of philosophy. They believed that human beings cannot be regarded as a creator of something. They say human beings cannot create something. Which is also reflected in religions? The problems also relate with epistemology. What we reflect is what we observe from the world. The then contemporary writers wrote that IP lacks essential characters to be considered property. Through time the laws of various countries started to incorporate protection to intellectual creativity, though they are independent. There are two factors in lumping intellectual property rights together.

12.3 Historical Basis

The convention establishing the WIPO was signed in Stockholm in 1967 and entered into force in 1970. However, the origin of WIPO goes back to 1883 the Paris Convention on industrial property and 1886 the Berne Convention on copyright. Both were placed under the supervision of the Swiss Federal Government. Initially there were two secretaries. However, in 1893 the two secretaries united. United International Bureaux for the Protection of IP (BIRPI) became WIPO.

1. **Conceptual:** IP rights objects (enterprises) are inherently inappropriate. They are intangible by nature. Use by others cannot be denied by using the possession of a property first created. Once you have written a book and published it then the public may make use of that property.
2. **Patents:** A patent is a type of intellectual property right which allows the holder of the right to exclusively make use of and sale an invention when one develops an invention. Invention is a new process, machine, manufacture, composition of matter. It is not an obvious derivation of the prior art. A person who has got a patent right has an exclusive right. The exclusive right is a true monopoly but its grant involves an administrative process.
3. **Copyright:** It is an intellectual property which does not essentially grant an exclusive right over an idea but the expressions of ideas which makes it different from patent law. Patent is related with invention technical solution to technical problems. Copyright is a field which has gone with artistic, literary creativity, creativity in scientific works, audiovisual works, musical works, software and others. There are neighboring rights. These are different from copyright but related with it – performers in a theatre, dancers, actors, broadcasters, producers of sound recorders, etc. It protects not ideas but expressions of ideas as opposed to patent.

Copyright protects original expression of ideas, the ways the works are done; the language used, etc. It applies for all copyrightable works. Copyright lasts for a longer period of time. The practice is life of author plus 50 years after his/her life. Administrative procedures are not required, unlike patent laws, in most laws but in America depositing the work was necessary and was certified thereon but now it is abolished.

4. **Industrial Design Law:** Some call this design right and some call it patentable design, industrial design. A design is a kind of intellectual property which gives an exclusive right to a person who has created a novel appearance of a product. It deals with appearance: how they look like. Appearance is important because consumers are interested in the outer appearance of a product. It is exclusively concerned with appearance, not quality. The principles which have been utilized in developing industrial design law are from experiences of patent and copyright laws. It shares copyright laws because the design is artistic. It shares patent law because there are scientific considerations. Design law subsists in a work upon registration and communication. It makes them close to patent law since they are also founded in patent law. Duration is most of the time 20 years like the patent law trademark Rights law.
5. **Trademarks Rights Law:** It is a regime of the law giving protection to graphic representation to words or logos or depending on the jurisdiction question such as sound or smells which are distinctive in nature and serve as source identification. There is also a recent phenomenon which is representing goods in their smell and sound. It is to be found on the goods associated with them. It enables the customer to identify the goods from others. They serve as a source identifier. Trademarks perform communication function.

Once there is a valid representation, it gives the mark owner an exclusive right. It begins with registration and publication of the mark. But there are exceptions which serve what trademarks registered serve which are not registered. It means they deserve protection even though they are not registered. They exist forever so long as the good with which they are associated continue to be sold. But they require renewal. Right of Publicity It protects the right to use one's own name or likeness for commercial purposes.

6. **Geographic Indication:** It is indications on products of the geographic origin of the goods. It indicates the general source. The indication relates to the quality or reputation or other characteristics of the good. For example, "made in Ethiopia" is not influenced by the geographical Indication. Geographical indications are sometimes called appellations of origin.
7. **Trade Secrets:** It gives the owner of commercial information that provides a competitive edge the right to keep others from using such information if the information was improperly disclosed to or acquired by a competitor and the owner of the information took reasonable precautions to keep it secret. It protects confidential secrets of some commercial value. The holder of the secret wants this information to be protected; Some protect the holder from an unauthorized disclosure of the information. A tort law, unfair competition or contract law can protect such information which is secret /confidential information. The holder (owner) has to do his/her best to keep the information secret. Trade secrets exist without registration as it is to make the information public, for example, the formula of Coca Cola. Information that are protected in trade secrets can be patentable if they are novel and non-obvious. But it is, most of the time, not to make the secret public. However, their full-fledged IP rights are contestable.

Therefore, intellectual property is such a property not occurs in nature but a creation of human intellect, skill and labour. The concept of traditional property recognises the things; which are earned or acquired by labour, money or, by any other valuable consideration; as property and, protects the rights over such a property. But, under the concept of intellectual property, the creativity of a person; the application of such creativity; and, the economic benefits arising out of such application of creativity, are protected. In the term "intellectual property", the word "intellectual" is used as an adjective. It shows the 'quality' or 'specialty' of the 'property'. The word 'intellectual', thus, reflects that the concern property is based on someone's intellect and, is not a common property.

Encyclopedia Britannica defines the term intellectual property as: 'A property that derives from the work of an individual's mind or intellect'. Besides the definitions of intellectual property, the term IPR, i.e. Intellectual property rights, is commonly used to represent both: the intellectual property and the rights there over. The World Intellectual Property Organization (WIPO) defines the intellectual property rights (IPR) in following words: "Intellectual Property includes rights relating to (i) literary, artistic and scientific works, (ii) performances and performing artists, photograph and broadcasts; (iii) inventions in all fields of human endeavoure; (iv) scientific discoveries; (v) industrial design; (vi) trademarks, service marks, commercial names and designations; (vii) protection against unfair competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields."

There are eight different types of intellectual property rights recognized by WIPO i.e. copyright, patents, trademarks, trade secrets, industrial designs, plant varieties, geographical indications, layout design of integrated circuits. The definition given by WIPO just listed the various subject matters of intellectual property rights. The list shows that the intellectual property is a combination of industrial property

There is nothing wrong to say, in present context, that 'wisdom is wealth'. This is the era of 'intellectualism'. Human intellect is exploring all the fields of knowledge. Considering the contribution of human intellect in the development of society a need has been felt to promote, protect, and encourage such a contribution. Consequently, the concept of intellectual property rights emerged. The concept of IPR is based on the idea that the products of human intellect are the property of the human. Initially, there was no thought like IPR in ancient society, because, at the time the products of human mind were not treated as a commodity. Further, the then society was very simple and cooperative. So, there was no need of a concept like, IPR. But as soon as the society begun to develop; new technologies came on front, the knowledge and products of human intellect were became a commodity i.e. a subject matter of trade and business. On this point a thought were developed that the producer of such products should have the first right over the products.

12.4 Theories and Approaches

Tom Palmer critically analyses three distinct arguments in favour of intellectual property rights. They are as follows:

- **Moral Desert Theory:** According to Locke, “every man has a property in his own person”, i.e. the fruits of a man’s labour belongs to him. In this scheme intellectual property would seem to follow naturally, since the individual must surely be permitted the fruits of his mental and physical labour. But Leggett points out that if you assert an exclusive right to a particular idea you cannot be sure the very same idea did not at the same moment enter some other mind. Thus these rights can only be justified if they are implemented in such a way that rights of an individual are protected without infringing on another.
- **Personality Theory:** According to Kant and Hegel, if one’s artistic expressions are synonymous with one’s personality, then they are deserving of protection just as much as the physical person is deserving of protection since in a sense they are a part of that physical person. However Palmer counters this by saying that if a work of art were part of an individual’s personality then they would cease to exist after the person died.
- **Utilitarian Theories:** Advocated by economists such as Bentham and Mill and assume that the objective of any policy should be the attainment of the greatest good for the greatest number. However utilitarian arguments can be cut for or against the claims of intellectual property rights. The utility gains from increased incentives for innovation must be weighed against the losses incurred from monopolisation and their diminished diffusion. Thus the problem arises as the benefits gained cannot be measured against the losses suffered. Another argument against intellectual property rights and in particular patents is that it creates artificial scarcity through a monopoly on various products. For instance, from its establishment in 1875, the US company AT & T collected patents in order to ensure its monopoly on telephones. It slowed down the introduction of radio for about 20 years.

However, it can be argued that patents and copyrights are not monopolies because monopoly is the use of force to constrain others in the use of what would “in the absence of such law be open to all,” while inventions and the like could not be said to exist before their creation. The proponents of patents and copyrights reasoned that an exclusive right over an innovation could not be a monopoly, because prior to its invention it was not a “liberty that they had before.” Robert Nozick argues on this basis that patents and copyrights do not run afoul of the “Lockean Proviso”: “An inventor’s patent does not deprive others of an object which would not exist but for the inventor.”

There are no easy and precise answers to this issue. Thus for the purpose of examining the validity of these rights, let us explore a hypothetical situation where intellectual property rights do not exist at all, and analyse whether such a system would sustain itself or collapse. An Alternative Model: The Libertarian Utopia An intriguing analysis in the field intellectual property rights is the conception of a world where no regulations or laws to protect intellectual property exist. All creations of the mind such as inventions, literary works, innovations are freely accessible and can be utilised by anyone. Many libertarian thinkers such as Kinsella believe that any institution or argument such as the question of intellectual property rights which attempts to legitimise or calls for the continued existence of the state is fallacious.

If something can only be done or protected by the state, then it stands to (libertarian) reason that, that something should not be done or protected at all. They believe that it is indisputable that anything that one produces, with their own hands and/or with their own capital in collaboration with their creative mind, is their exclusive property. But once such things are ready to be sold, they should be subject to the competition of the free market, unhampered by claims of intellectual property rights; to allow the inventor of a device to smash competition in the marketplace is to allow him to fester in mediocrity, while someone smarter could have improved on the invention, benefiting everyone.

Benjamin Tucker postulated that property arose as a means of solving conflicts within society, which were caused by scarcity. In the universe of human reality, almost all goods were scarce, and that fact led to an inevitable competition among human beings for their use. For example, since two

individuals could not use the same chair in the same manner at the same time, it was necessary to determine who should use the chair. The concept of property resolved this problem. Intellectual property cannot exist because an idea is not property; it is not scarce. The very institution of property came about for the purpose of assigning scarce goods to individuals. An idea in my head is my property, because it is part of my mind. But the instant a person utters it, the next person to hear it also owns the idea, as it is now part of their mind. We may both own the idea without diminishing it in either of our brains.

12.5 Introduction to Patents, Patent Act 1970 – Other Amendments

The Patent system in India is governed by the Patents Act, 1970 (Number 39 of 1970) and the Patents Rules 1972, effective from April 20, 1972. Subsequently the Patent Act, 1970 is amended effective from January 1, 1995 and the Patents Rules, 1972 is amended effective from June 2, 1999.

12.6 The chief features of the original Indian Patent Act, 1970 are as follows:

- The Act tries to strike a balance between the rights of the patent holder and his obligation to the society that grants him such rights. - The basic philosophy of the Act, as laid down in Section 83, is that patents are granted to encourage inventions to accelerate indigenous industrial growth by securing their working in India on a commercial scale. And, that patents are not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article.
- The Act totally excludes atomic energy and methods of agriculture from patentability. One cannot obtain any sort of patent whatsoever in these fields (Section 3).
- The Act permits product patents for all inventions except food, medicines, drugs and substances produced by chemical processes; in these fields only process patent is available because food and health are crucial for the well-being of the people. Process patents in these areas enable the other competitors to find new, improved and economical processes for producing the same product.
- Section 53 provides patent protection for a period of 14 years from the date of filing. In case of food and medical drugs the period of protection is limited to seven years from the date of filing the patent or five years from the date of sealing, whichever is earlier. This shorter period of protection in case of food and medicines is believed to be necessary to prevent the patentee from exploiting the needs of society by charging exorbitant prices for the patented article. Further, in the field of medicine, the rate of obsolescence is high as new and improved molecules keep replacing the existing ones.
- The Act contains provisions for compulsory working of a patent. Working of a patent means manufacturing the product in India. The patentee cannot hold the patent in India and import the product from another country, thereby compelling the Indian consumer to pay an excessive price.
- In public interest, patents are subject to strict and extensive governmental control and use.
- Every patent for an invention relating to a method or process for manufacture of substances intended for use, or capable of being used, as food, medicines, or drugs, or relating to substances prepared or produced by chemical process shall be deemed to be endorsed Licenses of Right from the date of expiry of three years after the sealing of the patent.

This patent law which was a model for other developing countries like Argentina, Mexico, Egypt, Brazil and Chile, has been replaced by the Indian Patent Act, 1999, which is modelled on the basis of the TRIPS (Trade-Related Aspects of Intellectual Property Rights) text. This amendment seeks to implement the obligations that India has taken in the field of patents by signing the TRIPS Agreement. The bill generally aims at making the 1970 Patents Act as TRIPS compliant as possible.

Besides TRIPS, India is also a member of the following international treaties related to intellectual property rights: - Convention establishing World Intellectual Property Organization (WIPO) - Paris Convention for the protection of Industrial Property with effect from December 7, 1998 - Patent Cooperation Treaty (PCT) with effective from December 7, 1998.

Provisions of TRIPS

The TRIPS Agreement is one of the fifteen Agreements listed in Annex I of the Marrakesh Agreement establishing WTO. Though retaining the basic principle of mutuality and quid pro quo for patent grant, the TRIPS Agreement has widened the scope, duration, and strength of patent protection. The text: - Extends the scope of patentable subject matter to any invention, whether product or process, in all fields of technology [Article 27.1]; - Enlarges the period of patent protection to 20 years [Article 33]; - Deems importation as equivalent to working of patent [Article 27.1]; - Protects the right holder against discrimination on the grounds of place of invention, place of production and field of technology [Article 27.1]; - Limits the scope of compulsory licenses, licenses of right, government/third party use [Article 31]; - Reverses the burden of proof.

The demanding TRIPS provisions enumerated above are not to be read in isolation. They have to be interpreted in the light of other beneficial provisions found in the preamble and Articles 2.1, 7, 8, 27(1), 27(2), 27(3), 30 and 31 of the text. The text attempts to balance the rights and privileges of the right holder with his obligations and responsibilities to the society. This is succinctly stated in the preamble which takes into account the need to promote effective and adequate protection of IPRs but at the same time stresses the need to ensure that measures and procedures to enforce IPRs do not themselves become barriers to legitimate trade.

And Article 8.2 accepts the need to prevent the abuse of IPRs by the patent holder. Though Article 27.1 extends the scope of patentable subject matter, it also clarifies that only inventions are patentable. Further, it adds that for an invention to be patentable, it should be new, it should involve an inventive step, and it should be capable of industrial application. Further still, Article 27.2 reserves powers for member states to exclude from patentability such inventions as may be necessary to protect public order or morality or for protection of life, health, environment. And Article 27.3 permits members to exclude from patentability:

- (1) diagnostic, therapeutic and surgical methods for treatment of humans and animals; and
- (2) plants and animals.

Major Changes in India

In 1957, the Government of India appointed Justice N. Rajagopala Ayyangar Committee to examine the question of revision of the Patent Law and advise government accordingly. The report of the Committee, which comprised of two parts, was submitted in September, 1959. The first part dealt with general aspects of the Patent Law and the second part gave detailed note on the several clauses of the lapsed bills 1953. The first part also dealt with evils of the patent system and solution with recommendations in regards to the law.

The committee recommended retention of the Patent System, despite its shortcomings. This report recommended major changes in the law which formed the basis of the introduction of the Patents Bill, 1965. This bill was introduced in the Lok Sabha on 21st September, 1965, which however lapsed. In 1967, again an amended bill was introduced which was referred to a Joint Parliamentary Committee and on the final recommendation of the Committee, the Patents Act, 1970 was passed. This Act repealed and replaced the 1911 Act so far as the patents law was concerned. However, the 1911 Act continued to be applicable to designs. Most of the provisions of the 1970 Act were brought into force on 20th April 1972 with publication of the Patent Rules, 1972.

This Act remained in force for about 24 years without any change till December 1994. An ordinance effecting certain changes in the Act was issued on 31st December 1994, which ceased to operate after six months. Subsequently, another ordinance was issued in 1999. This ordinance was subsequently replaced by the Patents (Amendment) Act, 1999 that was brought into force retrospectively from 1st January, 1995. The amended Act provided for filing of applications for product patents in the areas of drugs, pharmaceuticals and agro chemicals though such patents were not allowed. However, such applications were to be examined only after 31-12-2004. Meanwhile, the applicants could be allowed Exclusive Marketing Rights (EMR) to sell or distribute these products in India, subject to fulfilment of certain conditions.

The second amendment to the 1970 Act was made through the Patents (Amendment) Act, 2002 (Act 38 of 2002). This Act came into force on 20th May 2003 with the introduction of the new Patent Rules, 2003 by replacing the earlier Patents Rules, 1972

The third amendment to the Patents Act 1970 was introduced through the Patents (Amendment) Ordinance, 2004 w.e.f. 1st January, 2005. This Ordinance was later replaced by the Patents (Amendment) Act 2005 (Act 15 of 2005) on 4th April, 2005 which was brought into force from 1-1-2005.

Summary

The industrial revolution has evolved the concept of intellectual property and thus new rights like patents, copyrights, trademarks, geographical indications, etc. have emerged. Intellectual property has many aspects as it consists of bundle of rights which constitute a distinct right. The concept of intellectual property now covers patents, trademarks, literary and artistic works, designs and models, trade names, neighboring rights, plant production rights, topographies of semi-conductor products, databases, when protected by a sui generis right. Commerce in intellectual property has become an even greater component of trade between nations. The value of information products has been enhanced greatly by the new technologies of the semiconductor chip, computer software and biotechnology.

IP law aims at safeguarding creators and other producers of intellectual goods and services by granting them certain time limited rights to control the use made of those productions. These rights do not apply to the physical object in which the creation may be embodied but instead to the intellectual creation as such. It is obvious from the discussion above that Intellectual Property regimes are generally complex arrangements that seek to satisfy interests which are tripartite in nature. On one hand, it strives to satisfy the inventor or the owner by providing adequate protection for his work or invention and conferring on him absolute right to exclude others from making unauthorized benefit from it. It is this right that permits the owner to take action against any person exploiting his invention without agreement.

After all, encouragement of intellectual creation is one of the basic prerequisites of all social, economic and cultural development. This explains the various national laws and the general interest of nations especially developing ones, in harnessing as much as possible the economic rewards of the intellectual activism of their nationals. Then on the last end of the tripartite structure stands the ultimate consumer, whose interest too would have to be taken in to consideration especially as the use of, and the protection of inventions and creations, is a key means of ensuring better and more enriching life for instance, the Patent system that does not respect and balance the need of the creators and consumers is likely to deny the later some essential resources and services. So, striking a balance between and among these various interests has been the major preoccupation of the intellectual property regimes.

Keywords/Glossary

Intellectual Property: Intellectual property, very broadly, means the legal property which results from intellectual activity in the industrial, scientific and artistic fields.

Patents: A patent is a type of intellectual property right which allows the holder of the right to exclusively make use of and sale an invention when one develops an invention.

Copyright: It is an intellectual property which does not essentially grant an exclusive right over an idea but the expressions of ideas which makes it different from patent law. Patent is related with invention technical solution to technical problems. Copyright is a field which has gone with artistic, literary creativity, creativity in scientific works, audio visual works, musical works, software and others.

Design: A design is a kind of intellectual property which gives an exclusive right to a person who has created a novel appearance of a product. It deals with appearance: how they look like.

Trademarks Rights Law: It is a regime of the law giving protection to graphic representation to words or logos or depending on the jurisdiction question such as sound or smells which are distinctive in nature and serve as source identification.

Geographic Indication: It is indications on products of the geographic origin of the goods. It indicates the general source. The indication relates to the quality or reputation or other characteristics of the good.

Trade Secrets: It gives the owner of commercial information that provides a competitive edge the right to keep others from using such information if the information was improperly disclosed to or acquired by a competitor and the owner of the information took reasonable precautions to keep it secret.

Self-Assessment

1. are the rights given to persons over the creations of their minds: inventions, literary and artistic works, and symbols, names and images used in commerce.
 - A. Trade patents
 - B. Logo rights
 - C. WIPO
 - D. Intellectual Property Rights (IPR)

2. Intellectual Property Rights (IPR) are outlined in Article 27 of the Universal Declaration of Human Rights.
 - A. Article 15
 - B. Article 17
 - C. Article 20
 - D. Article 27

3. The importance of intellectual property was first recognized in the

 - A. Paris Convention for the Protection of Industrial Property
 - B. UDHR
 - C. UN Conventions on Trade
 - D. None of the Above

4. WIPO stands for
 - A. World Wide Intellectual Property Organization
 - B. World Intellectual Property Rights Organization
 - C. World Intellectual Property Organization
 - D. World Ideas Property Organization

5. The rights of authors of literary and artistic works are protected by copyright, for a minimum period of ... years after the death of the author.
 - A. 50
 - B. 40

-
- C. 30
 - D. 25
6.identify a good as originating in a place where a given characteristic of the good is essentially attributable to its geographical origin.
- A. Geological Indicators
 - B. Geographical Indications
 - C. Graphic indexes
 - D. None of the Above
7. The clarion call of the National Intellectual Property Rights (IPR) Policy 2016 is
- A. Creative Idea; Innovative India
 - B. Creative India; Innovative India
 - C. Creative and Innovative India
 - D. None of the Above
8. Ais protection granted by a national government for an invention.
- A. Discovery
 - B. Idea
 - C. Patent
 - D. None of the Above
9. Which among the following is a type of patents:
- A. Utility patents
 - B. Academic patents
 - C. Sports patents
 - D. Commercial patents
10. issued for a new, original, and ornamental design for an article of manufacture.
- A. Utility patent
 - B. Academic patent
 - C. Design patent
 - D. Commercial patent
11. Eyeglasses is an example for
- A. Academic patent
 - B. Utility patent
 - C. Design patent
 - D. Commercial patent

12. A is a group of patent documents from different countries that protect the same invention.
- A. IPR
 - B. Rights
 - C. Patent family
 - D. None of the Above
13. Sections 3 and 4 of the Indian Patents Act, 1970, India clearly mentioned theregarding what can be patented in India.
- A. Inclusions
 - B. Exclusions
 - C. Limitations
 - D. None of the Above
14. Under Section 2(ja) of the Patents Act, India, anis defined as the characteristic of an invention that involves technological advancement or is of economic importance or both.
- A. Idea
 - B. Innovation
 - C. Imagination
 - D. Inventive step
15. The Patent (Second Amendment) Act 2000 designed by the Government to bridge the conflict between theand the Patent Act, 1970.
- A. Patentees' Rights
 - B. TRIPS
 - C. WIPO
 - D. None of the Above
16.essentially refers to finding out something which already existed in nature but was unknown or unrecognised.
- A. Innovation
 - B. Discovery
 - C. Exploration
 - D. None of the Above

Answer for Self Assessment

1. D 2. D 3. A 4. C 5. A
6. B 7. B 8. C 9. A 10. C
11. C 12. C 13. B 14. D 15. B
16. B

Review Questions

1. How do you elaborate the meaning of intellectual property rights?
2. Define and assess the major areas of intellectual property rights
3. What are the major the features of India's policy on IPR?
4. Elucidate the major points in India's intellectual property and patents Acts
5. How do you evaluate and analyse the implications of Patent Amendments Acts?

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Unit 13: Copyright and Neighboring Rights: Concepts and Principles

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Objectives

- To understand the meaning of the word Trademark
- To examine the relevance of protecting trademarks in markets
- To assess the importance and features of trademark laws in India
- To discern the meaning of copyrights and neighboring rights
- To distinguish the difference between copyrights and neighboring rights

Introduction

The unit examines three points – copyright, neighboring rights and trademarks - in detail. Copyright protects the owner of the exclusive property rights against those who copy or otherwise take and use the particular form in which the original work was expressed. It is possible for authors and creators to create, have rights in and exploit a work very similar to the creation of another author or creator without infringing copyright, as long as the work of another author or creator was not copied. From this basic difference between inventions and literary and artistic works, it follows that the legal protection provided to each also differs. Since protection for inventions gives a monopoly right to exploit an idea, such protection is short in duration – usually about 20 years.

Related rights, also referred to as neighboring rights, protect the legal interests of certain persons and legal entities that contribute to making works available to the public or that produce subject matter which, while not qualifying as works under the copyright systems of all countries, contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right. The law of related rights deems that the productions that result from the activities of such persons and entities merit legal protection as they are related to the protection of works of authorship under copyright. Some laws make clear, however, that the exercise of related rights should leave intact, and in no way affect, the protection of copyright.

A trademark includes a name, word, or sign that differentiates goods from the goods of other enterprises. Marketing of goods or services by the procedure becomes much easier with a trademark because recognition of product with the trademark is assured and easier. The owner can prevent the use of his mark or sign by another competitor. Trademark is a marketing tool which increases financing of the business. A trademark is not always a brand but the brand is always is a trademark. Sometimes there is a confusion between trademark and brand. The brand name can be simply a symbol or logo but the trademark is a distinguishing sign or indicator in a business

organization as it has a wider implication than brands. People are more influenced by the distinctive trademark that reflects the quality of the product. A trademark can be a logo, picture mark or a slogan.

Trademark is a branch of intellectual property rights. Intellectual property rights permit people to maintain ownership rights of their innovative product and creative activity. The intellectual property came to light because of the efforts of human labour, so it is limited by a number of charges for the registration and charges for infringement. Types of intellectual property are Trademarks, Copyright Act, Patent Act, and Designs Act. All these three points have been well explained in the following sessions of the unit.

Copyright and Neighboring Rights: Concept and Principles

13.1 Copyright

Copyright relates to literary and artistic creations, such as books, music, paintings and sculptures, films and technology-based works (such as computer programs and electronic databases). In certain languages, copyright is referred to as authors' rights. Although international law has brought about some convergence, this distinction reflects an historic difference in the evolution of these rights that is still reflected in many copyright systems. The expression copyright refers to the act of copying an original work which, in respect of literary and artistic creations, may be done only by the author or with the author's permission.

The expression authors' rights refers to the creator of an artistic work, its author, thus underlining that, as recognized in most laws, authors have certain specific rights in their creations that only they can exercise, which are often referred to as moral rights, such as the right to prevent distorted reproductions of the work. Other rights, such as the right to make copies, can be exercised by third parties with the author's permission, for example, by a publisher who obtains a license to this effect from the author.

While other types of IP also exist, it is helpful at this stage to think of the distinction between industrial property and copyright in terms of the basic difference between inventions and literary or artistic works. Inventions may be defined in a non-legal sense as new solutions to technical problems. These new solutions are ideas, and are protected as such. Protection of inventions under patent law does not require the invention to be represented in a physical form. The protection accorded to inventors is, therefore, protection against any use of the invention without the permission of the owner. Even an inventor who independently creates something that has already been invented, without copying or being aware of the first inventor's work, must obtain permission in order to exploit the later invention.

For the purposes of copyright protection, the term "literary and artistic works" includes every original work of authorship, irrespective of its literary or artistic merit. The ideas in the work do not need to be original, but the form of expression must be an original creation by the author. Article 2 of the Berne Convention states that: "The expression literary and artistic works shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression." The Convention lists the following examples of such works:

Books, pamphlets and other writings; lectures, addresses, sermons; dramatic or dramatico-musical works; choreographic works and entertainments in dumb show; musical compositions with or without words; cinematographic works to which are assimilated works expressed by a process analogous to cinematography; works of drawing, painting, architecture, sculpture, engraving and lithography; photographic works to which are assimilated works expressed by a process analogous to photography; works of applied art; illustrations, maps, plans, sketches and three-dimensional works relative to geography, topography, architecture or science; "translations, adaptations, arrangements of music and other alterations of a literary or artistic work," which "shall be protected as original works without prejudice to the copyright in the original work"; and "collections of literary or artistic works such as encyclopedias and anthologies which, by reason of the selection and arrangement of their contents, constitute intellectual creations" - again, the Convention provides that these "shall be protected as such, without prejudice to the copyright in each of the works forming part of such collections.

13.2 Rights of Reproduction, Distribution, Rental and Importation

The right of copyright owners to prevent others from making copies of their works without permission is the most basic right protected by copyright legislation. The right to control the act of reproduction - be it the reproduction of books by a publisher or the manufacture by a record

producer of compact discs containing recorded performances of musical works – is the legal basis for many forms of exploitation of protected works.

Other rights are recognized in national laws in order to ensure that this basic right of reproduction is respected. Many laws include a right to authorize the distribution of copies of works. The right of reproduction would be of little economic value if copyright owners could not control distribution of copies of their works made with their consent. The right of distribution usually terminates upon first sale or transfer of ownership of a particular physical copy. This means, for example, that when the copyright owner of a book sells or otherwise transfers ownership of a copy of the book, the owner of that copy may give the book away or even resell it without the copyright owner's further permission. The question of applying this concept to digital files is under consideration in various national legal systems.

Another right that is gaining increasing recognition, and is included in the WCT, is the right to authorize rental of copies of certain categories of works, such as musical works in sound recordings, audiovisual works and computer programs. This became necessary in order to prevent abuse of the copyright owner's right of reproduction when technological advances made it easy for rental shop customers to copy such works. Finally, some copyright laws include a right to control importation of copies as a means to prevent erosion of the principle of territoriality of copyright. The right is based on the premise that the legitimate economic interests of copyright owners would be endangered were they not able to exercise their rights of reproduction and distribution on a territorial basis. Certain forms of reproduction of a work are subject to exemptions from the general rule, because they do not require the permission of the right owner. These exemptions are known as limitations or exceptions to rights.

Translation and Adaptation Rights

Translating or adapting a work protected by copyright also requires permission from the right owner. Translation means the expression of a work in a language other than that of the original version. Adaptation is generally understood as the modification of a work to create another work, for example adapting a novel to make a film, or the modification of a work for different conditions of exploitation, e.g., by adapting a textbook originally written for university students to make it suitable for a lower level. Translations and adaptations are themselves works protected by copyright. In order to publish a translation or adaptation, permission must be obtained from both the owner of the copyright in the original work and the owner of copyright in the translation or adaptation.

The scope of the right of adaptation has been the subject of significant discussion in recent years because of the greatly increased possibilities for adapting and transforming works in digital formats. With digital technologies, users can easily manipulate text, sound and images to create user-generated content (UGC). Discussion has focused on achieving an appropriate balance between the rights of the author to control the integrity of a work by authorizing modifications, and the rights of users to make changes that seem to be part of the normal use of a work in digital format. Some of the questions revolve around whether authorization from the right owner is needed to create new works that use parts of previously existing works, for example through sampling or mash-ups.

Moral Rights

The Berne Convention, in Article 6bis, requires its members to grant authors the following rights: (i) the right to claim authorship of a work; and (ii) the right to object to any distortion or modification of a work, or other derogatory action in relation to a work, which would be prejudicial to the author's honor or reputation.

These and other similar rights granted in national laws are generally known as the moral rights of authors. The Berne Convention requires these rights to be independent of authors' economic rights. Moral rights are only accorded to individual authors and in many national laws they remain with the authors even after the authors have transferred their economic rights. This means that even where, for example, a film producer or publisher owns the economic rights in a work, in many jurisdictions the individual author continues to have moral rights.

Duration of Copyright

Copyright protection does not continue indefinitely. Copyright laws provide for a period of time during which the rights of the copyright owner exist and may be exploited. The period or duration of copyright begins from the moment the work is created or, under some national laws, when it is expressed or "fixed" in tangible form. Copyright protection continues, in general, until a certain time after the death of the author. The purpose of this provision in the law is to enable the author's

successors to benefit economically from exploitation of the work even after the author's death. In some countries moral rights continue in perpetuity after the end of the term of economic rights.

Ownership, Exercise and Transfer of Copyright

The owner of copyright in a work is generally, at least in the first instance, the creator of a work, i.e., the author. However, this is not always the case. The Berne Convention, in Article 14bis, contains rules for determining initial ownership of rights in cinematographic works. Certain national laws also provide that where a work is created by an author employed for the purpose of creating that work, the employer, not the author, is the owner of the copyright in that work.

As noted above, however, in general moral rights belong to the individual author of a work regardless of who owns the economic rights. The laws of many countries provide that the initial right owner may transfer all economic rights in a work to a third party, although often moral rights cannot be transferred. Authors may transfer the economic rights in their works to individuals or companies best able to market them, in return for payment. Such payments are often made dependent on actual use of the works and are referred to as royalties. Transfer of copyright may take one of two forms: assignment and licensing.

An assignment is a transfer of a property right. Under an assignment, the right owner transfers the right to authorize or prohibit certain acts covered by one, several or all rights under copyright. The person to whom the rights are assigned becomes the new copyright owner or right holder. Copyright rights are divisible, so it is possible to have multiple right owners for the same or different rights in the same work.

13.3 Neighboring Rights

Related rights, also referred to as neighboring rights, protect the legal interests of certain persons and legal entities that contribute to making works available to the public or that produce subject matter which, while not qualifying as works under the copyright systems of all countries, contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right. The law of related rights deems that the productions that result from the activities of such persons and entities merit legal protection as they are related to the protection of works of authorship under copyright. Some laws make clear, however, that the exercise of related rights should leave intact, and in no way affect, the protection of copyright.

Treaties

The first organized international response to the need for legal protection of these related rights was the conclusion in 1961 of the International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (Rome Convention). While most international conventions follow in the wake of national legislation and are intended to synthesize existing laws, the Rome Convention was an attempt to establish international regulations in a field in which few national laws existed at the time. This meant that most states had to draft and enact laws before they could accede to the Convention.

Today, there is a widespread view that the Rome Convention is out of date and in need of revision or replacement by a new set of norms in the field of related rights, even though the Convention was the basis for the inclusion of provisions on the rights of performers, producers of sound recordings and broadcasting organizations in the TRIPS Agreement. For two of the categories of beneficiaries, updated protection is now provided by the WIPO Performances and Phonograms Treaty (WPPT), adopted in 1996 along with the WCT (the two are sometimes referred to collectively as the Internet Treaties), and the Beijing Treaty on Audiovisual Performances (Beijing Treaty) (adopted in 2012 but not yet in force). Discussions continue in the WIPO Standing Committee on Copyright and Related Rights on a new treaty on the rights of broadcasters.

The rights granted in national laws to the three types of beneficiaries of related rights based on these treaties are generally as follows:

- Performers have the right to prevent fixation (recording), broadcasting and communication to the public of their live performances without their consent, and the right to prevent reproduction of fixations of their performances under certain circumstances. The rights in respect of broadcasting and communication to the public may be in the form of equitable remuneration rather than a right to prevent. Due to the personal nature of their creations, some national laws also grant performers moral rights,

which may be exercised to prevent unauthorized use of their name and image, or modifications of their performances that present them in an unfavorable light.

- When the Beijing Treaty enters into force, these rights will extend to performers in relation to their audiovisual performances. Producers of sound recordings have the right to authorize or prohibit reproduction, importation and distribution of their sound recordings and copies thereof, and the right to equitable remuneration for broadcasting and communication to the public of their sound recordings. Broadcasting organizations have the right to authorize or prohibit rebroadcasting, fixation and reproduction of their broadcasts.
- Under some laws, additional rights are granted. For example, in a growing number of countries, a right of rental is granted to producers of sound recordings in respect of sound recordings, and to performers in respect of audiovisual works. Some countries also grant specific rights over cable transmissions. Likewise, under the WPPT producers of sound recordings are granted a right of rental. When the Beijing Treaty enters into force, the right of rental will be extended to performers in relation to their audiovisual performances. As in the case of copyright, the related rights treaties and national laws contain limitations and exceptions to related rights.

The duration of protection of related rights under the Rome Convention is 20 years from the end of the year in which: (a) the recording is made, in the case of sound recordings and performances included in sound recordings; (b) the performance took place, in the case of performances not incorporated in sound recordings; or (c) the broadcast took place, for broadcasts. Under the TRIPS Agreement, the rights of broadcasting organizations are also to be protected for 20 years from the date of the broadcast. In the TRIPS Agreement and the WPPT, however, the rights of performers and producers of sound recordings are to be protected for 50 years from the date of the fixation or the performance. The Beijing Treaty, when it enters into force, will also provide for a term of protection of 50 years. In terms of enforcement, remedies for infringement or violation of related rights are in general similar to those available to copyright owners as described above, namely: conservatory or provisional measures; civil remedies; criminal sanctions; border measures; and measures, remedies and sanctions against abuses in respect of technical devices and rights management information.

13.4 Historical Development of the Concept of Trademark and Trademark Law: National and International

The Concept of Trademark

Trademarks already existed in the ancient world. Even at times when people either prepared what they needed themselves or, more usually, acquired it from local craftsmen, there were already creative entrepreneurs who marketed their goods beyond their localities and sometimes over considerable distances. As long as 3,000 years ago, Indian craftsmen used to engrave their signatures on their artistic creations before sending them to Iran. Manufacturers from China sold goods bearing their marks in the Mediterranean area over 2,000 years ago and at one time about a thousand different Roman pottery marks were in use, including the FORTIS brand, which became so famous that it was copied and counterfeited.

With the flourishing trade of the Middle Ages, the use of signs to distinguish the goods of merchants and manufacturers likewise expanded several hundred years ago. Their economic importance was still limited, however. Trademarks started to play an important role with industrialization, and they have since become a key factor in the modern world of international trade and market-oriented economies. How can this be explained, and what is the role trademarks have to play?

What is a Trademark?

From these deliberations on the function and role that the trademark plays in the market, one can deduce a definition of the trademark: A trademark is any sign that individualizes the goods of a given enterprise and distinguishes them from the goods of its competitors.

This definition comprises two aspects, which are sometimes referred to as the different functions of the trademark, but which are, however, interdependent and for all practical purposes should always be looked at together: In order to individualize a product for the consumer, the trademark must indicate its source. This does not mean that it must inform the consumer of the actual person

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who has manufactured the product or even the one who is trading in it: the consumer in fact often does not know the name of the manufacturer, still less the geographical location of the factory in which the product was made. This is not necessary for the trademark to fulfil its purpose of indicating origin. It is sufficient that the consumer can trust in a given enterprise, not necessarily known to him, being responsible for the product sold under the trademark.

The origin function as described above presupposes that the trademark distinguishes the goods of the given enterprise from those of other enterprises; only if it allows the consumer to distinguish a product sold under it from the goods of other enterprises offered on the market can the trademark fulfil its origin function. This shows that the distinguishing function and the origin function cannot really be separated. For practical purposes one can even simply rely on the distinguishing function of the trademark, and define it as a sign which serves to distinguish the goods of one enterprise from those of other enterprises.

This is the approach chosen by Section 1 (1)(a) of the WIPO Model Law for Developing Countries on Marks, Trade Names and Acts of Unfair Competition of 1967. As said before, origin in this context means that a given enterprise is responsible for the marketing of the product, and can therefore be a manufacturer or a merchant. It is not, however, the function of a trademark to indicate geographical origin.

Service Marks

In modern trade consumers are confronted not only with a vast choice of goods of all kinds, but also with an increasing variety of services which tend more and more to be offered on a national and even international scale. There is therefore also a need for signs that enable the consumers to distinguish between the different services such as insurance companies, car rental firms, airlines, etc. These signs are called service marks, and fulfil essentially the same origin-indicating and distinguishing function for services as trademarks do for goods.

It is widely recognized that there is a need for protection of service marks as there is for trademarks, and modern trademark laws give protection to the marks for services in the same way as to the marks that identify goods. The approach adopted by the course book is first to develop the traditional system of registration and protection of trademarks, that is, the marks used for goods, and then to deal with service marks. This approach is being taken for two practical reasons:

While trademarks can be registered practically everywhere, a number of countries do not yet provide for the protection of service marks by registration. Even though service marks serve basically the same purpose as trademarks, there are certain practical differences in the protection of service marks which can more easily be illustrated by comparison with the system of trademark protection.

Other Signs

There are a number of other distinctive signs in addition to trademarks and service marks which have their own economic value, such as collective marks, certification marks, appellations of origin and trade names. While these signs have some features in common with trademarks, and while sometimes the same sign can be used by an enterprise as both a trademark and a trade name or collective mark, these other signs must be clearly distinguished from trademarks. These signs cannot be dealt with in full detail in the context of a course on trademark law.

Protection against Unfair Competition, Counterfeiting and Piracy

The increasing importance of international trade has led to practices that can no longer be adequately tackled with the traditional concept of protecting a trademark against the use of an identical or confusingly similar mark on competing goods. Certain competitors tend to imitate not only trademarks but also the labels and the packaging used for the presentation of the goods, and dishonest traders even try to imitate products to such a degree that they are practically indistinguishable, for the averagely inattentive consumer, from the genuine article. Such practices often cannot be dealt with under traditional trademark law. The trademark owner must therefore rely on unfair competition law and other special rules that protect him against labelling and packaging imitations, counterfeiting and trademark piracy.

Trademark Law-National and International

International trademark systems are evolving to meet new multinational economic challenges. The latest worldwide developments in trademark law are found in new multinational treaties. These new treaties are dramatic steps forward in creating a uniform system despite the difficulties that have been encountered in developing multinational agreements thus far.

Paris Convention for the Protection of Industrial Property

The Paris Convention for the Protection of Industrial Property is the principal international treaty protecting intellectual property rights, including patents and copyrights as well as trademarks. The Paris Convention has been revised at Brussels, Washington, The Hague, London, Lisbon, and Stockholm. The United States became a signatory to this international treaty in 1887. The Paris Convention establishes that member countries provide national protection to trademark owners from other countries who apply for trademark protection, and that member countries afford intellectual property a minimum level of protection.

The Madrid Agreement Concerning the International Registration of Marks of 1891

Under the Paris Convention, trademark owners must obtain separate trademark protection in each Paris Union country. The Paris Convention does not provide trademark protection across Paris Union members' borders. Foreign trademark registration was made easier through an international trademark system established by The Madrid Agreement Concerning the International Registration of Marks of 1891.

Trademark Registration Treaty

Striving for better participation in an international trademark registration system, WIPO held a conference in 1971. Madrid Union members in attendance did not want to make radical amendments to the Madrid Agreement; therefore a new treaty, the Trademark Registration Treaty (TRT), was developed. The TRT was the first attempt to develop an international system for all Paris Union members, including the United States. The TRT was a filing treaty designed to reduce the complexity of registration application filing and of administering trademark registrations. It was not designed to change substantive trademark law. The TRT did not create a true multinational registration, but did provide for direct filing with WIPO. The TRT also required a three year suspension of the trademark use requirement, which would have substantively affected United States trademark law.

Protocol Relating to the Madrid Agreement

Concerning the International Registration of Marks After the failure of the Trademark Registration Treaty, WIPO began work on yet another registration treaty" by establishing The Committee of Experts on the Registration of Marks. The Committee developed a draft Trademark Cooperation Treaty, but eventually abandoned the planned development of an entirely new treaty system, instead advocating improvements in existing treaties for worldwide trademark administration.

The Madrid Agreement for the Repression of False or Deceptive Indications of Origin

The Madrid Agreement for the Repression of False or Deceptive Indications of Origin requires seizure of imported goods falsely indicating geographic origin. Through this treaty, geographic names in trademarks were given substantive protection until the 1958 revisions to the Paris Convention incorporated the false indications of origin. The United States is not a member.

The Lisbon Arrangement for the Protection of Appellations of Origin and Their International Registration

The Lisbon Arrangement for the Protection of Appellations of Origin and Their International Registration provides absolute protection for registered geographic denominations. A geographic name cannot be used as a trademark if it is protected in the country of origin. The United States is not a member.

The Nice Agreement on the International Classification of Goods and Services for the Purposes of the Registration of Marks

The International Classification system was developed by the International Bureau to facilitate the trademark searching process and the international description of goods and services covered by trademark registrations. The classification- system of the International Bureau was adopted in June 1957 as The Nice Agreement on the International Classification of Goods and Services for the Purposes of the Registration of Marks. The classifications are changed and revised by a Committee of Experts. The United States became a signatory to this treaty in 1972.

The Vienna Agreement Establishing an International Classification of the Figurative Elements of Marks

The Vienna Agreement Establishing an International Classification of the Figurative Elements of Marks covers designs or figurative elements of trademarks. Twenty-nine classes of figurative elements (e.g. Human Beings, Animals, Plants, Landscapes, and Geometric Figures.) were developed in the draft. As in the goods and services classification system, adopting countries do not have to adopt the same figurative classifications as the national scheme, but figurative registrations must include the classification information. The United States is not a member of this treaty.

India's obligations under the TRIPS Agreement for protection of trademarks, inter alia, include protection to distinguishing marks, recognition of service marks, indefinite periodical renewal of registration, abolition of compulsory licensing of trademarks, etc.

With the globalization of trade, brand names, trade names, marks, etc. have attained an immense value that require uniform minimum standards of protection and efficient procedures for enforcement as were recognized under the TRIPS. In view of the same, extensive review and consequential amendment of the old Indian Trade and Merchandise Marks Act, 1958 was carried out and the new Trade Marks Act, 1999 was enacted. The said Act of 1999, with subsequent amendments, conforms to the TRIPS and is in accordance with the international systems and practices.

The Trade Marks Act provides, inter alia, for registration of service marks, filing of multiclass applications, increasing the term of registration of a trademark to ten years as well as recognition of the concept of well-known marks, etc. The Indian judiciary has been proactive in the protection of trademarks, and it has extended the protection under the trademarks law to Domain Names as demonstrated in landmark cases of *Tata Sons Ltd. v. Manu Kosuri&Ors*, and *Yahoo Inc. v. Akash Arora* Related rights, also referred to as neighboring rights, protect the legal interests of certain persons and legal entities that contribute to making works available to the public or that produce subject matter which, while not qualifying as works under the copyright systems of all countries, contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right.

The law of related rights deems that the productions that result from the activities of such persons and entities merit legal protection as they are related to the protection of works of authorship under copyright. Some laws make clear, however, that the exercise of related rights should leave intact, and in no way affect, the protection of copyright.

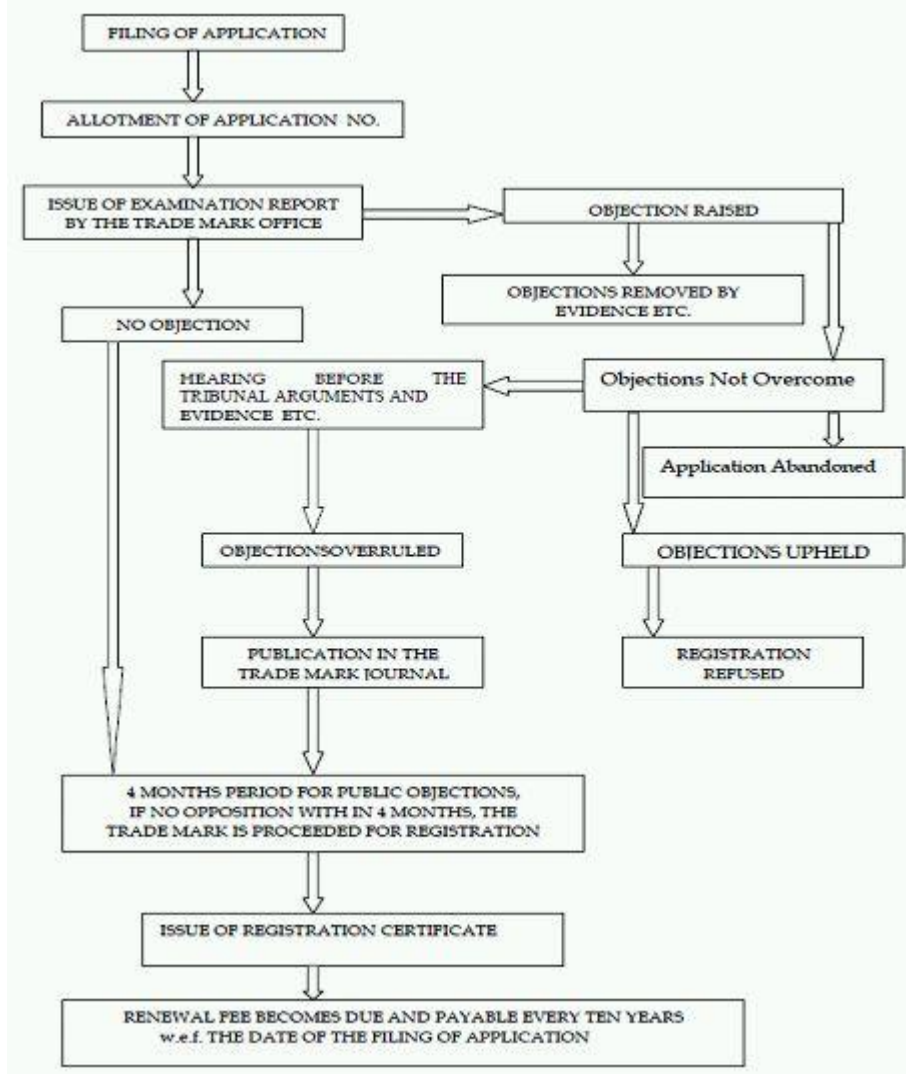
India, being a common law country, follows not only the codified law, but also common law principles, and as such provides for infringement as well as passing off actions against violation of trademarks. Section 135 of the Trade Marks Act recognizes both infringement as well as passing off actions.

Offences and Penalties

In case of a criminal action for infringement or passing off, the offence is punishable with imprisonment for a term which shall not be less than six months but which may extend to three years and fine which shall not be less than INR 50,000 but may extend to INR 200,000.

Procedure of Registration of Trademark in India

The procedure for registration of a trademark in India is given below:



Convention Applications

In order to fulfil the obligations of any treaty, convention or arrangement with a country or countries that are members of inter-governmental organizations, which accord to Indian citizens similar privileges as granted to their own citizens, the Central Government notifies such countries to be Convention Countries. In case of an application for registration of a trademark made in any of the Convention countries, a priority date can be claimed with regard to the application in India, provided that the application is made within six months of the application having been filed in the Convention country. The Government has notified and extended this privilege of priority to the members who have ratified the Paris Convention on Protection of Industrial Property.

Madrid Protocol

India Parliament has passed the Trade Marks (Amendment) Bill, 2009 for enacting special provisions relating to protection of trademarks through international registration under the Madrid Protocol. As per the Amendment Bill, from the date of the international registration of a trademark where India has been designated or the date of the recording in the register of the International Bureau about the extension of the protection resulting from an international registration of a trademark to India, the protection of the trademark in India shall be the same as if the trademark had been registered in India. The Amendment Bill is yet to be notified.

Classification of Goods and Services

For the purpose of classification of goods and services for registration of trademarks, India follows the International Classification of Goods and Services (Nice Classification) published by World Intellectual Property Organization (WIPO). For the purpose of classification of the figurative elements of marks, India follows the Vienna Agreement.

Opposition Proceedings

After advertisement of a trademark in the Trade Marks Journal, an opposition challenging the application for registration can be filed by any person within a period of 3 months (which may be extended by a period not exceeding 1 month).

Renewal of Registration

The trademark is initially registered for a period of 10 years, which is calculated from the date of filing of the application and in case of convention application, from the date of priority. The registration is required to be renewed within 6 months before the date of expiry of the registration, i.e., 10 years from the date of the application or subsequent renewals.

The failure in renewing the trademark within the stipulated period of time and a grace period of maximum 1 year granted for restoration of the trademark, automatically leads to removal of the trademark from the Register of Trademarks.

Rectification of Trademark

An aggrieved person may file an application before the Registrar of Trademarks or to the Intellectual Property Appellate Board (IPAB) for cancellation or varying the registration of the trademark on the ground of any contravention or failure to observe a condition entered on the Register in relation thereto.

The application for rectification can also be filed for removal of an entry made in Register, without sufficient cause or wrongly remaining on the Register and for correction of any error or defect in any entry in the Register.

Assignment, Transmission and Licensing of Trademarks in India

Assignment means an assignment in writing by an act of the parties concerned. While in case of licensing, the right in the trademark continues to vest with the proprietor, the assignment of the trademark leads to a change in the ownership of the mark. A registered trademark is assignable with or without the goodwill in respect of all or only some of the goods/services for which the mark is registered. India is a member to TRIPS and Article 21 of the TRIPS dealing with Licensing and Assignment mandates that "... the owner of a registered trademark shall have the right to assign the trademark with or without the transfer of the business to which the trademark belongs." Section 39 of the (Indian) Trade Marks Act, 1999 allows for the assignment of an unregistered trademark with or without the goodwill of the business concerned.

Indian law contains embargo on the assignments of trademark, whether registered or unregistered, whereby multiple exclusive rights would be created in more than one person which would result in deception/confusion. However, the assignment with limitations imposed, such as goods to be sold in different markets, i.e., within India or for exports are valid. The Registrar is authorized to issue a certificate of validity of the proposed assignment on a statement of case by the proprietor of a registered trademark who proposes to assign the mark. The said certificate as to validity is conclusive unless vitiated by fraud.

Summary

To be precise, this unit covered a significant portion of fundamentals of research. It is understood that copyright and neighboring rights form the foundation of intellectual creativity and the propagation of culture. Protection of these rights guarantees the maintenance and development of creativity and cultural diversity to the benefit of authors, of performers, of cultural industries, of consumers and ultimately of society at large. Harmonization of the laws of the Member States does not mean making them uniform or reducing them to the lowest common denominator. What it does mean is making the various bodies of national legislation achieve the same result while respecting their diverse approaches and seeking a high level of protection. Accomplishment of the tasks described in this booklet is only the first step towards developing a genuine European area for creativity, but it is an essential one.

Moreover, from a holistic perspective, intellectual property refers to the creation of the human mind like inventions, literary and artistic works, and symbols, names, images and designs used in commerce. Intellectual property is divided into two categories: industrial property, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source; and copyright, which includes literary and artistic work such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyrights includes include those of performing artists

Unit 13: Copyright and Neighboring Rights: Concepts and Principles

in their performances, producers of phonograms in their recordings, and those of broadcasters in their radio and television programs. Intellectual property rights protect the interests of creators by giving them property rights over their creations.

The unit also discussed about trademark. A trade mark is a visual symbol which may be a word to indicate the source of the goods, a signature, name, device, label, numerals, or combination of colors used, or services, or other articles of commerce to distinguish it from other similar goods or services originated from another. A trade mark provides protection to the owner of the mark by ensuring the exclusive right to use it or to authorize another to use the same in return of payment. Trade mark protection enforced by the courts, which in most systems have the authority to block the trademark infringement. Trade marks promote initiative and enterprise world-wide by rewarding the owners of trademarks with recognition and financial profit.

Keywords/Glossary

Copyright: Copyright relates to literary and artistic creations, such as books, music, paintings and sculptures, films and technology-based works (such as computer programs and electronic databases).

Rights of Reproduction: The right of copyright owners to prevent others from making copies of their works without permission is the most basic right protected by copyright legislation. The right to control the act of reproduction – be it the reproduction of books by a publisher or the manufacture by a record producer of compact discs containing recorded performances of musical works – is the legal basis for many forms of exploitation of protected works.

Rights of Public Performance: A public performance is considered under many national laws to include any performance of a work at a place where the public is or can be present, or at a place not open to the public but where a substantial number of persons outside the normal circle of a family and its close acquaintances are present.

Right of Broadcasting: The right of broadcasting covers the transmission for public reception of sounds, or of images and sounds, by wireless means, whether by radio, television or satellite.

Neighboring Rights: Related rights, also referred to as neighboring rights, protect the legal interests of certain persons and legal entities that contribute to making works available to the public or that produce subject matter which, while not qualifying as works under the copyright systems of all countries, contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right.

Trademark: A trademark is any sign that individualizes the goods of a given enterprise and distinguishes them from the goods of its competitors.

Self Assessment

1. refers to the legal right of the owner of intellectual property.
 - A. Trademark
 - B. IP
 - C. Copyright
 - D. Sign and symbol rights

2. The basis for copyright protection stems directly from the
 - A. British Constitution
 - B. Indian Constitution
 - C. French Constitution
 - D. U.S. Constitution

Fundamentals of Research

3. The framers of copyrights believed that securing the exclusive rights of authors to their writings for limited periods would promote the progress of
 - A. Science and commerce
 - B. Science and arts
 - C. Arts
 - D. Science

4. There are three basic requirements including that a work must meet to be protected by copyright.
 - A. Original, constructive and fixed
 - B. Original, creative and fixed
 - C. Original, fine and fixed
 - D. New, creative and fixed

5. According to the WIPO, protect the legal interests of certain persons and legal entities that contribute to making works available to the public which contains sufficient creativity or technical and organizational skill to justify recognition of a copyright-like property right.
 - A. Neighboring rights
 - B. IP rights
 - C. Trademarks
 - D. None of the Above

6. The neighboring rights law that came into force on 24th July 2019 in
 - A. U. S. A
 - B. Germany
 - C. Russia
 - D. France

7. Ais any sign that individualizes the goods of a given enterprise and distinguishes them from the goods of its competitors.
 - A. IP
 - B. Trade symbol
 - C. Trademark
 - D. MRP

8. A trademark is a symbol or word thatproducts or services and distinguishes it from other products or services on the market.
 - A. Exclude

- B. Characterize
 - C. Introduce
 - D. None of the Above
9. A trademark is a type of
- A. IP
 - B. Trade symbol
 - C. Trademark
 - D. MRP
10. A trademark is a type of intellectual property consisting of a recognizable
- A. Sign and design
 - B. Expression
 - C. Sign, design and expression
 - D. None of the Above
11. A trademark can be protected on the basis of either
- A. Use and registration
 - B. Design and quality
 - C. Quality alone
 - D. Quality and use
12. The Paris Convention for the Protection of Industrial Property was passed in the year...
- A. 1891
 - B. 1893
 - C. 1895
 - D. 1899
13. The Paris Convention for the Protection of Industrial Property places contracting countries under the obligation to provide for a
- A. Trademark register
 - B. Trademark portfolio
 - C. Regulation
 - D. None of the above
14. TRIPS stands for
- A. The Arrangement on Trade-Related Aspects of Intellectual Property Rights
 - B. The Agreement on Trade-Related Aspects of Intellectual Property Rights
 - C. The Trade-Related Aspects of Intellectual Property Rights
 - D. The Agreement on Trade Aspects of Intellectual Property Rights

15. WTO stands for
- World Tariff Organization
 - World Trade Organization
 - World Trade and Tariff Organization
 - None of the Above
16. The Trade Marks Act, 1999, India deals with entire law relating to
- Marks and symbols
 - Designs
 - Trademarks
 - None of the Above

Answers for Self Assessment

1. C 2. D 3. B 4. B 5. A
6. D 7. C 8. B 9. A 10. C
11. A 12. B 13. A 14. B 15. B
16. C

Review Questions

- How do you define and elaborate the meaning of the word trademark?
- Examine the relevance of protecting trademarks in global markets
- Elucidate the importance and features of trademark laws in India
- What are the meanings and features of copyrights and neighboring rights?
- How do you distinguish the difference between copyrights and neighboring rights?

Further Readings



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Dr. Rajeesh CS, Lovely Professional University

Unit 14: International Regime: IPR, TRIPS, WIPO and GATT

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Objective:

- To understand the significance of international legal framework for IPR protection
- To examine the objectives and functions of international regimes-TRIPS, WIPO, WTO and GATT
- To analyze the limitations of existing legal framework
- To evaluate the functions of international legal frameworks for the protection and promotion of intellectual properties

Introduction

The unit covers important points on international regime related to intellectual property. It includes IPR, TRIPS, WIPO, WTO and GATT. The idea of trade, and what makes trade valuable for societies, has evolved beyond simply shipping goods across borders. Innovation, creativity and branding represent a large amount of the value that changes hands in international trade today. How to enhance this value and how to facilitate the flow of knowledge-rich goods and services across borders have become integral considerations in development and trade policy.

The TRIPS Agreement plays a critical role in facilitating trade in knowledge and creativity, in resolving trade disputes over intellectual property, and in assuring WTO members the latitude to achieve their domestic objectives. The Agreement is legal recognition of the significance of links between intellectual property and trade.

Intellectual property refers to creations of the mind. These creations can take many different forms, such as artistic expressions, signs, symbols and names used in commerce, designs and inventions. The extent of protection and enforcement of these rights varied widely around the world; and as intellectual property became more important in trade, these differences became a source of tension in international economic relations. New internationally-agreed trade rules for intellectual property rights were seen as a way to introduce more order and predictability, and to settle disputes more systematically.

Such details have been well explained in this unit. Moreover, the unit looks at the WTO's TRIPS Agreement as an attempt to narrow the gaps in the way these rights are protected and enforced around the world, and to bring them under common international rules. It establishes minimum

standards of protection and enforcement that each government has to give to the intellectual property held by nationals of fellow WTO members.

Under the TRIPS Agreement, WTO members have considerable scope to tailor their approaches to IP protection and enforcement in order to suit their needs and achieve public policy goals. The Agreement provides ample room for members to strike a balance between the long term benefits of incentivising innovation and the possible short term costs of limiting access to creations of the mind. Members can reduce short term costs through various mechanisms allowed under TRIPS provisions, such as exclusions or exceptions to intellectual property rights. And, when there are trade disputes over the application of the TRIPS Agreement, the WTO's dispute settlement system is available. A portion of this unit also cover points with regard to GATT. Let's see the details below.

14.1 International Regime: IPR, TRIPS and other Treaties, WIPO, WTO and GATT

Intellectual property (IP) refers to any Intellectual creation of mind. Intellectual Property laws give people the right to own and profit from their artistic, scientific and technological creations for a designated period of time. Inventors are granted to a variety of intangible assets, such as ideas, business methods, inventions, musical piece, literary work, artistic works, discoveries, words, phrases, symbols, and designs. The primary objective of an Intellectual Property Rights is to encourage inventions by promoting their protection and utilization so as to contribute to the development of Industries, which in turn contributes to the promotion of technological innovation and to the transfer and dissemination of technology.

Various Forms of Intellectual Property

- Patents
- Trademarks
- Copyright
- Industrial Designs
- Geographical Indication
- Semiconductor Integrated circuit's layout - Design
- Trade secrets

Patent: Patent is a monopoly right given by the government to an inventor for a period of twenty years. Once granted, a patent gives the inventor the right to exclude others from making, using, selling, importing or offering for a sale of the inventor's invention for the duration specified in the terms of patent. After twenty years the patent falls under public domain there after anyone can use the invention without permission from patentee. Invention can be any new article, composition of matter, machine, process or any new value addition to the above said. Patents are territorial rights, which means that an invention is only protected in the countries or regions where patent protection has been obtained. In other words, if you have not been granted a patent with effect in a given country, your invention will not be protected in that country enabling anybody else to make , use, import or sell your invention in that country. Patent right can be shared whenever there are more than one patentees.

Patent rights can be

- a) Licensed or sold for a commercial consideration.
- b) A right to initiate legal proceedings against infringement.
- c) The patentee can commercially exploit its potential without fear of copying or imitation without the patentee's permission during the term of patent. Invention refers to the technical solution to a technical problem. It may be an innovative idea or may be in the form of working model or prototype. Innovation refers to the translation of the invention into a marketable product or process.

Patentability Criteria: A new product or process which involves an inventive step and capable of being made or used in an industry and should meet following criteria. a) Novelty means the matter disclosed in the specification is neither published in India nor anywhere else where before the date of filing of patent application in India. b) Inventive step means the invention is not obvious to a person skilled in the art in the light of the prior publication /Document. c) Industrially applicable means the invention should possess utility, so that it can be made or used in an industry.

Inventions not patentable :

- Discoveries and scientific theories
- Aesthetic creations
- Schemes rules and method for performing mental acts
- Mere discoveries of substances as they naturally occur in the world
- Inventions that may affect public order good morals or public healthy.
- Diagnostic, therapeutic and surgical methods of treatment for humans or animals
- Plants and animals other than micro organisms and essentially biological processes for the production of plants or animals
- Other than non-biological and microbiological process and
- Computer programs

Patent Specification: The Content of complete specification includes abstract, field of the invention, background of the invention, prior art of the invention, summary of the invention, detailed description of the drawing, and claims etc. Fee Rs 1000 in case of individuals and Rs 4000 in case of legal entities.

Trademark: Trademark is a unique sign or indicator used by an individual, business organization or other legal entity to identify that the products and /or services are offered to the consumers with which the trademark appears. It would have originated from a unique source of origin, in order to distinguish its products or valid for services from those of other entities.

Types of Marks

There are various types of marks namely

- Trademarks (marks used to distinguish certain goods as those produced by a specific enterprise),
- Service marks (Marks used to distinguish certain services as those provided by a specific enterprise),
- Collective marks (marks used to distinguish the goods or services of a person or an association of persons who is the proprietor thereof from those of others.),
- Certification marks (marks used to distinguish the goods or services that comply with a set of standards and have been certified by a certified authority) and
- Well-known marks (marks that are considered to be well-known in the market and as result benefit from stronger protection).

Functions of Trademark

A trademark is essentially a product of competitive economy where more than one person competed for the manufacture of the same product which necessitated the marking of each manufactured goods by a symbol which distinguished similar goods made by others. The modern trademark has three major functions to perform. They are origin function, quality or guarantee function, investment or advertising function.

Duration of Trademark

The term of trademark is ten years and it can be renewed life long for every ten years. Trademark can be a word, phrase, logo, symbol, design, image, or a combination of these elements. Example: Coco-Cola, IBM, AIRTEL etc.

Copyright and Related Rights

Copyrights relates to original work of literary, artistic, dramatic or musical work, Cinematographic films, Sound Recording and Software program. A related right refers to the category of rights granted to performers, phonogram producers and broadcasters. In some countries such as United States of America and the United Kingdom, these rights are simply incorporated under copyright.

Other countries such as Germany and France protect these rights under the separate category called "neighbouring rights".

- Rights of performers in their performances. They include a live performance of a pre-existing artistic, dramatic or musical work, or a live recitation or reading of a pre-existing literary work. The work performed need not be previously fixed in any medium or form and may be in the public domain or protected by copyright. The performance may also be an improvised one, whether original or based on a pre-existing work.
- Rights of producers of sound recordings in their recordings Example. Compact discs.
- Rights of broadcasting organizations in their radio and television programs transmitted over the air and in some countries, rights in the transmission of works via cable systems.

Copyright and related rights works of different categories of right holders. While copyright protects the works of the authors themselves, related rights are granted to certain categories of people or business that play an important role in performing, communicating or disseminating works to the public that may or may not be protected by copyright.

Types of work protected by copyright

- Literary works (eg. Books, magazine, newspapers, technical papers, instruction manual, catalogs, tables and compilations of literary works.
- Musical works or compositions, including compilations;
- Dramatic works includes not only plays but also for example a sales training program captured on videocassettes
- Artistic works such as cartoons, drawings, paintings, sculptures and computer artwork
- Photographic works both on paper and in digital form
- Computer programs and software
- Some types of database
- Maps, globes , charts, diagrams, plans and technical drawing;
- Advertisement, commercial prints and labels
- Cinematographic works, including motion pictures, television shows, and webcasts
- Multimedia products
- In some countries works of applied art such as artistic jewellery, wall paper and carpets.

Authorship and Ownership of Copyright

- The author means in relation to
 - Literary or dramatic work - author of the work
 - Musical work - composer
 - Artistic work - artist
 - Photograph - person who takes photograph
 - Cinematograph or sound recording - producer
 - Computer generated work - person who creates it
- Ownership means
- In case of a literary, dramatic or artistic work made by the author in the course of his employment by the proprietor of a newspaper, magazine or similar periodical under a contract of service or apprenticeship - in the absence of the agreement to the contract, the proprietor is the first owner of the copyright.
 - In the case of photograph taken, painting or portrait drawn or engraving or cinematograph film made for valuable consideration at the instance of any person - in the absence of any agreement to the contrary the person who commissioned it is the first owner.

- In the case of a work made in the course of the authors' employment under a contract of service or apprenticeship – in the absence of any agreement to the contrary, the employer is the first owner.
- In the case of any address or speech delivered in public – the person who delivered address or speech is the first owner.
- In the case of a government work in the absence of any agreement to the contrary, the government is the first owner of the copyright.
- In the case of a work made or first published by or under the direction or control of any public undertaking – in the absence of any agreement to the contrary, the public undertaking is the first owner of the copyright.

Industrial Design

A design refers to the features of shape, configuration, pattern, ornamentation or composition of lines or colors applied to any article. A design should be new and original. The word "article" refers to any article manufactured and any substance, artificial, or partly artificial and partly natural, and includes any part of an article capable of being made and sold separately. Design office is located at Kolkata. As general rule Industrial Design consists of

- Three-dimensional features, such as the shape of a product,
- Two dimensional features such as ornamentation, patterns, lines or color of a product or
- A combination of one or more such feature.

Who may apply for Industrial Design?

An applicant who created the design or if working under contract, his employer, can apply for registration. The applicant can be either an individual (e.g: a designer) or a legal entity (e.g: company). In either case, the application may be made directly or through an agent. If you are a foreign applicant you may be required to be represented by an agent duly authorized by the Intellectual Property office of that country.

Essentials for the Registration of Design

- The design must be new or original
- The design must be applied to particular articles.
- It must have visual appeal
- It should not have been published before filing
- The design must be significantly distinguishable from known designs
- It should not comprise or contains scandalous or obscene matter.
- It should not include a trade mark or a property mark or any artistic work.
- A design should not include any mode or principle or construction or anything which is in substance a mere mechanical device. The Protection of industrial Designs gives value to a product, eye-catching and it makes easier to attract the customers. Industrial design shall be protected by registering at the national or regional Intellectual property offices.

Duration of Industrial Design

An Industrial design is registered for a period of 10 years and is extendable for another 5 years if an application in Form-3 with a fee of Rs. 2,000/- is filed before the expiry of 1st year.

Geographical Indication

Geographical Indication is an indication which identifies goods as agricultural goods, natural goods or manufactured goods as originating, or manufactured in the territory of country, or a region or locality in that territory, where a given quality, reputation or other characteristic of such goods is essentially attributable to its geographical origin. In case of manufactured goods one of the

activities of either the production or processing or preparation of the goods concerned takes place in such territory, region or locality, as the case may be • Explanation clarifies that GI need not be a geographical name. Alphonso, Basmati. • Goods include goods of handicraft or of industry and also foodstuff. Example: Basmati rice, Darjeeling Tea, Nagpur Oranges, Kolhapuri Chappal, Thirunelveli Halwa, Kanchipuram Sarees etc.

Who may apply for GI?

Any association of persons or producers, or any organization/authority established by or under any law which represents the interests of the producers of the concerned goods and producer includes trader, authorized user etc. The main benefit of Geographical Indication is that it prevents unauthorized use of a registered Geographical Indication by others. It boosts exports of Indian Geographical Indications by providing legal protection. It promotes economic prosperity for producers and seeking legal protection in other WTO member countries. The Term of Geographical indication protection is ten years.

Trade Secrets

They are any information that is not generally known, that will give a business advantage, or is commercially useful. Sometimes they are considered and referred to as confidential informations. It may be a formula, process, design, device etc. For example the composition of coco cola is a trade secret.

Semiconductor Integrated circuit's layout

Design Integrated circuits are commonly known as silicon chips. They are usually made from layers of materials by a process which includes etching, using various marks (templates) which are made photographically. The simplest integrated circuit consists of three layer one of which is made from semiconductor material. A semiconductor material in terms of its ability to conduct electricity is one which lies between a conductor, such as copper and an insulator, such as rubber. Examples: silicon, germanium, selenium and gallium arsenide. Semiconductor integrated circuit means a product having transistors and other circuitry elements which are inseparably formed on a semiconductor material or an insulating material or inside the semiconductor material and designed to perform an electronic circuitry function. Layout design means a layout of transistors and other circuitry elements and includes lead wires connecting such elements and expressed in any manner in semiconductor integrated circuit

India is a Member - State of World Intellectual Property Organization, an International Organization, responsible for the promotion of and the protection of Intellectual Property throughout the world. India is a member of the following International Organizations and treaties in respect of Patents ∞ World trade Organization (WTO) ∞ World Intellectual property Organization (WIPO) ∞ Paris convention for the protection of Industrial Property ∞ Patent Co-Operation Treaty (PCT) ∞ Budapest Treaty.

14.2 The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)

The Agreement on Trade-Related Aspects of Intellectual Property Rights (or TRIPS Agreement) set the standards for intellectual property protection in the world today. It came into force on 1 January 1995 and is binding on all members of the World Trade Organization (WTO).

TRIPS: a one-size-fits-all approach

The TRIPS Agreement sets minimum standards in the international rules governing patents, including on medicines. Countries that are members of the WTO (today, more than 150 countries) agree to certain common standards in the way they enact and implement their patent laws. These standards include, amongst others, that patents be given for a minimum of 20 years; that patents may be given both for products and processes; and that pharmaceutical test data be protected against 'unfair commercial use'.

But the question of what deserves to be patented is left for countries to determine. The Agreement only says that patents should be granted for new, inventive and useful inventions - but it does not define these terms. Deciding whether a new formulation (producing a pill version of a drug that formerly came as a powder, for instance) or a new combination (combining two or more existing molecules into a new pill) deserves a new twenty-year patent for example is a prerogative of countries, and is not determined by the WTO texts. Countries should therefore determine what kind of inventions deserves patents in the area of pharmaceuticals, in light of their own social and

economic conditions. Some governments, such as Brazil, Thailand or India, have done precisely that. In today's world, for many patients, that decision can be a question of life or death.

In other words, though there is no such thing as a single international patent law, TRIPS represents a harmonization of patent laws. The industry had been pushing for this kind of move for decades. It's a one-size-fits-all policy that aims at extending the stricter patenting laws previously used in industrialized countries to developing countries, regardless of their radically different social and economic conditions.

Developing country members of the WTO generally had until the beginning of 2000 to implement TRIPS. Some countries were given a longer transition period – those like India that did not grant patents on pharmaceutical products were given until 2005, and least-developed countries were initially given until 2006.

The Doha Declaration: Restoring the Balance

Implementation of the TRIPS Agreement's intellectual property standards is having a considerable impact on access to medicines and public health. By limiting competition and local manufacturing, the danger is that TRIPS extends high drug prices and worsens the access to medicines crisis.

With TRIPS, life-saving medicines are considered in the same vein as mere consumer goods and the devastating impact of high prices is mostly ignored. The balance between the private interests of the patent holder and the larger interests of society is severely skewed.

It didn't take long for the issue to come to a head. In 2001, at the annual ministerial meeting of the WTO in Doha, Qatar, countries agreed to redress that imbalance, and firmly restated the primacy of health over commercial interests. The Doha Declaration reaffirmed countries' right to use TRIPS safeguards such as compulsory licences or parallel importation to overcome patent barriers to promote access to medicines, and guided countries in their use. One final significant achievement of Doha was to extend the deadline by which the least developed countries had to grant and enforce pharmaceutical patents, from 2006 to 2016. This deadline needs to be further extended or they will face the same difficulties that other developing countries already contend with in accessing medicines.

TRIPS Plus

Despite the Doha Declaration, in recent years, many developing countries have been coming under pressure to enact or implement even tougher or more restrictive conditions in their patent laws than are required by the TRIPS Agreement – these are known as 'TRIPS plus' provisions. Countries are by no means obliged by international law to do this, but many, such as Brazil, China or Central American states have had no choice but to adopt these, as part of trade agreements with the United States or the European Union. These have a disastrous impact on access to medicines.

Common examples of TRIPS plus provisions include extending the term of a patent longer than the twenty-year minimum, or introducing provisions that limit the use of compulsory licenses or that restrict generic competition.

One of these provisions is known as data exclusivity. This refers to exclusive rights, granted over the pharmaceutical test data submitted by companies to drug regulatory authorities for obtain market authorization. It means that information concerning a drug's safety and efficacy is kept confidential for a period of, say, five or ten years.

If a generic manufacturer wants to register a drug in that country, it is not allowed simply to show that their product is therapeutically equivalent to the originator product. Instead, it must either sit out the exclusivity period, or take the route of repeating lengthy clinical trials to demonstrate the safety and efficacy of the drug – trials that have already been undertaken. This happens even when the originator product is not patented. In other words, data exclusivity is a backdoor way of preventing competition, so that even when a medicine is not protected by a patent, a pharmaceutical company will receive a minimum period of market monopoly when artificially high prices can be charged.

Data exclusivity and other TRIPS plus provisions are frequently pushed as a part of free trade agreements between developed and developing countries.

14.3 World Intellectual Property Organization (WIPO)

The WIPO Convention, the constituent instrument of the World Intellectual Property Organization (WIPO), was signed at Stockholm on July 14, 1967, entered into force in 1970 and was amended in 1979. WIPO is an intergovernmental organization that became in 1974 one of the specialized agencies of the United Nations system of organizations.

The origins of WIPO go back to 1883 and 1886 when the Paris Convention for the Protection of Industrial Property and the Berne Convention for the Protection of Literary and Artistic Works, respectively, were concluded. Both Conventions provided for the establishment of an "International Bureau". The two bureaus were united in 1893 and, in 1970, were replaced by the World Intellectual Property Organization, by virtue of the WIPO Convention.

WIPO's two main objectives are (i) to promote the protection of intellectual property worldwide; and (ii) to ensure administrative cooperation among the intellectual property Unions established by the treaties that WIPO administers.

In order to attain these objectives, WIPO, in addition to performing the administrative tasks of the Unions, undertakes a number of activities, including: (i) normative activities, involving the setting of norms and standards for the protection and enforcement of intellectual property rights through the conclusion of international treaties; (ii) program activities, involving legal and technical assistance to States in the field of intellectual property; (iii) international classification and standardization activities, involving cooperation among industrial property offices concerning patent, trademark and industrial design documentation; and (iv) registration and filing activities, involving services related to international applications for patents for inventions and for the registration of marks and industrial designs.

Membership in WIPO is open to any State that is a member of any of the Unions and to any other State satisfying one of the following conditions: (i) it is a member of the United Nations, any of the specialized agencies brought into relationship with the United Nations, or the International Atomic Energy Agency; (ii) it is a party to the Statute of the International Court of Justice; or (iii) it has been invited by the General Assembly of WIPO to become a party to the Convention. There are no obligations arising from membership of WIPO concerning other treaties administered by WIPO. Accession to WIPO is effected by means of the deposit with the Director General of WIPO of an instrument of accession to the WIPO Convention.

The WIPO Convention establishes three main organs: the WIPO General Assembly, the WIPO Conference and the WIPO Coordination Committee. The WIPO General Assembly is composed of the Member States of WIPO which are also members of any of the Unions. Its main functions are, inter alia, the appointment of the Director General upon nomination by the Coordination Committee, review and approval of the reports of the Director General and the reports and activities of the Coordination Committee, adoption of the biennial budget common to the Unions, and adoption of the financial regulations of the Organization.

The WIPO Conference is composed of the States party to the WIPO Convention. It is, inter alia, the competent body for adopting amendments to the Convention. The WIPO Coordination Committee is composed of members elected from among the members of the Executive Committee of the Paris Union and the Executive Committee of the Berne Union. Its main functions are to give advice to the organs of the Unions, the General Assembly, the Conference, and to the Director General, on all administrative and financial matters of interest to these bodies. It also prepares the draft agenda of the General Assembly and the draft agenda of the Conference. Where appropriate, the Coordination Committee nominates a candidate for the post of Director General for appointment by the General Assembly.

The principal sources of income of WIPO's regular budget are the fees paid by the users of the international registration and filing services, and the contributions paid by the governments of Member States. Each State belongs to one of 14 classes, which determines the amount of its contribution. Class I, with the highest contribution, involves the payment of 25 contribution units, whereas Class XIV, with the lowest contribution, involves the payment of 1/32 of one contribution unit. By virtue of the unitary contribution system adopted by Member States in 1993, the amount of each State's contribution is the same whether that State is a member only of WIPO, or only of one or more Unions, or of both WIPO and one or more Unions.

The Secretariat of the Organization is called the International Bureau. The executive head of the International Bureau is the Director General who is appointed by the WIPO General Assembly and is assisted by two or more Deputy Directors General.

The headquarters of the Organization are in Geneva, Switzerland. The Organization has Liaison Offices in Brazil (Rio de Janeiro), Japan (Tokyo), Singapore (Singapore) and the United States of America (at the United Nations in New York).

The Organization benefits from the privileges and immunities granted to international organizations and their officials in the fulfilment of its objectives and exercise of its functions, and has concluded a headquarters agreement with the Swiss Confederation to that effect.

14.4 World Trade Organisation (WTO)

The WTO provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and development. The WTO also provides a legal and institutional framework for the implementation and monitoring of these agreements, as well as for settling disputes arising from their interpretation and application. The current body of trade agreements comprising the WTO consists of 16 different multilateral agreements and two different agreements.

Over the past 60 years, the WTO, which was established in 1995, and its predecessor organization the GATT have helped to create a strong and prosperous international trading system, thereby contributing to unprecedented global economic growth. The WTO currently has 164 members, of which 117 are developing countries or separate customs territories. WTO activities are supported by a Secretariat of some 700 staff, led by the WTO Director-General. The Secretariat is located in Geneva, Switzerland, and has an annual budget of approximately CHF 200 million (\$180 million, €130 million). The three official languages of the WTO are English, French and Spanish.

Decisions in the WTO are generally taken by consensus of the entire membership. The highest institutional body is the Ministerial Conference, which meets roughly every two years. A General Council conducts the organization's business in the intervals between Ministerial Conferences. Both of these bodies comprise all members. Specialised subsidiary bodies, also comprising all members, administer and monitor the implementation by members of the various WTO agreements.

More specifically, the WTO's main activities are:

- negotiating the reduction or elimination of obstacles to trade (import tariffs, other barriers to trade) and agreeing on rules governing the conduct of international trade (e.g. antidumping, subsidies, product standards, etc.)
- administering and monitoring the application of the WTO's agreed rules for trade in goods, trade in services, and trade-related intellectual property rights
- monitoring and reviewing the trade policies of our members, as well as ensuring transparency of regional and bilateral trade agreements.
- settling disputes among our members regarding the interpretation and application of the agreements.
- building capacity of developing country government officials in international trade matters.
- assisting the process of accession of some 30 countries who are not yet members of the organization.
- conducting economic research and collecting and disseminating trade data in support of the WTO's other main activities.
- explaining to and educating the public about the WTO, its mission and its activities.

The WTO's founding and guiding principles remain the pursuit of open borders, the guarantee of most-favoured-nation principle and non-discriminatory treatment by and among members, and a commitment to transparency in the conduct of its activities. The opening of national markets to international trade, with justifiable exceptions or with adequate flexibilities, will encourage and contribute to sustainable development, raise people's welfare, reduce poverty, and foster peace and stability. At the same time, such market opening must be accompanied by sound domestic and international policies that contribute to economic growth and development according to each member's needs and aspirations.

14.5 GATT (General Agreements on Tariffs and Trade)

The General Agreement on Tariffs and Trade (GATT) is a legal agreement between many countries, whose overall purpose was to promote international trade by reducing or eliminating trade barriers such as tariffs or quotas. According to its preamble, its purpose was the substantial reduction of tariffs and other trade barriers and the elimination of preferences, on a reciprocal and mutually advantageous basis.

The GATT was first discussed during the United Nations Conference on Trade and Employment and was the outcome of the failure of negotiating governments to create the International Trade Organization (ITO). It was signed by 23 nations in Geneva on October 30th, 1947, and was applied on a provisional basis January 1st, 1948. It remained in effect until January 1st, 1995, when the World Trade Organization (WTO) was established after agreement by 123 nations in Marrakesh on April 15th, 1994, as part of the Uruguay Round Agreements. The WTO is the successor to the GATT, and the original GATT text (GATT 1947) is still in effect under the WTO framework, subject to the modifications of GATT 1994. Nations that were not party in 1995 to the GATT need to meet the minimum conditions spelled out in specific documents before they can accede; in September 2019, the list contained 36 nations.

The GATT, and its successor the WTO, have succeeded in reducing tariffs. The average tariff levels for the major GATT participants were about 22% in 1947, but were 5% after the Uruguay Round in 1999. Experts attribute part of these tariff changes to GATT and the WTO.

Agriculture: Agriculture as an item in GATT has been widely discussed and debated. Under this agreement countries are allowed to use some nontariff measures such as “import quotas” and subsidies. According to WTO the objective of the agricultural agreement is “to reform trade in the sector and to make policies more market oriented” with a view to improving predictability and security for importing and exporting countries alike. Thus the agreement on agriculture relates to market access, domestic support and export subsidies.

According to WTO, the agreement on agriculture does allow governments to support their rural economies but preferably through policies that cause less distortion to trade. It also allows some flexibility in way of commitments, which are to be implemented over a period of time. Developing countries do not have to cut their subsidies or lower their tariffs as much as developed countries and they are given extra time to complete their obligations. Least developed countries do not have to do this at all. The arguments which are usually raised against domestic support prices or for subsidized productions are that these encourage over production, quiz out imports, lead to export subsidies and low price dumping on world markets.

Hence the developed countries agreed to reduce the agricultural support price by 20% over six years starting in 1995, the developing countries by 13% over ten years. The developed countries again agreed to cut the value of export subsidies by 36% over the six years starting in 1995 and the developing countries by 24% over 10 years. The developed countries also agreed to reduce the qualities of subsidized exports by 21% over the six years and the developing countries by 14% over the 10 years.

Health Standards and safety: Another important aspect of GATT is the maintenance of standards and safety “in order to protect human, animal or plant life or health, provided they do not discriminate or use this as disguised protectionism”. Here the member governments are to use international standards. However, WTO has allowed individual member countries to apply a scientifically justified higher standard; thus allowing them to use different standards.

Textiles: This is a contentious area of GATT. Until the end of the Uruguay Round, trading in textiles was governed by bilateral agreements or unilateral action in terms of established quotas. Under the quota system, countries could impose a limit on imports of textiles into the domestic market. However, under WTO's Agreement on Textiles and Clothing, this sector is to be fully integrated into GATT rules by January 2005 to bring to an end the quota system and to end the discrimination by the importing countries between exporters.

Summary

To sum up, the unit covered significant points related to IPR, TRIPS, WTO and GATT. It is understood that intellectual property rights are valuable assets for a business possibly among the most important ones it possesses. The protection of IP can set a business apart from the competitors. It can be sold or licensed, providing an important revenue stream, offer customers something new and different and form an essential part of the marketing or branding. Intellectual

Property protection has become more and more important nowadays. Highly featuring scientific and technological improvement and establishing an efficient Intellectual Property system have caused the difference between developed and underdeveloped countries. The Intellectual Property protection is mainly formed to prevent infringement of patented invention from others.

It is observed that the TRIPS Agreement only says that patents should be granted for new, inventive and useful inventions - but it does not define these terms. Deciding whether a new formulation or a new combination deserves a new twenty-year patent for example is a prerogative of countries, and is not determined by the WTO texts. Countries should therefore determine what kind of inventions deserves patents in the area of pharmaceuticals, in light of their own social and economic conditions. Some governments, such as Brazil, Thailand or India, have done precisely that. In today's world, for many patients, that decision can be a question of life or death.

On another session, the unit talked about WIPO's two main objectives to promote the protection of intellectual property worldwide; and (ii) to ensure administrative cooperation among the intellectual property Unions established by the treaties that WIPO administers.

Moreover, the unit observed that in order to attain these objectives, WIPO, in addition to performing the administrative tasks of the Unions, undertakes a number of activities, including: normative activities, involving the setting of norms and standards for the protection and enforcement of intellectual property rights through the conclusion of international treaties; program activities, involving legal and technical assistance to States in the field of intellectual property; international classification and standardization activities, involving cooperation among industrial property offices concerning patent, trademark and industrial design documentation; and registration and filing activities, involving services related to international applications for patents for inventions and for the registration of marks and industrial designs.

We also understood that the WTO provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and development. The WTO also provides a legal and institutional framework for the implementation and monitoring of these agreements, as well as for settling disputes arising from their interpretation and application. The current body of trade agreements comprising the WTO consists of 16 different multilateral agreements and two different agreements.

At the end, the unit observed that the General Agreement on Tariffs and Trade (GATT) is a legal agreement between many countries, whose overall purpose was to promote international trade by reducing or eliminating trade barriers such as tariffs or quotas. According to its preamble, its purpose was the substantial reduction of tariffs and other trade barriers and the elimination of preferences, on a reciprocal and mutually advantageous basis.

Keywords/Glossary

Intellectual property: Intellectual property (IP) refers to any Intellectual creation of mind. Intellectual Property laws give people the right to own and profit from their artistic, scientific and technological creations for a designated period of time.

Patent: Patent is a monopoly right given by the government to an inventor for a period of twenty years.

Trademark: Trademark is a unique sign or indicator used by an individual, business organization or other legal entity to identify that the products and /or services are offered to the consumers with which the trademark appears.

Copyright and Related Rights: Copyrights relates to original work of literary, artistic, dramatic or musical work, Cinematographic films, Sound Recording and Software program. A related right refers to the category of rights granted to performers, phonogram producers and broadcasters.

Design: A design refers to the features of shape, configuration, pattern, ornamentation or composition of lines or colors applied to any article. A design should be new and original.

Geographical Indication: Geographical Indication is an indication which identifies goods as agricultural goods, natural goods or manufactured goods as originating, or manufactured in the territory of country, or a region or locality in that territory, where a given quality, reputation or other characteristic of such goods is essentially attributable to its geographical origin.

TRIPS: The TRIPS Agreement sets minimum standards in the international rules governing patents, including on medicines.

WIPO: The WIPO Convention, the constituent instrument of the World Intellectual Property Organization (WIPO), was signed at Stockholm on July 14, 1967, entered into force in 1970 and was amended in 1979.

WTO: The WTO provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and development.

Self Assessment

1. The obligations under the Agreement relate to provision of minimum standard of protection within the member countries legal systems and practices.
 - A. WPO
 - B. WTO
 - C. GATT
 - D. TRIPS

2. The TRIPS Agreement provides for norms and standards in respect of following areas of intellectual property:
 - A. Symbols
 - B. Patents
 - C. Signs
 - D. Design

3. The basic obligation in the area of patents is that the invention in all branches of technology shall be patentable if it being capable of
 - A. Contributing new ideas
 - B. Theoretical contribution
 - C. Industrial application
 - D. None of the Above

4. is a UN specialized agency created in 1967 to promote intellectual property (IP) protection and encourage creative activity all over the world.
 - A. WIPO
 - B. UNDP
 - C. UNSC
 - D. None of the Above

5. The World Intellectual Property Organisation or WIPO is a global body for the promotion and protection of
 - A. Trade rights

- B. Intellectual rights
 - C. Intellectual Property Rights
 - D. None of the Above
6. WIPO's motto is to encourage, to promote the protection of intellectual property throughout the world.
- A. Activities
 - B. Intellectual activities
 - C. Creative activity
 - D. None of the Above
7. WIPO is headquartered in
- A. Geneva
 - B. Havana
 - C. New Delhi
 - D. Sydney
8. WIPO has its origins in the United International Bureaux for the Protection of Intellectual Property (BIRPI), which was established in
- A. 1917
 - B. 1945
 - C. 1894
 - D. 1893
9. To assist the development of campaigns that improve IP Protection all over the globe and keep the national legislations in harmony is the primary function of
- A. UNO
 - B. UNESCO
 - C. WIPO
 - D. None of the Above
10. was the first multilateral free trade agreement.
- A. WTO
 - B. The General Agreement on Tariffs and Trade
 - C. International Convention on Trade
 - D. None of the Above
11. GAAT came into force in the year....as an agreement between 23 countries.
- A. 1945

- B. 1947
C. 1948
D. None of the Above
12. GAAT was replaced by the
- A. UNO
B. WTO
C. WB
D. None of the Above
13. The purpose of the GATT was to eliminate
- A. International trade
B. Trade favoritism
C. Harmful trade protectionism
D. Trade advantages
14. The World Trade Organization (WTO) is the only global international organization dealing with the rules of trade between
- A. Nations
B. MNC
C. Regional groupings
D. None of the Above
15. Therelations are governed by the "Arrangements for Effective Cooperation with other Intergovernmental Organizations-Relations between the WTO and the United Nations" signed on 15 November 1995.
- A. UN-EU
B. WTO-EU
C. WTO-UN
D. None of the Above

Answers for Self Assessment

- | | | | | |
|-------|-------|-------|-------|-------|
| 1. D | 2. B | 3. C | 4. A | 5. C |
| 6. C | 7. A | 8. D | 9. C | 10. B |
| 11. C | 12. B | 13. C | 14. A | 15. C |

Review Questions

1. How do you explain the significance of international legal framework for IPR protection?
2. Examine the objectives and functions of international regimes-TRIPS, WIPO, WTO and GATT
3. What are the major limitations of existing legal frameworks?
4. Elaborate the functions of international legal frameworks for the protection and promotion of intellectual properties

Further Readings



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LOVELY PROFESSIONAL UNIVERSITY

Jalandhar-Delhi G.T. Road (NH-1)
Phagwara, Punjab (India)-144411
For Enquiry: +91-1824-521360
Fax.: +91-1824-506111
Email: odl@lpu.co.in

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