

ZAMBIA ICT COLLEGE

ICT WITH EDUCATION BACHELOR'S DEGREE



RESEARCH METHODS (EDU 251) MODULE

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Background and Rationale

The aim of the course is to provide students with increased knowledge of the interpretation, critical review and assessment of research publications and an insight into the processes that lead to the publishing of research.

Learning Outcomes

At the end of the course students will be expected to:

- explain the reasons for undertaking educational research is and the audiences that profit from research studies
- identify the overall process of designing a research study from its inception to report publication
- apply ethics issues in research

Unit I: The process of conducting research using quantitative and qualitative approaches

Learning objectives

- Definition of research and its importance
- The six steps in the process of research
- The characteristics of quantitative and qualitative
- Important ethical issues in conducting research
- Skills needed to design and conduct research

DEFINITIONS OF RESEARCH

Research has been defined in a number of different ways, and while there are similarities, there does not appear to be a single, all-encompassing definition that is embraced by all who engage in it.

- One definition of research is used by **the OECD**, "Any creative systematic activity undertaken in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications."
- Another definition of research is given by **John W. Creswell**, who states that "research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue". It consists of three steps: pose a question, collect data to answer the question, and present an answer to the question.
- The **Merriam-Webster Online Dictionary** defines research in more detail as "studious inquiry or examination; *especially* : investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws"
- According to the **American sociologist Earl Robert Babbie**, Research is a systematic inquiry to describe, explain, predict and control the observed phenomenon.

- Research is a combination of both experience and reasoning and must be regarded as the most successful approach to the discovery of truth, particularly as far as the natural sciences are concerned (Borg, 1963, as cited in Cohan, Manion, & Morrison, 2000).

Research involves inductive and deductive methods. Inductive research methods are used to analyze the observed phenomenon whereas, deductive methods are used to verify the observed phenomenon. Inductive approaches are associated with **qualitative research** and deductive methods are more commonly associated with **quantitative research**.

OBJECTIVES OF RESEARCH

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been

discovered as yet. Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as *exploratory* or *formulative* research studies);
2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as *descriptive* research studies);
3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as *diagnostic* research studies);
4. To test a hypothesis of a causal relationship between variables (such studies are known as *hypothesis-testing* research studies).

MOTIVATION IN RESEARCH

What makes people to undertake research? This is a question of fundamental importance. The possible motives for doing research may be either one or more of the following:

1. Desire to get a research degree along with its consequential benefits;
2. Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;
3. Desire to get intellectual joy of doing some creative work;
4. Desire to be of service to society;
5. Desire to get respectability.

However, this is not an exhaustive list of factors motivating people to undertake research studies. Many more factors such as directives of government, employment conditions, curiosity about new

things, desire to understand causal relationships, social thinking and awakening, and the like may as well motivate (or at times compel) people to perform research operations

SIGNIFICANCE OF A RESEARCH

- Research provides the basis for nearly all government policies in our economic system.
- Research has its special significance in solving various operational and planning problems of business and industry
- Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems. It provides the intellectual satisfaction of knowing a few things just for the sake of knowledge and also has practical utility for the social scientist to know for the sake of being able to do something better or in a more efficient manner.

In addition to what has been stated above, the significance of research can also be understood keeping in view the following points:

- To those students who are to write a master's or Ph.D. thesis, research may mean a careerism or a way to attain a high position in the social structure;
- To professionals in research methodology, research may mean a source of livelihood;
- To philosophers and thinkers, research may mean the outlet for new ideas and insights;
- To literary men and women, research may mean the development of new styles and creative work;
- To analysts and intellectuals, research may mean the generalizations of new theories

Thus, research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental and social problems. It is a sort of formal training which enables one to understand the new developments in one's field in a better way.

CHARACTERISTICS OF RESEARCH

1. A systematic approach is followed in research. Rules and procedures are an integral part of research that set the objective of a research process. Researchers need to practice ethics and code of conduct while making observations or drawing conclusions.
2. Research is based on logical reasoning and involves both inductive and deductive methods.
3. The data or knowledge that is derived is in real time, actual observations in the natural settings.
4. There is an in-depth analysis of all the data collected from research so that there are no anomalies associated with it.
5. Research creates a path for generating new questions. More research opportunity can be generated from existing research.

6. Research is analytical in nature. It makes use of all the available data so that there is no ambiguity in inference.

7. Accuracy is one of the important character of research, the information that is obtained while conducting the research should be accurate and true to its nature. For example, research conducted in a controlled environment like a laboratory. Here accuracy is measured of instruments used, calibrations, and the final result of the experiment.

THE STEPS IN THE PROCESS OF RESEARCH

Before embarking on the details of research methodology and techniques, it seems appropriate to present a brief overview of the research process. Research process consists of series of actions or steps necessary to effectively carry out research and the desired sequencing of these steps as outlined below:



7 STEPS OF RESEARCH PROCESS

- Step One: Define research problem
- Step Two: Review of literature
- Step Three: Formulate hypotheses
- Step Four: Preparing the research design
- Step Five: Data collection
- Step Six: Data analysis
- Step Seven: Interpretation and report writing

SKILLS NEEDED TO DESIGN AND CONDUCT A RESEARCH

The study of research methodology gives the student the necessary training in gathering material and arranging or card-indexing them, participation in the field work when required, and also training in techniques for the collection of data appropriate to particular problems, in the use of statistics, questionnaires and controlled experimentation and in recording evidence, sorting it out and interpreting it. In fact, importance of knowing the methodology of research or how research is done stems from the following considerations:

- (i) **For one who is preparing himself for a career of carrying out research, the importance of knowing research methodology and research techniques is obvious since the same constitute the tools of his trade.** The knowledge of methodology provides good training especially to the new research worker and enables him to do better research. It helps him to develop disciplined thinking or a 'bent of mind' to observe the field objectively. Hence, those aspiring for careerism in research must develop the skill of using research techniques and must thoroughly understand the logic behind them.
- (ii) **Knowledge of how to do research will inculcate the ability to evaluate and use research results with reasonable confidence.** In other words, we can state that the knowledge of research methodology is helpful in various fields such as government or business administration, community development and social work where persons are increasingly called upon to evaluate and use research results for action.
- (iii) **When one knows how research is done,** then one may have the satisfaction of acquiring a new intellectual tool which can become a way of looking at the world and of judging every day experience. Accordingly, it enables us to make intelligent decisions concerning problems facing us in practical life at different points of time. Thus, the knowledge of research methodology provides tools to look at things in life objectively.
- (iv) In this scientific age, all of us are in many ways consumers of research results and we can use them intelligently provided we are able to judge the adequacy of the methods by which they have been obtained. The knowledge of methodology helps the consumer of research results to evaluate them and enables him to take rational decisions.

Ethical Issues in Research

Ethics are broadly the set of rules, written and unwritten, that govern our expectations of our own and others' behaviour. Effectively, they set out how we expect others to behave, and why. While there is broad agreement on some ethical values (for example, that murder is bad), there is also wide variation on how exactly these values should be interpreted in practice.

“Research ethics are the set of ethics that govern how scientific and other research is performed at research institutions such as universities, and how it is disseminated”.

When most people think of research ethics, they think about issues that arise when research involves human or animal subjects. While these issues are indeed a key part of research ethics, there are also wider issues about standards of conduct. These include the importance of publishing findings in a transparent way, not plagiarizing others' work, and not falsifying work.

The Importance of Research Ethics

Research ethics are important for a number of reasons.

- They promote the aims of research, such as expanding knowledge.
- They support the values required for collaborative work, such as mutual respect and fairness. This is essential because scientific research depends on collaboration between researchers and groups.
- They mean that researchers can be held accountable for their actions. Many researchers are supported by public money, and regulations on conflicts of interest, misconduct, and research involving humans or animals are necessary to ensure that money is spent appropriately.
- They ensure that the public can trust research. For people to support and fund research, they have to be confident in it.

- They support important social and moral values, such as the principle of doing no harm to others (*Resnick2015*)

The following are the code of ethics needed by the researcher

- **Honesty and Integrity**

This means that you need to report your research honestly, and that this applies to your methods (what you did), your data, your results, and whether you have previously published any of it. You should not make up any data, including extrapolating unreasonably from some of your results, or do anything which could be construed as trying to mislead anyone. It is better to undersell than over-exaggerate your findings.

When working with others, you should always keep to any agreements, and act sincerely.

- **Objectivity**

You should aim to avoid bias in any aspect of your research, including design, data analysis, interpretation, and peer review. For example, you should never recommend as a peer reviewer someone you know, or who you have worked with, and you should try to ensure that no groups are inadvertently excluded from your research. This also means that you need to disclose any personal or financial interests that may affect your research.

- **Carefulness**

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

- **Openness**

You should always be prepared to share your data and results, along with any new tools that you have developed, when you publish your findings, as this helps to further knowledge and advance science. You should also be open to criticism and new ideas.

- **Respect for Intellectual Property**

You should never plagiarize, or copy, other people's work and try to pass it off as your own. You should always ask for permission before using other people's tools or methods, unpublished data or results. **Not doing so is plagiarism.** Obviously, you need to respect copyrights and patents, together with other forms of intellectual property, and always acknowledge contributions to your research. If in doubt, acknowledge, to avoid any risk of plagiarism.

- **Confidentiality**

You should respect anything that has been provided in confidence. You should also follow guidelines on protection of sensitive information such as patient records.

- **Responsible Publication**

You should publish to advance to state of research and knowledge, and not just to advance your career. This means, in essence, that you should not publish anything that is not new, or that duplicates someone else's work.

- **Legality**

You should always be aware of laws and regulations that govern your work, and be sure that you conform to them.

- **Animal Care**

If you are using animals in your research, you should always be sure that your experiments are both necessary and well-designed. You should also show respect for the animals you are using, and make sure that they are properly cared for.

- **Human Subjects Protection**

If your research involves people, you should make sure that you reduce any possible harm to the minimum, and maximise the benefits both to participants and other people.

This means, for example, that you should not expose people to more tests than are strictly necessary to fulfil your research aims. You should always respect human rights, including the

right to privacy and autonomy. You may need to take particular care with vulnerable groups, which include, but are not limited to, children, older people, and those with learning difficulties.

Source: Resnick, D. B. (2015). What is Ethics in Research and Why is it Important? List adapted from Shamoo A and Resnik D. 2015. Responsible Conduct of Research, 3rd ed. New York: Oxford University Press.

TYPES OF RESEARCH

The following are the types of research:

Basic Research

Basic research is mostly conducted to enhance knowledge. It covers fundamental aspects of research. The main motivation of this research is knowledge expansion. It is a non-commercial research and doesn't facilitate in creating or inventing anything. For example, an experiment is a good example of basic research.

According to Travers, "Basic Research is designed to add to an organized body of scientific knowledge and does not necessarily produce results of immediate practical value." Such a research is time and cost intensive. It is used to solve a problem by adding to the field of application of a discipline.

Applied Research

Applied research focuses on analyzing and solving real-life problems. This type of research refers to the study that helps solve practical problems using scientific methods. This research plays an important role in solving issues that impact the overall well-being of humans. For example, finding a specific cure for a disease.

Problem Oriented Research: As the name suggests, problem-oriented research is conducted to understand the exact nature of the problem to find out relevant solutions. The term “problem” refers to having issues or two thoughts while making any decisions.

For e.g. Revenue of a car company has decreased by 12% in the last year. The following could be the probable causes: There is no optimum production, poor quality of a product, no advertising, economic conditions etc.

Historical research is that which utilizes historical sources like documents, remains, etc. to study events or ideas of the past, including the philosophy of persons and groups at any remote point of time.

Qualitative Research: Qualitative research is a process that is about inquiry that helps in-depth understanding of the problems or issues in their natural settings. This is a non- statistical research method. Qualitative research presents a non-quantitative type of analysis. Qualitative research is collecting, analyzing and interpreting data by observing what people do and say. This type of research refers to the meanings, definitions, characteristics, symbols, metaphors, and description of things. In addition, qualitative research is much more subjective and uses very different methods of collecting information, mainly individual, in-depth interviews and focus groups. The nature of this type of research is also exploratory and open ended and small number of people are interviewed in depth and or a relatively small number of focus groups are conducted.

Qualitative research can be further classified in the following type.

I. Phenomenology:-a form of research in which the researcher attempts to understand how one or more individuals experience a phenomenon.

II. Ethnography:- this type of research focuses on describing the culture of a group of people. Eg:-the researcher might decide to go and live with the tribal in Andaman island and study the culture and the educational practices.

III. Case study:-is a form of qualitative research that is focused on providing a detailed account of one or more cases. Eg:-we may study a classroom that was given a new curriculum for technology use.

IV. Grounded theory:- it is an inductive type of research, based or grounded in the observations of data from which it was developed; it uses a variety of data sources, including quantitative data, review of records, interviews, observation and surveys

V. Historical research:-it allows one to discuss past and present events in the context of the present condition, and allows one to reflect and provide possible answers to current issues and problems. Eg:-the lending pattern of business in the 19th century.

Quantitative Research

Your goal in conducting quantitative research study is to determine the relationship between one thing [an independent variable] and another [a dependent or outcome variable] within a population. Quantitative research designs are either **descriptive** [subjects usually measured once] or **experimental** [subjects measured before and after a treatment]. A descriptive study establishes only associations between variables; an experimental study establishes causality.

Quantitative research deals in numbers, logic, and an objective stance. Quantitative research focuses on numeric and unchanging data and detailed, convergent reasoning rather than divergent reasoning [i.e., the generation of a variety of ideas about a research problem in a spontaneous, free-flowing manner].

Its main characteristics are:

- The data is usually gathered using structured research instruments.
- The results are based on larger sample sizes that are representative of the population.
- The research study can usually be replicated or repeated, given its high reliability.
- Researcher has a clearly defined research question to which objective answers are sought.
- All aspects of the study are carefully designed before data is collected.

- Data are in the form of numbers and statistics, often arranged in tables, charts, figures, or other non-textual forms.
- Project can be used to generalize concepts more widely, predict future results, or investigate causal relationships.
- Researcher uses tools, such as questionnaires or computer software, to collect numerical data.
- In social sciences, “quantitative research refers to the systematic empirical investigation of quantitative properties and phenomena and their relationships”. The objective of quantitative research is to develop and employ mathematical models, theories or hypothesis pertaining to phenomena.
- Quantitative data is all about numbers.
- Quantitative research involves a larger population as more number of people means more data. In this manner, more data can be analyzed to obtain accurate results.
- This type of research method uses close-ended questions because, in quantitative research, the researchers are typically looking at measuring the extent and gathering foolproof statistical data.
- Online surveys, questionnaires, and polls are preferable data collection tools used in quantitative research.

There are three methods that are often used by researchers to conduct this type of research, these are:

- **Survey Research-** The ultimate goal of survey research is to learn about a large population by deploying the survey. Gone are the days where a survey was carried out using a pen and a paper. Today, online surveys are a popular mode of research as they are convenient and can be sent in an email or made available on the internet. In this method, a researcher designs a survey with most relevant survey questions and deploys the survey. Once the researcher receives the responses he/she summarizes them to tabulate meaningful findings and data.

- **Descriptive Research-** Descriptive research is a quantitative research method, which corresponds to identifying the characteristics of an observed phenomenon and collecting more information. This research method is designed to depict the participants in a very systematic and accurate manner. In simple words, descriptive research is all about describing the phenomenon, observing and drawing conclusions from it.
- **Correlational Research-** Correlational research examines the relationship between two or more variables. Let us take an example to understand correlational research, Consider hypothetically, a researcher is studying a correlation between cancer and married women. Let us say married women have a negative correlation with cancer. In this example, there are two variables: cancer, and married women. When we say negative correlation it means women who are married are less likely to develop cancer. However, it doesn't mean that marriage directly avoids cancer.

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ACTIVITY

1. Define research and explain its importance to education
2. Explain on the seven steps in the process of research
3. Differentiate between quantitative and qualitative research designs

UNIT II: IDENTIFYING A RESEARCH PROBLEM

Learning objectives

- Define a research problem and explain why it is important
- Analyze the research problem and other parts of research
- Explain how to write a “statement of the problem”
- Explain on the strategies for writing the “statement of the problem”

Research problem

A research problem is a definite or clear expression [statement] about an area of concern, a condition to be improved upon, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or within existing practice that points to a need for meaningful understanding and deliberate investigation. A research problem does not state how to do something, offer a vague or broad proposition, or present a value question.

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 (Alvesson, Mats and Jorgen 2013).

Sources of Problems for Investigation

Identifying a problem to study can be challenging, not because there is a lack of issues that could be investigated, but due to pursuing a goal of formulating a socially relevant and researchable

problem statement that is unique and does not simply duplicate the work of others. To facilitate how you might select a problem from which to build a research study, consider these three broad sources of inspiration:

Deductions from Theory

This relates to deductions made from social philosophy or generalizations embodied in life in society that the researcher is familiar with. These deductions from human behavior are then fitted within an empirical frame of reference through research. From a theory, the research can formulate a research problem or hypothesis stating the expected findings in certain empirical situations. The research asks the question: “What relationship between variables will be observed if theory aptly summarizes the state of affairs?” One can then design and carry out a systematic investigation to assess whether empirical data confirm or reject the hypothesis and hence the theory.

Interdisciplinary Perspectives

Identifying a problem that forms the basis for a research study can come from academic movements and scholarship originating in disciplines outside of your primary area of study. A review of pertinent literature should include examining research from related disciplines, which can expose you to new avenues of exploration and analysis. An interdisciplinary approach to selecting a research problem offers an opportunity to construct a more comprehensive understanding of a very complex issue than any single discipline might provide.

Interviewing Practitioners

The identification of research problems about particular topics can arise from formal or informal discussions with practitioners who provide insight into new directions for future research and how to make research findings increasingly relevant to practice. Discussions with experts in the field, such as, teachers, social workers, health care providers, etc., offers the chance to identify practical, “real world” problems that may be understudied or ignored within academic circles. This approach also provides some practical knowledge which may help in the process of designing and conducting your study.

Personal Experience

Your everyday experiences can give rise to worthwhile problems for investigation. Think critically about your own experiences and/or frustrations with an issue facing society, your community, or in your neighborhood. This can be derived, for example, from deliberate observations of certain relationships for which there is no clear explanation or witnessing an event that appears harmful to a person or group or that is out of the ordinary.

Relevant Literature

The selection of a research problem can often be derived from an extensive and thorough review of pertinent research associated with your overall area of interest. This may reveal where gaps remain in our understanding of a topic. Research may be conducted to:

- 1) Fill such gaps in knowledge;
- 2) Evaluate if the methodologies employed in prior studies can be adapted to solve other problems; or,
- 3) Determine if a similar study could be conducted in a different subject area or applied to different study sample [i.e., different groups of people]. Also, authors frequently conclude their studies by noting implications for further research; this can also be a valuable source of problems to investigate.

What Makes a Good Research problem Statement?

A good problem statement begins by introducing the broad area in which your research is centered and then gradually leads the reader to the more narrow questions you are posing. The statement need not be lengthy but a good research problem should incorporate the following features:

Compelling topic

Simple curiosity is not a good enough reason to pursue a research study. The problem that you choose to explore must be important to you and to a larger community you share. The problem chosen must be one that motivates you to address it.

Supports multiple perspectives

The problem must be phrased in a way that avoids dichotomies and instead supports the generation and exploration of multiple perspectives. A general rule of thumb is that a good research problem is one that would generate a variety of viewpoints from a composite audience made up of reasonable people.

Researchable

It seems a bit obvious, but you don't want to find yourself in the midst of investigating a complex research project and realize that you don't have much to draw on for your research. Choose research problems that can be supported by the resources available to you.

In addition, **an effective research problem must also have the following qualities**

1. The research problem should be clearly stated
2. The problem should have supported statements
3. The language used should be simple and objective
4. The research problem should have an impact on the whole topic being investigated
5. The research problem should clearly show the urgency of the research and should show that the research is definitely needed (Kombo and Tromp 2006).
6. The problem should match the interest and skills of the researcher
7. It should also allow for the generation of a reasonable hypothesis
8. It should also be relevant to the current theory and practice
9. It should have restricted scope (ZOU 2016)

NOTE: Do not confuse a research problem with a research topic. A topic is something to read and obtain information about whereas a problem is something to solve or framed as a question that must be answered.

Choosing a research problem

There are generally three ways you are asked to write about a research problem:

- 1) Your lecturer provides you with a general topic from which you study a particular aspect;
- 2) Your lecturer provides you with a list of possible topics to study and you choose a topic from that list; or,
- 3) Your lecturer leaves it up to you to choose a topic and you only have to obtain permission to write about it before beginning your investigation.

Steps in writing an effective statement of a problem

According to Tromp and Kombo (2006), the following are the steps taken when writing the statement of a problem

1. **Reflection:** the researcher should reflect on key issues in the topic and the independent and dependent variables in the study.
2. **Identification:** after identifying the key variables, the researcher should identify key uncertainties such as “why is this a problem?”
3. **Formulation;** after identifying the problem, the researcher should formulate it by clearly explaining why this is a problem and affects people or institutions.
4. **Justification:** the researcher should explain briefly the repercussions likely to happen in the long run if the problem is not addressed. The researcher should use the statement of the problem to show that research is definitely needed.

Challenges faced in articulating the problem statement

According to Tromp and Kombo (2006), the following are the challenges faced in articulating the research problem;

1. One problem faced by the researcher in stating the research problem is lack of clarity
2. Lack of unit between the research problem, objectives and literature review
3. Lack of urgency
4. Use of emotional language

The purpose of a problem statement

1. **To introduce the reader to the importance of the topic being studied.** The reader is oriented to the significance of the study and the research questions or hypotheses to follow.
2. **To place the problem into a particular context** that defines the parameters of what is to be investigated.
3. **To provide the framework for reporting the results** and indicates what is probably necessary to conduct the study and explain how the findings will present this information.

Sample of a statement of a problem

Zulu (2016): Exploring the effect of non- financial incentives on job satisfaction of teachers at Lubuto and Kayele Secondary schools in Ndola District.

The study assessed the effect of non-financial incentives on teacher job satisfaction. However, a number of studies have also been done on teacher job satisfaction (Bennel 2004; Aacha 2005; Mwanza 2010; Masaiti and Naluyeke 2011; Chongo 2013), but not much has been done on the effect of non-financial incentives, particularly promotion, material rewards and job autonomy. This has therefore led to an increase in deteriorating standards of professional conduct which includes serious misbehavior (in and outside of work), poor preparation of teaching materials especially lesson plans, lack of continuous pupil assessment and general poor professional performance. Teacher absenteeism is also very high and rising and teachers are not showing any innovativeness in teaching methods, but instead they relay much on teacher centered. There is also an increase in teacher attrition and turnover (Bennel 2004; Mwanza 2010; Chongo 2013).

Factors leading to such a scenario are not known. Therefore, if this issue is not treated with the seriousness it deserves and its increase curbed, this in the long run will make it difficult to meet the goals of the education system in Zambia , particularly building capacity for the provision of quality education as stipulated in Educating Our Future of 1996.

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ACTIVITY

In groups, select a topic and formulate a statement of problem

Unit III: Reviewing the literature

Learning objectives

- Define literature review and explain its importance
- Explain the steps followed in conducting a literature review

Introduction

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 (Fink 2004)

A literature review may consist of simply a summary of key sources, but in the social sciences, it 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 [very important].

Types of literature review

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 as explained below;

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 [see below].

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.

The structure of a literature review

The structure of literature review should include the following:

- An overview of the subject, issue, or theory under consideration, along with the objectives of the literature review,

- Division of works under review into themes or categories [e.g. works that support a particular position, those against, and those offering alternative approaches entirely],
- An explanation of how each work is similar to and how it varies from the others,
- Conclusions as to which pieces are best considered in their argument, are most convincing of their opinions, and make the greatest contribution to the understanding and development of their area of research.

The critical evaluation of each work should consider: EVENING

- **Provenance** -- what are the author's credentials? Are the author's arguments supported by evidence [e.g. primary historical material, case studies, narratives, statistics, recent scientific findings]?
- **Methodology** -- were the techniques used to identify, gather, and analyze the data appropriate to addressing the research problem? Was the sample size appropriate? Were the results effectively interpreted and reported?
- **Objectivity** -- is the author's perspective even-handed or prejudicial? Is contrary data considered or is certain pertinent information ignored to prove the author's point?
- **Persuasiveness** -- which of the author's theses are most convincing or least convincing?
- **Value** -- are the author's arguments and conclusions convincing? Does the work ultimately contribute in any significant way to an understanding of the subject?

Steps in development of the Literature Review

1. Problem formulation: - which topic or field is being examined and what are its component issues?
2. Literature search: - finding materials relevant to the subject being explored.
3. Data evaluation: - determining which literature makes a significant contribution to the understanding of the topic.
4. Analysis and interpretation: - discussing the findings and conclusions of pertinent literature.

Points to consider before writing literature review

Consider the following issues before writing the literature review:

Clarify

If your assignment is not very specific about what form your literature review should take, seek clarification from your professor by asking these questions:

1. Roughly how many sources should I include?
2. What types of sources should I review (books, journal articles, websites; scholarly versus popular sources)?
3. Should I summarize, synthesize, or critique sources by discussing a common theme or issue?
4. Should I evaluate the sources?
5. Should I provide subheadings and other background information, such as definitions and/or a history?

Find Models

Use the exercise of reviewing the literature to examine how authors in your discipline or area of interest have composed their literature review sections. Read them to get a sense of the types of themes you might want to look for in your own research or to identify ways to organize your final review. The bibliography or reference section of sources you've already read are also excellent entry points into your own research.

Narrow the Topic

The narrower your topic, the easier it will be to limit the number of sources you need to read in order to obtain a good survey of relevant resources. Your professor will probably not expect you to read everything that's available about the topic, but you'll make your job easier if you first limit scope of the research problem. A good strategy is to begin by searching the HOMER catalog for books about the topic and review the table of contents for chapters that focuses on specific issues. You can also review the indexes of books to find references to specific issues that can serve as the focus of your research. For example, a book surveying the history of the Israeli-Palestinian conflict may include a chapter on the role Egypt has played in mediating the conflict, or look in the index for the pages where Egypt is mentioned in the text.

Consider Whether Your Sources are Current

Some disciplines require that you use information that is as current as possible. This is particularly true in disciplines in medicine and the sciences where research conducted becomes obsolete very quickly as new discoveries are made. However, when writing a review in the social sciences, a survey of the history of the literature may be required. In other words, a complete understanding the research problem requires you to deliberately examine how knowledge and perspectives have changed over time. Sort through other current bibliographies or literature reviews in the field to get a sense of what your discipline expects. You can also use this method to explore what is considered by scholars to be a "hot topic" and what is not.

Ways to Organize Your Literature Review

Chronology of Events

If your review follows the chronological method, you could write about the materials according to when they were published. This approach should only be followed if a clear path of research building on previous research can be identified and that these trends follow a clear chronological order of development. For example, a literature review that focuses on continuing research about the emergence of German economic power after the fall of the Soviet Union.

By Publication

Order your sources by publication chronology, then, only if the order demonstrates a more important trend. For instance, you could order a review of literature on environmental studies of brown fields if the progression revealed, for example, a change in the soil collection practices of the researchers who wrote and/or conducted the studies.

Thematic [“conceptual categories”]

Thematic reviews of literature are organized around a topic or issue, rather than the progression of time. However, progression of time may still be an important factor in a thematic review. For example, a review of the Internet’s impact on American presidential politics could focus on the development of online political satire. While the study focuses on one topic, the Internet’s impact on American presidential politics, it will still be organized chronologically reflecting

technological developments in media. The only difference here between a "chronological" and a "thematic" approach is what is emphasized the most: the role of the Internet in presidential politics. Note however that more authentic thematic reviews tend to break away from chronological order. A review organized in this manner would shift between time periods within each section according to the point made.

Methodological

A methodological approach focuses on the methods utilized by the researcher. For the Internet in American presidential politics project, one methodological approach would be to look at cultural differences between the portrayal of American presidents on American, British, and French websites. Or the review might focus on the fundraising impact of the Internet on a particular political party. A methodological scope will influence either the types of documents in the review or the way in which these documents are discussed.

Other Sections of Your Literature Review

Once you've decided on the organizational method for your literature review, the sections you need to include in the paper should be easy to figure out because they arise from your organizational strategy. In other words, a chronological review would have subsections for each vital time period; a thematic review would have subtopics based upon factors that relate to the theme or issue. However, sometimes you may need to add additional sections that are necessary for your study, but do not fit in the organizational strategy of the body. What other sections you include in the body is up to you but include only what is necessary for the reader to locate your study within the larger scholarship framework.

Here are examples of other sections you may need to include depending on the type of review you write:

- **Current Situation:** information necessary to understand the topic or focus of the literature review.
- **History:** the chronological progression of the field, the literature, or an idea that is necessary to understand the literature review, if the body of the literature review is not already a chronology.

- **Selection Methods:** the criteria you used to select (and perhaps exclude) sources in your literature review. For instance, you might explain that your review includes only peer-reviewed articles and journals.
- **Standards:** the way in which you present your information.
- **Questions for Further Research:** What questions about the field has the review sparked? How will you further your research as a result of the review?

Writing Your Literature Review

Once you've settled on how to organize your literature review, you're ready to write each section. When writing your review, keep in mind these issues.

Use Evidence

A literature review section is, in this sense, just like any other academic research paper. Your interpretation of the available sources must be backed up with evidence [citations] that demonstrates that what you are saying is valid.

Be Selective

Select only the most important points in each source to highlight in the review. The type of information you choose to mention should relate directly to the research problem, whether it is thematic, methodological, or chronological. Related items that provide additional information but that are not key to understanding the research problem can be included in a list of further readings.

Use Quotes Sparingly

Some short quotes are okay if you want to emphasize a point, or if what an author stated cannot be easily paraphrased. Sometimes you may need to quote certain terminology that was coined by the author, not common knowledge, or taken directly from the study. Do not use extensive quotes as a substitute for your own summary and interpretation of the literature.

Summarize and Synthesize

Remember to summarize and synthesize your sources within each thematic paragraph as well as throughout the review. Recapitulate important features of a research study, but then synthesize it by rephrasing the study's significance and relating it to your own work.

Keep Your Own Voice

While the literature review presents others' ideas, your voice [the writer's] should remain front and center. For example, weave references to other sources into what you are writing but maintain your own voice by starting and ending the paragraph with your own ideas and wording.

Use Caution When Paraphrasing

When paraphrasing a source that is not your own, be sure to represent the author's information or opinions accurately and in your own words. Even when paraphrasing an author's work, you still must provide a citation to that work.

Common Mistakes to Avoid

These are the most common mistakes made in reviewing social science research literature and they include the following;

- Sources in your literature review do not clearly relate to the research problem;
- You do not take sufficient time to define and identify the most relevant sources to use in the literature review related to the research problem;
- Relies exclusively on secondary analytical sources rather than including relevant primary research studies or data;
- Uncritically accepts another researcher's findings and interpretations as valid, rather than examining critically all aspects of the research design and analysis;
- Does not describe the search procedures that were used in identifying the literature to review;

- Reports isolated statistical results rather than synthesizing them in chi-squared or meta-analytic methods; and,
- Only includes research that validates assumptions and does not consider contrary findings and alternative interpretations found in the literature.

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ACTIVITY

Discuss on the importance of literature review in research

Unit IV: Referencing**Learning objectives**

- Explain the importance of referencing
- Explain how to cite
- Define and give examples of plagiarism

Introduction

There are many different referencing styles (over 100). It is essential to follow the style specified in your assignments and not to mix styles. Consistency of style is important!

Why reference?

- When you reference you use the standardized style to acknowledge the source of information used in your assignment.
- It is important (morally & legally) to acknowledge someone else's ideas or words you have used.
- Academic writing encourages paraphrasing information you have researched and read.
- Paraphrasing means re-wording something you have read in to your own words. If you use someone else's words or work and fail to acknowledge them – you may be accused of plagiarism and infringing copyright.

- Referencing correctly enables the marker or reader of your assignment to locate the source of the information. They can verify the information or read further on the topic.
- Referencing also allows for you to retrace your steps and locate information you have used for assignments and discover further views or ideas discussed by the author.
- By referencing clearly and correctly, it demonstrates you have undertaken research on the assignment topic and located relevant information.

There are two main parts to referencing:

1. The **first** indicating within your assignment the sources of the information you have used to write your assignment. This demonstrates support for your ideas, arguments and views. Sometimes this is referred to as: **citing in text, in text citations or text citations**

2. The **second** part to referencing is the construction of a **reference list**. The reference list shows the complete details of everything you cited and appears in an alphabetical list on a separate page, at the end of your assignment.

Tip: Everything you have cited in text appears in your reference list and likewise... everything that

appears in your reference list will have been cited in text! Check this is the case prior to handing in your assignment.

Referencing styles

1. *American Psychological Association [APA] referencing style.*

Below are the general rules and examples using APA referencing style?

How to reference

A). In text citations

Even though you have put someone else's ideas or information in your own words (i.e. paraphrased), you still need to show where the original idea or information came from. This is all part of the academic writing process. When citing in text with in an assignment, use the author/s (or editor/s) last name followed by the year of publication.

Example:

Water is a necessary part of every person's diet and of all the nutrients a body needs to function, it requires more water each day than any other nutrient (Whitney & Rolfes, 2011).

or

Whitney and Rolfes (2011) state the body requires many nutrients to function but highlight that water is of greater importance than any other nutrient.

Or

Water is an essential element of anyone's diet and Whitney and Rolfes (2011) emphasise it is more

important than any other nutrient.

Reference list entry

a) Whitney, E., & Rolfes, S. (2011). *Understanding nutrition* (12th ed.). Australia: Wadsworth
Cengage Learning.

Note: this book did not have a city for place of publication, just a country.

b) Three, four or five authors

If a work has three (3), four (4) or five (5) authors, cite all authors the first time and from then on include only the last name of the first author followed by the words et al. ('et al.' is Latin for 'and

others')

Example:

Research can be defined as a systematic method of creating new knowledge or a way to verify existing knowledge (Watson, McKenna, Cowman & Keady, 2008). Deciding on a research

method demands the researcher consider carefully the problem or area of investigation being researched (Watson et al., 2008).

Reference list entry:

Watson, R., McKenna, H., Cowman, S., & Keady, K. (Eds.). (2008). *Nursing reseach: Designs and methods*. Edinburgh, Scotland: Churchill Livingstone Elsevier.

Note: The people were identified as the editors, hence ‘(Eds.)’ is a shortened version of Editors.

c).Six or seven authors

If a work has six (6) or more authors, cite only the last name of the first author followed by et al. each time you refer to this work.

Example: (Mikosch et al., 2010)

Reference list entry:

When a source has **up to seven (7)** authors, include all names in the reference list. E.g Mikosch, P., Hadrawa, T., Laubreiter, K., Brandl, J., Pilz, J., Stettner, H., & Grimm, G. (2010). Effectiveness of respiratory-sinus-arrhythmia biofeedback on state-anxiety in patients undergoing coronary angiography. *Journal of Advanced Nursing*, 66(5), 1101-1110.

d).Eight or more authors

When there are eight (8) or more authors, cite only the last name of the first author followed by ‘et al.’ each time you refer to this work.

Example:

(Vissing et al., 2004) Note in the reference list: When there are eight (8) or more authors, include the first six (6) authors’ names and then use ellipsis points (...) before concluding with the last author’s name.

Reference list entry:

Vissing, K., Brink, M., Lonbro, S., Sorensen, H., Overgaard, K., Danborg, K.... Aagaard, P. (2008).

Muscle adaptations to plyometric vs. resistance training in untrained young men. *Journal of Strength and Conditioning Research*, 22(6), 1799-1810.

e). Groups as authors

The names of groups that serve as authors (e.g., corporations, associations, government agencies) are usually written in full each time they appear in a text citation. The names of some group authors

(e.g., associations, government agencies) are spelled out in the first citation and abbreviated thereafter. In deciding whether to abbreviate the name of a group author, use the general rule that you need to give enough information in the text citation for the reader to locate the entry in the reference list without difficulty. Some groups are recognized by an abbreviation (e.g., WHO for World Health Organisation).

First text citation: (Ministry of Health [MOH], 2007).

Second & subsequent citations: (MOH, 2007).

Reference list entry:

Ministry of Health. (2007). *looking at long-term residential care in a rest home or hospital: What*

you need to know. Wellington, New Zealand:

Basic rules to follow when referencing

1. The reference list is arranged in alphabetical order of the authors' last names.
2. If there is more than one work by the same author, order them by publication date – oldest to newest (therefore a 2004 publication would appear before a 2008 publication).
3. If there is no author the title moves to that position and the entry is alphabetized by the first significant word, excluding words such as “A” or “The”. If the title is long, it may be shortened when citing in text.

4. Use “&” instead of “and” when listing multiple authors of a source.
5. The first line of the reference list entry is left-hand justified, while all subsequent lines are consistently indented.
6. Capitalize only the first word of the title and of the subtitle, if there is one, plus any proper names – i. e. only those words that would normally be capitalized.
7. Italicise the title of the book, the title of the journal/serial and the title of the web document.
8. Do not create separate lists for each type of information source. Books, articles, web documents, brochures, etc. are all arranged alphabetically in one list.

NOTE: When creating the reference list entry for an information source you need to identify and record specific details. It might be useful to remember these **Ws!**

Who – wrote /edited it – **author or editor**

When was it written – **date**

What is it – **title** of book, **title** of the article & serial/journal, **title** of the web document?

Where was it published (**Books**) – **place of publication**– usually city & country and **publisher’s** name

Where was the article located (**Serial/journal**) - **volume number**, **issue number** and **page numbers** of the article

Where you located it (**Internet sources**) - **URL** – web address

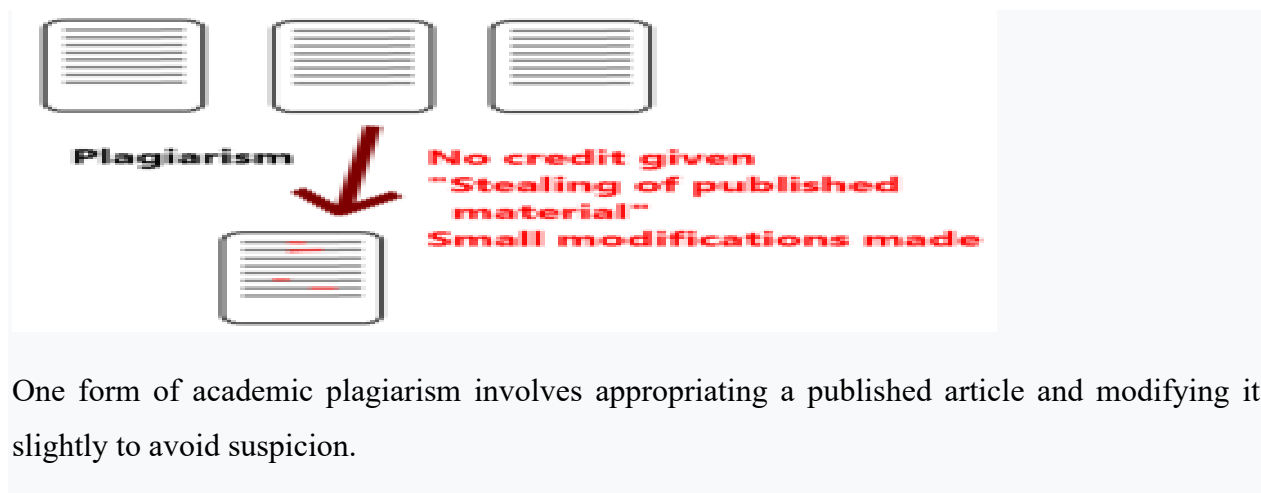
PLAGIARISM

Plagiarism is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work.

Plagiarism is considered academic dishonesty and a breach of journalistic ethics. It is subject to sanctions such as penalties, suspension, and even expulsion from school or work. Recently, cases of "extreme plagiarism" have been identified in academia. The modern concept of plagiarism as immoral and originality as an ideal emerged in Europe in the 18th century, particularly with the Romantic movement.

Plagiarism is not in itself a crime, but can constitute copyright infringement. In academia and industry, it is a serious ethical offense. Plagiarism and copyright infringement overlap to a considerable extent, but they are not equivalent concepts, and many types of plagiarism do not constitute copyright infringement, which is defined by copyright law and may be adjudicated by courts. Plagiarism is not defined or punished by law, but rather by institutions (including professional associations, educational institutions, and commercial entities, such as publishing companies).

Academic plagiarism



One form of academic plagiarism involves appropriating a published article and modifying it slightly to avoid suspicion.

No universally adopted definition of academic plagiarism exists; however, this section provides several definitions to exemplify the most common characteristics of academic plagiarism.

- According to Bela Gipp^(NY) academic plagiarism encompasses:
"The use of ideas, concepts, words, or structures without appropriately acknowledging the source to benefit in a setting where originality is expected."
- The definition by B. Gipp is an abridged version of Teddi Fishman's definition of plagiarism, which proposed five elements characteristic of plagiarism.

- According to T. Fishman, plagiarism occurs when someone:
 1. Uses words, ideas, or work products
 2. Attributable to another identifiable person or source
 3. Without attributing the work to the source from which it was obtained
 4. In a situation in which there is a legitimate expectation of original authorship
 5. In order to obtain some benefit, credit, or gain which need not be monetary

Furthermore, plagiarism is defined differently among institutions of higher learning and universities:

- Stanford sees plagiarism as the "use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person's original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other form."
- Yale views plagiarism as the "... use of another's work, words, or ideas without attribution," which includes "... using a source's language without quoting, using information from a source without attribution, and paraphrasing a source in a form that stays too close to the original."
- Princeton perceives plagiarism as the "deliberate" use of "someone else's language, ideas, or other original (not common-knowledge) material without acknowledging its source."
- Oxford College of Emory University characterizes plagiarism as the use of "a writer's ideas or phraseology without giving due credit."
- Brown defines plagiarism as "... appropriating another person's ideas or words (spoken or written) without attributing those word or ideas to their true source."
- The U.S. Naval Academy defines plagiarism as "the use of the words, information, insights, or ideas of another without crediting that person through proper citation."

Common forms of student plagiarism

According to a 2015 survey of teachers and professors by Turnitin there are 10 main forms of plagiarism that students commit:

1. Submitting someone's work as their own.

2. Taking passages from their own previous work without adding citations.
3. Re-writing someone's work without properly citing sources.
4. Using quotations, but not citing the source.
5. Interweaving various sources together in the work without citing.
6. Citing some, but not all passages that should be cited.
7. Melding together cited and uncited sections of the piece.
8. Providing proper citations, but fails to change the structure and wording of the borrowed ideas enough.
9. Inaccurately citing the source.
10. Relying too heavily on other people's work. Fails to bring original thought into the text.

Sanctions for student plagiarism

In the academic world, plagiarism by students is usually considered a very serious offense that can result in punishments such as a failing grade on the particular assignment, the entire course, or even being expelled from the institution. Generally, the punishment increases as a person enters higher institutions of learning. The seriousness with which academic institutions address student plagiarism may be tempered by a recognition that students may not fully understand what plagiarism is. A 2015 study showed that students who were new to university study did not have a good understanding of even the basic requirements of how to attribute sources in written academic work, yet students were very confident that they understood what referencing and plagiarism are. The same students also had a lenient view of how plagiarism should be penalized.

For cases of repeated plagiarism, or for cases in which a student commits severe plagiarism (e.g., purchasing an assignment), suspension or expulsion may occur. There has been historic concern about inconsistencies in penalties administered for university student plagiarism, and a plagiarism tariff was devised in 2008 for UK higher education institutions in an attempt to encourage some standardization of approaches.

However, to impose sanctions, plagiarism needs to be detected. Strategies faculty members use to detect plagiarism include carefully reading students work and making note of inconsistencies in student writing, citation errors and providing plagiarism prevention education to students. It has been found that a significant share of (university) teachers do not use detection methods such as using text-matching software. A few more try to detect plagiarism by reading term-papers

specifically for plagiarism, while the latter method might be not very effective in detecting plagiarism – especially when plagiarism from unfamiliar sources needs to be detected. There are checklists of tactics to prevent student plagiarism.

Reference

A beginner's guide to the APA 6th ed. Referencing style

ACTIVITY

1. Outline the common forms of plagiarism in academic writing.
2. Discuss on the importance of referencing in academic writing.

UNIT V: SPECIFYING A PURPOSE AND RESEARCH QUESTIONS

Learning objectives:

- Define purpose statements and research questions
- Explain the importance of statements and questions
- Designing quantitative and qualitative purpose statements and research questions

Purpose statement/ significance of the study

This looks at the significance or importance of the issues at hand. If for example the researcher is investigating poor prices, the significance would be related to improvement of prices, it could involve creation of awareness of market forces.

Research Questions

These are issues that the researcher seeks to answer. They are related to research objectives.

These questions guide the research process by addressing the variables of the study

How do you develop a usable research question?

- Choose an appropriate topic or issue for your research, one that actually can be researched.
- Then list all of the questions that you'd like answered yourself. Choose the best question, one that is neither too broad nor too narrow. Sometimes the number of sources you find will help you discover whether your research question is too broad, too narrow, or okay?
- If you know a lot about the topic, you can develop a research question based on your own knowledge. If you feel you don't know much about the topic, think again. For example, if you're assigned a research topic on an issue confronting the ancient Babylonian family, remember, by virtue of your own family life, you already know a great deal about family issues. Once you determine what you do know, then you're ready to do some general reading in a textbook or encyclopedia in order to develop a usable research question.
- It is also a good idea to evaluate your research question before completing the research exercise and to ask the writing tutor for feedback on your research question. And you also should check your research question with your course tutor.

For example, if you choose juvenile delinquency (a topic that can be researched), you might ask the following questions:

- What is the 1994 rate of juvenile delinquency in Zambia?
- What can we do to reduce juvenile delinquency in Zambia?
- Does education play a role in reducing juvenile delinquents' return to crime?

Once you complete your list, review your questions in order to choose a usable one that is neither too broad nor too narrow. In this case, the best research question is "c." Question "a" is too narrow, since it can be answered with a simple statistic. Question "b" is too broad; it implies that

the researcher will cover many tactics for reducing juvenile delinquency that could be used throughout the country. Question "c," on the other hand, is focused enough to research in some depth.

However it is important to know that research questions are a mirror of research objectives, hence research question cannot be discussed without looking at research objectives.

Research objectives

- Objectives are intentions or purpose stated in specific measurable terms. They provide opportunities for evaluating the end results
- Objectives are operational, they state specific tasks that will be carried out by the researchers to accomplish the aims of the study. These tasks are measurable.

Importance of objectives/ research questions

According to Tromp and Kombo (2006), the following are the importance of research objectives;

- Objectives guide decisions in the selection of respondents, research instruments and the study area
- Objectives influence all components of the research design including data analysis and report writing
- A clear statement of objectives helps to limit the scope of the literature review
- Objectives serve to clarify the variables of the study. This helps in the evaluation of the study
- Objectives break up the aim into measurable achievable components. They serve as a guide for evaluation

Qualities of effective objectives

Furthermore, Tromp and Kombo (2006) continues to say that good objectives display the following qualities:

- They are specific
- They are measurable
- They are focused: the objectives should narrow the study to essentials
- They should be achievable

- They should be clearly phrased in operational terms, specifying exactly what the researcher will do.

Problems faced when formulating objectives

- Writing too many objectives at once
- Objectives not clearly stating what the study wants to accomplish
- The objectives not in logical order
- Formulating the objectives that do not deal with all aspects of the research problem
- Some objectives not specific and therefore very difficult to evaluate

Sample of objectives

Zulu (2016): Exploring the effect of non- financial incentives on job satisfaction of teachers at Lubuto and Kayele Secondary schools in Ndola District

The study seek to:

- 1 Assess the effect of promotion on job satisfaction of teachers at Lubuto and Kayele secondary schools in Ndola district,
- 2 Ascertain the effect of material rewards on job satisfaction of teachers at Lubuto and Kayele secondary schools in Ndola district,
- 3 Establish the effect of job autonomy on job satisfaction of teachers at Lubuto and Kayele secondary schools in Ndola district

WHAT MAKES A GOOD QUALITATIVE RESEARCH QUESTION?

Qualitative research, sometimes also referred to as naturalistic inquiry, is a distinct field of research with its own research philosophy, theory and methodology. If your desire is to perform a qualitative study, it will probably be a lot easier to develop your research question if you first become familiar with some of qualitative research's basic principles.

Qualitative market research questions are most effective for those looking to carry out one-to-one or focus group-style interviews to understand how your target demographic thinks and feels;

and why they make certain choices. Qualitative research questions, then, need to articulate what a researcher wants to know about the intentions and perspectives of those involved in social interactions. The key qualities of a good qualitative research question are:

1. Being able to discover problems and opportunities from respondents
2. Open-ended in nature
3. Easy to understand and digest with no need for clarification

For many qualitative market researchers, agreeing on a question to ask an individual or focus group marks the beginning point of any piece of research. Poorly constructed qualitative research questions can affect the outcome of a study, with unclear responses resulting in a considerable waste of resources.

So let's take a look at the components of a well-constructed qualitative research question that you can adopt for your own market research:

Choose an effective purpose statement

It's important to set out the core objective or intent of your qualitative research from the outset. A single sentence purpose statement should define a roadmap for the overall study. The use of qualitative words such as 'discover', 'understand' and 'explore' help to set the tone of the question and demonstrate your desire to delve deeper.

Good types of qualitative wording for research questions

Qualitative Research Questions:

1. Usually start with 'what' or 'how' (avoid beginning qualitative questions with 'why' as this implies cause and effect).
2. Identify the central phenomenon you plan to explore (tell in your question what you are going to describe, explore, generate, discover, understand).
3. Avoid the use of quantitative words such as relate, influence, effect, and cause.

With qualitative research, you will usually have one central question and possibly also some sub-questions to narrow the phenomenon under study further. The sub-questions will generally be more specific.

Examples of qualitative research questions:

1. What is it like growing up in a single-parent family in a rural environment?
2. What are the experiences of people working night shifts in health care?
3. How would overweight people describe their meal times while dieting?

Also include the following types of qualitative words to engineer the type of responses you're looking for from interviewees:

- ✓ How
- ✓ What
- ✓ Generate
- ✓ Identify
- ✓ Describe
- ✓ Meaning
- ✓ Outline

Words to avoid for qualitative research questions

The following types of words should not be included within a qualitative research question to avoid possible ambiguity for respondents:

- ✓ Relate
- ✓ Impact
- ✓ Effect
- ✓ Cause
- ✓ Influence

- ✓ Compare
- ✓ Contrast

Examples of effective qualitative questioning techniques

Poor example	Good example
<p>What is the childhood obesity rate in Kensington?</p> <p>Reason: Not only is this too factual to form the basis of a valid argument, it's also too easy to answer with a single statistic. As a rule of thumb, qualitative research questions should never be able to be answered 'yes' or 'no'.</p>	<p>How does the amount of time children play computer games each day affect childhood obesity rates in Kensington?</p> <p>Reason: This question is much more refined; the results of which could also be used to form a more credible argument.</p>
<p>How much time do you listen to rock music a week?</p> <p>Reason: This would be a much more suitable quantitative research question, as it enables you to collect data en-masse. However, from a qualitative viewpoint, the data could not be used to create a judgment or perception as the data is just factual information.</p>	<p>Why do you prefer listening to rock music more than other music genres?</p> <p>Reason: This is a considerably more subjective question; the results of which could potentially lead to you forming the basis of a more credible argument.</p>
<p>What is the meaning of life?</p> <p>Reason: This type of question is far too broad and lacking in focus to be used as the basis of any type of research study.</p>	<p>Could you describe the most important factors in your life?</p> <p>Reason: Again, this is question is much more subjective, giving the respondent the opportunity to provide a more reasoned, personal response that can form the basis of a credible argument.</p>

The qualitative paradigm suggests that there are multiple realities, and what we are researching are constructs. In qualitative research, generally the phenomenon is studied in its natural setting and the focus is on the participants' (and also the researcher's) view of the world. In other words, qualitative research usually does not happen in a lab, or while sitting at a desk. It generally requires going out, talking to people, observing what they do, as well as how they perceive and interpret things. Also, it does not aim to generalize findings to entire populations. Therefore, the research question that you ultimately choose guides your inquiry and reflects this stance. The vocabulary of your questions will usually suggest to the reader your intent to explore a certain phenomenon in its natural context.

Examples of research questions for different qualitative methodologies

Different types of studies go under the umbrella of qualitative research; each with its own philosophy and ways of looking at the world as well as various methods of interpreting data. Here are some qualitative research question examples that could be used through different qualitative approaches:

Grounded theory:

- *What are the attitudes of elderly people with stroke towards the daily use of assistive devices and technologies?*

Phenomenology:

- *What role does the therapist's spirituality play in the treatment of his or her patients?*
- *How do female high school teachers who have been physically assaulted by students overcome their fears so they can effectively teach?*

Ethnography:

- *How do adolescent Latinas/Latinos conceptualize classroom participation processes shape active oral participation?*

Narrative inquiry:

- *How does a good everyday life come about when living with chronic rheumatic conditions?*

Case study:

- *What strategies are being used by small businesses that have effective and viable workplace wellness programs?*

Check out this post for a brief overview of qualitative versus quantitative research questions, and some more example of questions.

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ACTIVITY

Discuss on the points to consider when preparing qualitative research questions

HOW TO STRUCTURE QUANTITATIVE RESEARCH QUESTIONS

Quantitative Research Questions:

1. Usually start with 'how,' 'what' or 'why'.
2. Contain an independent *and* a dependent variable.
3. Look at connections, relations or comparisons between variables.

Types of quantitative research questions with examples:

1. Descriptive questions are usually simple questions that ask about 'how much' or 'how often' or look for a list of things/factors.

Example: How often do people aged 30 to 40 visit their parents?

These type of questions are useful for simple studies, but would not be robust enough for a dissertation.

2. Causal questions try to determine a relationship between two variables or they compare two variables.

Example: How does stress at work relate to quality of life in people working night shifts?
(a *relationship* question)

Example: How do lean participants compare to obese participants in their frequency and intensity of food cravings? (a *comparison* question)

3. Predictive questions try to forecast an outcome. Studies that result from these questions are often controversial as it is hard to single out one variable and unquestionably link it to an outcome. You need to be confident that you can indeed ensure a controlled environment, one in which you are able to control for other variables and observe only the effect of your chosen variable.

Example: Does a stressful work environment lead to higher turnover rates?

It therefore important to know that there is no "one best way" to structure a quantitative research question. However, to create a well-structured quantitative research question, we recommend an approach that is based on four steps:

- (1) Choosing the type of quantitative research question you are trying to create (i.e., descriptive, comparative or relationship-based);
- (2) Identifying the different types of variables you are trying to measure, manipulate and/or control, as well as any groups you may be interested in;
- (3) Selecting the appropriate structure for the chosen type of quantitative research question, based on the variables and/or groups involved; and
- (4) Writing out the problem or issues you are trying to address in the form of a complete research question.

Furthermore, to understand quantitative questions very well, it is important to first understand what variables are

TYPES OF VARIABLES

Understanding the types of variables you are investigating in your dissertation is necessary for all types of quantitative research design, whether you using an experimental, quasi-experimental, relationship-based or descriptive research design. When you carry out your

dissertation, you may need to measure, manipulate and/or control the variables you are investigating. Firstly, let's discuss the main groups of variables:

- ✓ categorical variables
- ✓ Continuous variables.

Secondly, let's look at what

- ✓ dependent and
- ✓ Independent variables are.

This will provide you with one of the foundations required to tackle a dissertation based on a quantitative research design

Categorical and continuous variables

1) Categorical variables

Categorical variables are also known as qualitative (or discrete) variables. These categorical variables can be further classified as being nominal, dichotomous or ordinal variables. Each of these types of categorical variable (i.e., nominal, dichotomous and ordinal) has what are known as categories or levels. These categories or levels are the descriptions that you give a variable that help to explain how variables should be measured, manipulated and/or controlled. Take the following example

Career choices of university students

You are interested in the career choices of university students. You could ask university students a number of closed questions related to their career choices. For example:

What is your planned occupation?

What is the most important factor influencing your career choice?

The first question highlights the use of categories and the second question levels. For example:

Question 1: What is your planned occupation?

Variables with categories

Architect

Attorney

Biochemist

Engineer

Dentist

Doctor

Entrepreneur

Social

Worker

Teacher

ETC...

Question 2: On a scale of 1 to 5, how important are the following factors in influencing your career choice [1 = least important; 5 = most important]?

Variables with levels

Career prospects

Nature of the work

Physical working conditions

Salary and benefits ETC...

What is important to note about the categories in question 1 and the levels in question 2 is that these will be created by you. Ideally, you will have included these categories or levels based on

some primary or secondary research. Ultimately, you choose which categories or levels to include and how many categories or levels there should be.

Each of these types of categorical variable (i.e., nominal, dichotomous and ordinal) are described below with associated examples:

Nominal variables

The following are examples of nominal variables. These nominal variables could address questions like:

<i>Question:</i>	What is your gender?
<i>Answer:</i>	I am male (<i>or</i> female, bisexual, transsexual)
<i>Nominal variable:</i>	Gender
<i>Category:</i>	Male, Female, Bisexual, Transsexual
 <i>Question:</i>	 What type of property are you interested in?
<i>Answer:</i>	A house (<i>or</i> an apartment, or a bungalow)
<i>Nominal variable:</i>	Type of property (the customer is interested in)
<i>Category:</i>	House, Apartment, Bungalow
 <i>Question:</i>	 What is your hair colour?
<i>Answer:</i>	I have <i>black</i> hair (<i>or</i> blond, brown, red hair, etc.)
<i>Nominal variable:</i>	Hair colour

Category: Black, Blond, Brown, Red, etc.

Question: What is your blood type?

Answer: I have blood type A (or B, AB, O, etc.)

Nominal variable: Blood type

Category: A, B, AB, O, etc.

These examples highlight two core characteristics of nominal variables:

1. Nominal variables have two or more categories.
2. Nominal variables do not have an intrinsic order.

When we talk about nominal variables not having an intrinsic order, we mean that they can only have categories (e.g., black, blond, brown and red hair); not levels (e.g., a Likert scale from 1 to 5).

Dichotomous variables

The following are examples of dichotomous variables. These dichotomous variables could address questions like:

Question: Are you male or female?

Answer: I am male (or I am female)

Dichotomous variable: Sex

Category: Male, Female

Question: Do you like watching television?

Answer: Yes I do (*or* No I don't)

Dichotomous variable: Opinion about watching television

Category: Yes, No

***Question:* What type of property are you interested in?**

Answer: A residential property (*or* a commercial property)

Dichotomous variable: Type of property the customer is interested in

Category: Residential, Commercial

***Question:* What is your employment status?**

Answer: I am employed (*or* I am unemployed)

Dichotomous variable: Employment status

Category: Employed, Unemployed

Dichotomous variables are nominal variables that have just two categories. They have a number of characteristics:

- **Dichotomous variables are designed to give you an *either/or* response**

For example, you are either male or female. You either like watching television (i.e., you answer YES) or you don't (i.e., you answer NO).

- **Dichotomous variables can either be fixed or designed**

For example, some variables (e.g., your sex) can only be dichotomous (i.e., you can only be male or female). They are therefore fixed. In other cases, dichotomous variables are designed by the researcher. For example, take the question: Do you like watching

television? We have determined that the respondent can only select YES (i.e., I like watching television) or NO (i.e., I don't like watching television). However, another researcher could provide the respondent with more than two categories to this question (e.g., most of the time, sometimes, hardly ever). Where more than two categories are used, these variables become known as nominal variables rather than dichotomous ones.

Ordinal variables

Just like nominal variables, ordinal variables have two or more categories. However, unlike nominal variables, ordinal variables can also be ordered or ranked (i.e., they have levels). For example, take the following example of an ordinal variable:

<i>Question:</i>	Do you like the policies of the Democratic Party?
<i>Answer:</i>	Not very much (<i>or</i> They are OK, <i>or</i> Yes, a lot)
<i>Ordinal variable:</i>	Opinions towards Democratic Party policies
<i>Level:</i>	Not very much, They are OK, Yes, a lot

So if you asked someone if they liked the policies of the Democratic Party and you presented them with the following three categories: Not very much, they are OK, or Yes, a lot; you have an ordinal variable. Why? Because you have 3 categories? Namely Not very much, They are OK, and Yes, a lot? And you can rank them from the most positive (Yes, a lot), to the middle response (They are OK), to the least positive (Not very much). However, whilst we can rank the three categories, we cannot place a value to them. For example, we cannot say that the response, They are OK, is twice as positive as the response, Not very much.

Other examples of ordinal variables are:

<i>Question:</i>	In what year did you start university?
<i>Answer:</i>	I started in 2006 (<i>or</i> 2007, 2008, 2009, 2010)

Ordinal variable: Year of university entry
Level: 2006, 2007, 2008, 2009, 2010

Question: Do you like watching television?

Answer: Most of the time, sometimes *or* hardly ever)
Ordinal variable: Opinion about watching television
Level: Most of the time, Sometimes, Hardly ever

Question: To what extent do you agree or disagree
Going to university is important to
 [based on a 5-point Likert scale of 1 = strongly agree, 2 =
 4 = disagree, 5 = strongly disagree]

Answer: 2 = I agree (*or* 1, 3, 4 or 5 on the 5-point Likert scale)
Ordinal variable: The importance of university to getting a good job
Level: 1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree

When it comes to Likert scales, as highlighted in the previous example, there can be some disagreement over whether these should be considered ordinal variables or continuous variables [see the section: Ambiguities in classifying variables].

Continuous variables

Continuous variables, which are also known as quantitative variables, can be further classified as being either interval or ratio variables. Each of these types of continuous variable (i.e., interval and ratio) has numerical properties. These numerical properties are the values by which continuous variables can be measured, manipulated and/or controlled. We illustrate the two types of continuous variable (i.e., interval and ratio) and some associated values in the sections that follow:

Interval variables

Interval variables have a numerical value and can be measured along a continuum. Some examples of interval variables are:

<i>Interval variable:</i>	Temperature (measured in degrees Celsius or Fahrenheit)
<i>Explanation:</i>	The difference between 20C and 30C is the same as 30C to 40C

However, temperature measured in degrees Celsius or Fahrenheit is NOT a ratio variable. This is because temperature measured in degrees Celsius or Fahrenheit is not a ratio variable because 0C does not mean there is no temperature.

Ratio variables

Ratio variables are interval variables that meet an additional condition: a measurement value of 0 (zero) must mean that there is none of that variable. Some examples of ratio variables are:

<i>Ratio variable:</i>	Temperature measured in Kelvin
<i>Explanation:</i>	0 Kelvin, often called <i>absolute zero</i> , indicates that there is no temperature whatsoever. A temperature of 10 Kelvin is four times the temperature of 2.5 Kelvin

Ratio variable: Distance

Explanation: If two houses are joined together (e.g., terraced housing), the distance between the adjoining walls is 0 (i.e., there is no distance whatsoever). On the other hand, a distance of 10 meters between the houses would be twice the distance of a 5 meter gap between the houses (i.e., a distance of 10 metres is twice the distance of 5 metres).

Other ratio variables: Height, mass/weight, etc.

Ambiguities in classifying variables

Sometimes, the measurement scale for data is ordinal, but the variable is treated as though it were continuous. This is more often the case when using Likert scales. When a Likert scale has five values (e.g., strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree), it is treated as an ordinal variable. However, when a Likert scale has seven or more values (e.g., strongly agree, moderately agree, agree, neither agree nor disagree, disagree, moderately disagree, and strongly disagree), the variable is sometimes treated as a continuous variable. Nonetheless, this is a matter of dispute. Some researchers would argue that a Likert scale should never be treated as a continuous variable, even with seven levels/values.

Since you are responsible for setting the measurement scale for a variable, you will need to think carefully about how you characterize a variable. For example, social scientists may be more likely to consider the variable gender to be a nominal variable. This is because they view gender as having a number of categories, including male, female, bisexual and transsexual. By contrast, other researchers may simply view gender as a dichotomous variable, having just two categories: male and female. In such cases, it may be better to refer to the variable gender as sex.

Dependent and independent variables

A variable is not only something that you measure, but also something that you can manipulate and control for. An independent variable (sometimes called

an experimental or predictor variable) is a variable that is being manipulated in an experiment in order to observe the effect this has on a dependent variable (sometimes called an outcome variable). The dependent variable is simply that; a variable that is dependent on an independent variable(s). We discuss these concepts in the example below:

For example:

Imagine that a tutor asks 100 students to complete a maths test. The tutor wants to know why some students perform better than others. Whilst the tutor does not know the answer to this, she thinks that it might be because of two reasons:

1. Some students spend more time revising for their test; and
2. Some students are naturally more intelligent than others.

Therefore, the tutor decides to investigate the effect of revision time and intelligence on the test performance of the 100 students. As such, the dependent and independent variables for the study are:

Dependent Variable:	Test Mark (measured from 0 to 100)
Independent Variables:	Revision time (measured in hours)
	Intelligence (measured using IQ score)

The dependent variable is simply that; a variable that is dependent on an independent variable(s). In our case, the test mark (i.e. the dependent variable) that a student achieves is dependent on revision time and intelligence (i.e., the independent variables). Whilst revision time and intelligence (i.e., independent variables) may (or may not) cause a change in the test mark (i.e., the dependent variable), the reverse is implausible. In other words, whilst the number of hours a student spends revising and the higher a student's IQ score may (or may not) change the test mark that a student achieves, a change in a student's test mark has no bearing on whether a student revises more or is more intelligent. This would not make any sense.

Therefore, the aim of the tutor's investigation is to examine whether these independent variables (i.e., revision time and IQ) result in a change in the dependent variable (i.e., the students' test scores). However, it is also worth noting that whilst this is the main aim of the experiment, the tutor may also be interested to know if the independent variables (i.e., revision time and IQ) are also connected in some way.

ACTIVITY

Explain on the following terms

1. Dependent Variable
2. Independent Variable
3. Nominal variables
4. Interval variables
5. Ratio variables
6. categorical variables
7. continuous variables

UNIT VI: DATA COLLECTION IN RESEARCH

Learning objectives:

- **Define data collection**
- **Explain the importance of ensuring accurate and appropriate data collection**
- **Identify the two sources of data**

- **Differentiate the instruments used when collecting quantitative and qualitative data**
- **Describe the type of data collected in quantitative and qualitative research respectively**

Introduction

Data collection refers to the gathering of information to serve or prove some facts (Kombo and Tromp 2006). Data collection is vital in everyday living. For example, without up to date and comprehensive data about the characteristics of the population, no government can plan and build the facilities and resources that effectively serve the citizens. Commercial organizations collect data to improve their economic prospects. By collecting views on people's attitudes about their products, they are able to offer goods or services that potential customers seem to want. In research, data is collected to further a researcher's understanding of a puzzling issue. Data collection helps to clarify the facts. This chapter identifies what data collection is, purposes of collecting data, effective data collection techniques, sources of data, steps in data collection, characteristics of different data collection methodologies, challenges faced by researchers in data collection and ethical issues related to data collection.

Meaning of Data Collection

In research, the term "data collection" refers to gathering specific information aimed at proving or refuting some facts. In data collection the researchers must have a clear understanding of what they hope to obtain and how they hope to obtain it. Data collection, the researcher must have a clear vision of the instruments to be used, the respondents and the selected area. Data collection is important in research as it allows for development of meaningful programmes.

The importance of ensuring accurate and appropriate data collection

Regardless of the field of study or preference for defining data (quantitative, qualitative), accurate data collection is essential to maintaining the integrity of research. Both the selection of

appropriate data collection instruments (existing, modified, or newly developed) and clearly delineated instructions for their correct use reduce the likelihood of errors occurring.

Consequences from improperly collected data include

- inability to answer research questions accurately
- inability to repeat and validate the study
- distorted findings resulting in wasted resources
- misleading other researchers to pursue fruitless avenues of investigation
- compromising decisions for public policy
- causing harm to human participants and animal subjects

While the degree of impact from faulty data collection may vary by **discipline** and the nature of investigation, there is the potential to cause disproportionate harm when these research results are used to support public policy recommendations.

Issues related to maintaining integrity of data collection:

The primary rationale for preserving data integrity is to support the detection of errors in the data collection process, whether they are made intentionally (deliberate falsifications) or not (systematic or random errors).

Most, Craddick, Crawford, Redican, Rhodes, Rukenbrod, and Laws (2003) describe ‘quality assurance’ and ‘quality control’ as two approaches that can preserve data integrity and ensure the scientific **validity** of study results. Each approach is implemented at different points in the research timeline (Whitney, Lind, Wahl, 1998):

1. Quality assurance - activities that take place *before* data collection begins
2. Quality control - activities that take place *during* and *after* data collection

Purpose of Collecting Data

In research, data is collected for various purposes. This includes the following:

- a) To stimulate new ideas. This is because data collection helps in identifying areas related to the research topic that need to improvement or further evaluation.
- b) To highlight a situation and therefore create awareness and improvement.
- c) To influence legislative policies and regulations.
- d) To provide justification for an existing programme or illustrate a need for a new programme.
- e) It is the only reliable way to evaluate the responsiveness and effectiveness of the study.
- f) It promotes decision-making and resource allocation that are based on solid evidence rather than on isolated occurrences, assumption, emotion, politics, and so on.

Sources of Data

There are two major sources of data used by researchers. These are the *primary* and *secondary* sources.

Primary sources: Primary data is information gathered directly from respondents. This is through gathered directly from respondents. This is through questionnaires, interviews, focused group discussions, observations and experimental studies. It involves creating “new “data. Data is collected from existing sources. In an experiential study, the variable of interested is identified.

Secondary sources: secondary information sources are data neither collected directly by nor specifically for the user. It involves gathering data that has been collected by someone else. This involves the collection from internal sources secondary data collection may be conducted by collecting information from a diverse source of documents or electronically stored information. This is often referred to as desk research.

Steps in Data Collection

The following are essential steps that a researcher should use in data collection:

- a) Define the sample
- b) Reflect on the research design
- c) Ensure research instruments are ready
- d) Define the data to be collected
- e) Request permission to collect data from the relevant authorities

- f) Pre-testing

Factors to Consider during Data Collection

During data collections, researchers should adhere to the following

- a) Collect only the data needed for the purpose of the study researchers should avoid digressing and getting involved in issues that are not relevant to the study.
- b) Inform each potential each respondent about the general nature if the study and the intended uses of the data.
- c) Protect the confidentiality of information collected from respondents and ensure that the means used in data collection are adequate to protect confidentiality to the extent pledged or intended.
- d) Ensure that processing and use of data conforms with the pledges, made and that appropriate care is taken with directly identifying; information (using such steps as destroying a certain type of information or removing it from the file when it is no longer needed for inquiry).
- e) Apply appropriate techniques to control statistical disclosure. The researcher should ensure that, whenever data are transferred to other persons or organizations, this transfer conforms to the established confidentiality pledges, and require written assurance from the recipients of the data that the measure employed to protect confidentiality will be at least equal to those originally pledged.

While in the field the researcher should ensure the following:

- Punctuality in appointments.
- Friendliness.
- Use of clear and simple language.
- Be careful about question construction. The manner in which a question is formulated can also result in inaccurate responses.
- Have various ways of probing: it is important for the researcher and research assistants to be aware that some individuals tend to provide false answers to particular questions. If this is noted, the researcher should devise other ways of probing.

- It is important for the researcher to acknowledge that certain psychological factors, such as fear or low self-esteem can induce incorrect responses. Great care must be taken to design a study that minimizes this effect.

Importance of Data analysis

Importance of data analysis includes the following:

- Findings/results are clearly shown.
- Areas/gaps for further research are pointed out.
- Researchers can be able to know the results without wasting time on primary and secondary data.
- One can be able to know the statistical methods used for analyzing data.

Pitfalls in Data Analysis and Interpretation

There are three pitfalls in data analysis and interpretation, which are shown below:

1. The first involves sources of bias. These are conditions or circumstances which affect the external validity of statistical results.
2. The second is errors in methodology, which can lead to the third point.
3. The third class problems concerns interpretation of results, or how statistical results are applied (or misapplied) to real world issues.

Challenges Faced by Researchers in Data collection

Collecting data entails scores of activities, each of which must be carefully planned and controlled. Lack of proper strategies invalidate the results and badly mislead the users of the information gathered. Some of the challenges faced by researchers in data collection are:

- a) The researcher failing to carry out a pilot study.
- b) Lack of sufficient follow up on non-respondents.
- c) Inadequate quality controls.
- d) Poor targeting.
- e) Poor implementation.

Conclusion

The collection of information is a vital component in research. This is because it is through the collected information that major research findings are made, recommendations offered and the way forward formulated. A researcher should therefore ensure that relevant steps are adhered to in data collection. Efforts should also be made to ensure the validity and reliability of the data collection exercise.

Activity

Critically analyze the steps taken in research data collection

Collecting quantitative data

Introduction

- Quantitative Designs primarily use numeric data to answer questions and employs quantitative measures as frequencies, means, correlations, and statistical tests.
- In contrast, qualitative research employs words and images to answer questions whilst quantitative deals in numbers, logic and an objective stance (more convergent reasoning than divergent)
- Data is gathered using structured research instruments and results are based on larger samples size which is representative
- Since there is high reliability, replication or repeating is easy

- Clearly defined research questions, objectives and hypothesis which answers are sought for
- All aspects of the study are clearly designed before data is collected and data are in the form of numbers and statistics, often arranged in tables, charts, figures etc
- Results from quantitative research are easy to generalize, predict future results, investigate causal relationship
- The analyzed data can be presented in descriptive statistics (%) form or in inferential statistical output tables.
- The objective of quantitative research is to develop and employ mathematical models, theories and hypotheses pertaining to natural phenomena.
- Measuring is key in quantitative research because it shows the relationship between data and observation.

Major Tests under Quantitative

- Difference questions: compare groups and utilize difference inferential statistics.
- Associational questions: examine the association or relationship between two or more variables and utilize associational inferential statistics.

Quantitative Research designs

- A research design is a systematic plan to study a scientific problem
- Kombo and Tromp (2006) define a research design as framework of study used to structure the research and show how all the main parts of the study work together in an attempt to deal with the basic research question.
- Research Designs are used to Collect, Analyse and Interpret data using either quantitative or qualitative research

Examples of quantitative research designs

1. Experimental designs

- Traditional approach for conducting quantitative research

- In Experimental , you test an Idea to determine whether it influences an outcome or dependent variable
- In experimental design, there is need to understand: Random assignment, control over extraneous variables, manipulation of treatment conditions, outcome measures, Group Comparisons and Threats to validity

2. Correlation Design

- This involves relating variables, rather than manipulation of IVs as in Experimental Design
- Not as rigorous as experimental
- It is used for relating variables and predicting outcomes
- A correlation is a statistical test to determine the tendency or pattern for two or more variables or two sets of data, vary consistently

Do two variables influence each other?

3. Survey design

- Popular Design under quantitative where a researcher administer a survey to a sample or entire population
 - It describes the attitudes, opinions, behaviors, or characteristic of a population
 - May use a questionnaire, interview....data should be statistically analyzed
 - No treatment given to respondents...not manipulation of conditions like in the experimental designs
 - They describe trends, similar to correlation...sometimes relate variables
- Survey research may be cross sectional or longitudinal

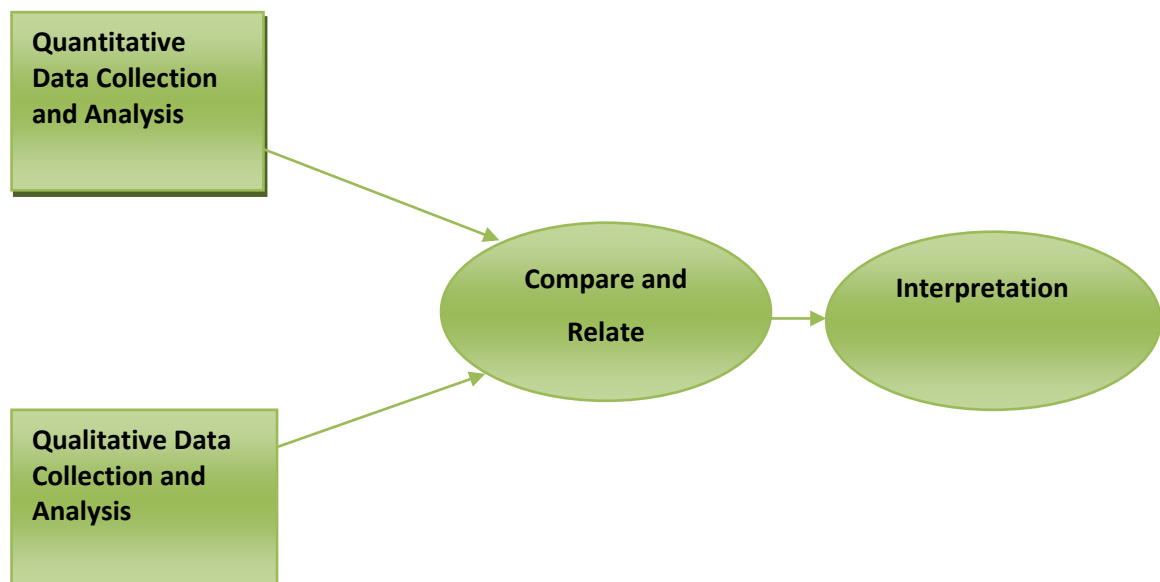
4. Mixed method designs

- This is simply a process for collecting, analyzing and “integration” both quantitative and qualitative data at some point of the study procedure within a single research
- This helps in understanding a research problem deeply and more completely
- The rationale for mixing the two in the study is for the reason that neither quantitative nor qualitative approaches are adequate by themselves to capture and elucidate the trends

Types of mixed designs

- the convergent parallel design
- the explanatory sequential design
- exploratory sequential design
- the embedded design,
- the transformative design and
- the multiphase design

Here is an example of convergent Parallel design



Instruments used in collecting quantitative data

Data can be readily quantified and generated into numerical form, which will then be converted and processed into useful information mathematically. The result is often in the form of statistics that is meaningful and, therefore, useful. Unlike qualitative methods, these quantitative techniques usually make use of larger sample sizes because its measurable nature makes that possible and easier. **The following are the instruments used in collecting quantitative data**

a) Questionnaires

Unlike the open-ended questions asked in qualitative questionnaires, quantitative paper surveys pose closed questions, with the answer options provided. The respondents will only have to choose their answer among the choices provided on the questionnaire.

- Similarly, these are ideal for use when surveying large numbers of respondents.
- The standardized nature of questionnaires enable researchers to make generalizations out of the results.
- This can be very limiting to the respondents, since it is possible that his actual answer to the question may not be in the list of options provided on the questionnaire.
- While data analysis is still possible, it will be restricted by the lack of details.

b) Interviews

Personal one-on-one interviews may also be used for gathering quantitative data. In collecting quantitative data, the interview is more structured than when gathering qualitative data, comprised of a prepared set of standard questions.

These interviews can take the following forms:

- **Face-to-face interviews:** Much like when conducting interviews to gather qualitative data, this can also yield quantitative data when standard questions are asked.
- The face-to-face setup allows the researcher to make clarifications on any answer given by the interviewee.
- This can be quite a challenge when dealing with a large sample size or group of interviewees. If the plan is to interview everyone, it is bound to take a lot of time, not to mention a significant amount of money.
- **Telephone and/or online, web-based interviews.** Conducting interviews over the telephone is no longer a new concept. Rapidly rising to take the place of telephone

interviews is the video interview via internet connection and web-based applications, such as Skype.

- The net for data collection may be cast wider, since there is no need to travel through distances to get the data. All it takes is to pick up the phone and dial a number, or connect to the internet and log on to Skype for a video call or video conference.
- Quality of the data may be questionable, especially in terms of impartiality. The net may be cast wide, but it will only be targeting a specific group of subjects: those with telephones and internet connections and are knowledgeable about using such technologies.
- **Computer-assisted interviews.** This is called CAPI, or Computer-Assisted Personal Interviewing where, in a face-to-face interview, the data obtained from the interviewee will be entered directly into a database through the use of a computer.
- The direct input of data saves a lot of time and other resources in converting them into information later on, because the processing will take place immediately after the data has been obtained from the source and entered into the database.
- The use of computers, databases and related devices and technologies does not come cheap. It also requires a certain degree of being tech-savvy on the part of the data gatherer.

c) Quantitative Observation

This is straightforward enough. Data may be collected through systematic observation by, say, counting the number of users present and currently accessing services in a specific area, or the number of services being used within a designated vicinity.

When quantitative data is being sought, the approach is naturalistic observation, which mostly involves using the senses and keen observation skills to get data about the “what”, and not really about the “why” and “how”.

- It is a quite simple way of collecting data, and not as expensive as the other methods.
- The problem is that senses are not infallible. Unwittingly, the observer may have an unconscious grasp on his senses, and how they perceive situations and people around. Bias on the part of the observer is very possible.

d) Experiments

Have you ever wondered where clinical trials fall? They are considered to be a form of experiment, and are quantitative in nature. These methods involve manipulation of an independent variable, while maintaining varying degrees of control over other variables, most likely the dependent ones. Usually, this is employed to obtain data that will be used later on for analysis of relationships and correlations.

Quantitative researches often make use of experiments to gather data, and the types of experiments are:

- **Laboratory experiments.** This is your typical scientific experiment setup, taking place within a confined, closed and controlled environment (the laboratory), with the data collector being able to have strict control over all the variables. This level of control also implies that he can fully and deliberately manipulate the independent variable.
- **Field experiments.** This takes place in a natural environment, “on field” where, although the data collector may not be in full control of the variables, he is still able to do so up to a certain extent. Manipulation is still possible, although not as deliberate as in a laboratory setting.
- **Natural experiments.** This time, the data collector has no control over the independent variable whatsoever, which means it cannot be manipulated. Therefore, what can only be done is to gather data by letting the independent variable occur naturally, and observe its effects.

You can probably name several other data collection methods, but the ones discussed are the most commonly used approaches. At the end of the day, the choice of a collection method is only 50% of the whole process. The correct usage of these methods will also have a bearing on the quality and integrity of the data being sought.

Steps in the Process of Quantitative Data Collection

- Determining the participants to study
- Obtaining permissions needed
- Considering what types of information to collect
- Locate and select the instruments
- Administer the data collection

What permissions are needed during data collection?

Permission is to be obtained from the following before data collection

- Institutional or organizational (e.g., school district)
- Site-specific (e.g., secondary school)
- Individual participants
- Parents of participants who are not considered adults
- Campus approval (e.g., university or college) and Institutional Review Board (IRB)

Procedures for Administering the Data Collection

- Develop standard written procedures for administering an instrument
- Train researchers to collect observational data
- Obtain permission to collect and use public documents
- Respect individuals and sites during data gathering (ethics)

Analyze Quantitative Data

Quantitative data analysis is helpful in evaluation because it provides quantifiable and easy to understand results. Quantitative data can be analyzed in a variety of different ways. In this section, you will learn about the most common quantitative analysis procedures that are used in small program evaluation. You will also be provided with a list of helpful resources that will assist you in your own evaluative efforts.

Quantitative Analysis in Evaluation

Before you begin your analysis, you must identify the level of measurement associated with the quantitative data. The level of measurement can influence the type of analysis you can use. There are four levels of measurement:

- Nominal
- Ordinal
- Interval
- Ratio (scale)

Nominal data – data has no logical; data is basic classification data

- Example: Male or Female
 - There is no order associated with male nor female
 - Each category is assigned an arbitrary value (male = 0, female = 1)

Ordinal data – data has a logical order, but the differences between values are not constant

- Example: T-shirt size (small, medium, large)
- Example: Military rank (from Private to General)

Interval data – data is continuous and has a logical order, data has standardized differences between values, but no natural zero

- Example: Fahrenheit degrees
 - Remember that ratios are meaningless for interval data.
 - You cannot say, for example, that one day is twice as hot as another day.
- Example: Items measured on a Likert scale – rank your satisfaction on scale of 1-5.
 - 1 = Very Dissatisfied
 - 2 = Dissatisfied
 - 3 = Neutral
 - 4 = Satisfied
 - 5 = Very satisfied

Ratio data – data is continuous, ordered, has standardized differences between values, and a natural zero

- Example: height, weight, age, length
- Having an absolute zero enables you to meaningful say that one measure is twice as long as another.
 - For example – 10 inches is twice as long as 5 inches
 - This ratio hold true regardless of which scale the object is being measured in (e.g. meters or yards).

Once you have identified your levels of measurement, you can begin using some of the quantitative data analysis procedures outlined below. Due to sample size restrictions, the types of quantitative methods at your disposal are limited. However, there are several procedures you can use to determine what narrative your data is telling. Below you will learn how about:

- Data tabulation (frequency distributions & percent distributions)
- Descriptive data

- Data disaggregation
- Moderate and advanced analytical methods

Activity

Design a Questionnaire which can be used in quantitative research

Qualitative Data Collection.

Qualitative data, deals with quality, so they are descriptive rather than numerical in nature. Unlike quantitative data, they are generally not measurable, and are only gained mostly through observation. Narratives often make use of adjectives and other descriptive words to refer to data on appearance, color, texture, and other qualities.

Qualitative methods of data collection

The most common qualitative data collection methods are:

1. participation observation
2. in-depth interviews,
3. focus groups
4. desk review
5. questionnaires with open ended questions

What forms do qualitative data take?

The types of data qualitative research generates are:

1. field notes
2. audio (and sometimes video)
3. recordings
4. transcripts

In conclusion, quantitative and qualitative research methods differ primarily in;

1. their analytical objectives
2. the type of questions they pose
3. the type of data collection instruments they use
4. the forms of data the produce
5. the degree of flexibility built into study design
6. sample size

Activity

What differentiate quantitative research from qualitative research?

UNIT VII: The Preliminary Pages of the dissertation report

The preliminary pages of the dissertation report should comprise of:

- The title page
- The approval form
- The release form
- Dedication
- The abstract
- Acknowledgement
- Table of contents
- List of tables
- List of figures

The Title Page

The title page is considered as page (i), but is sometimes left unnumbered. Titles are single-spaced and are written in upper case. If the title is more than 1 line, it should break in a logical place for reading. The title page shows:

- Institution granting the degree
- Title of dissertation
- Name of writer
- Purpose of dissertation
- Name of department
- Year of award (see below)



Exploring the effect of non- financial incentives on job satisfaction of teachers at Lubuto and Kayele Secondary schools in Ndola District.

By

Zulu Natalia

Computer No: 714803399

Submitted to the Zimbabwe Open University and the University of Zambia
in partial fulfilment of the requirements for the Degree of Master of
Education

In
Educational Management

Lusaka, Zambia
2016

The Release Form

The is a form that grants the University permission to produce copies of the dissertation and also reserves the author's publication's rights

Signed Approval Form

This serves as official acknowledgement and acceptance of the dissertation as satisfactory. It is signed by your supervisor(s) and an external examiner/programmer/subject/coordinator/lecturer/regional coordinator where applicable. (See Below)

APPROVAL FORM

The undersigned certify that they have read, and recommend to the Zimbabwe Open University and the University of Zambia for acceptance a dissertation entitled "Exploring the Effects of Non-Financial Incentives on Job Satisfaction, A case of Kayele and Lubuto Secondary Schools of Ndola District" submitted by Zulu Natalia in partial fulfilment of the requirements for the Master of Education in Educational Management.

Supervisor: Signed:.....

Date:.....

Programme coordinator: Signed:.....

Date:.....

External examiner: Signed:.....

Date:.....

Dedication (Optional)

This serves as a tribute to or recognition of a specific individual or individuals who have been instrumental in your successful completion of the study.

The Abstract

The abstract is used by potential readers to determine at a glance, the contents of the project. You should present it as a precise and well written summary. Your abstract should contain:

- A clear statement of the problem/problems being researched on.
- The purpose of the study.
- A description of the research design used in the study.
- A description of data collection process.
- A description of data analysis techniques
- A summary of the findings, conclusions, recommendations and suggestions for further research.

Your abstract should be at most a page in length. See below

Zulu .N. (2016). *Exploring the effect of non- financial incentives on job satisfaction of teachers at Lubuto and Kayele Secondary schools in Ndola District.* (Unpublished thesis). Lusaka

ABSTRACT

The study aimed to establish the effects of non-financial incentives such as promotion, material rewards and job autonomy on teacher job satisfaction. Non-financial incentives in this context are incentives given to teachers other than monetary incentives.

A cross sectional survey was employed to collect a quantitative data set. The data was collected using structured interview guides and a five point likert scale questionnaire. Data was analyzed using inferential statistic (ANOVA, CHI-SQUARE) in SPSS version 16.0.

The major findings revealed that promotion has a positive effect on job satisfaction. It was also established that material rewards are positively linked to job satisfaction. The findings of the study further revealed that job autonomy increases innovativeness among teachers hence impacting job satisfaction positively.

The study therefore recommends that: the MGE should involve teachers when coming up with promotion and reward programs. It was further recommended that the MGE should also revise some of its regulations so as to give teachers a bit of freedom which in turn will allow them to be innovative.

Table of contents

Present an outline of the components of your research report. These components include, the preliminaries and these are typed in lower case. They are arranged as follows;

- Title page (i)
- Approval form (ii)
- Release form (iii)
- Dedication (iv)
- Abstract (v)
- Acknowledgments (vi)
- Table of contents (vii)
- List of tables (viii)
- List of figures (ix)
- List of appendices (x)

After the preliminaries you then list chapters and chapter headings and sub-headings giving the page(s) where these are located in your dissertation report. Finally, present the back pages materials, which are references and appendices. For typing you should ensure that :-

- Chapter numbers and preliminary page numbers are typed in Roman numerals;
- Chapter titles and chapter numbers are typed in lower case and are single spaced;
- Margins are 3.8cm on the left and 2.5cm at the top and bottom and right sides;
- Numbering of the pages should be at the center of the bottom edge;
- References and appendices are presented in Arabic numerals and typed in upper case

List of tables

You should show the table number, its title and reference page. This should be done in lower case

List of figures

Anything other than tables should be considered as figure. You should write the figure number, title and reference page. Type these in lower case