MODULE

Application of Research Skills

ACU 07321

Institute of Adult Education
Adult and Continuing Education Studies Department
Bachelor of Adult Education and Community Development – Through ODL

Copyright

Institute of Adult Education

Bachelor of Adult Education and Community Development – Through ODL

P. O. Box 20679,
Dar es Salaam,
Bibi Titi Mohamed Street,
Tel: +255 22 2150838
Email: info@iae.ac.tz
Website: www.iae.ac.tz

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Dr. Julius Chaligha:	Head, Adult and Continuing Education Studies Department
Dr. Julius Challigha:	Institute of Adult Education (Writer)
Dr. Anathe Kimaro:	Institute of Adult Education (Reviewer)
Eric Samba:	Institute of Adult Education (Editor)

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Dr. Michael Ng'umbi

Director

Institute of Adult Education

Contents

About this module

This module has been produced by the Institute of Adult Education. All modules are structured in the same way, as outlined below.

How this module is structured

The module overview:

Dear learner, the module overview gives you a general introduction to the module. Information contained in the module overview will help you determine:

- If the module is suitable for you
- What you will need to know
- What you can expect from the module
- How much time you will need to invest to complete the module.

The overview also provides guidance on:

- Study skills
- Where to get help
- Unit assignments and assessments
- Activity icons
- Units

We strongly recommend that you read the overview *carefully* before starting your learning

The module content:

The module is broken down into units. Each unit comprises:

- An introduction to the unit content
- Terminologies
- Core content of the unit with a variety of learning activities

- Unit reflection
- Unit assignments

Resources:

For those interested in learning more on this subject, we provide you with a list of additional resources at the end of this module.

Your comments:

Dear learner, after completing this module, we would appreciate it if you would take a few moments to give us your feedback on any aspect of this module. Your feedback might include comments on:

- Module content and structure
- Module reading materials and resources
- Unit assignments
- Module assessments
- Module duration
- Module support (assigned tutors, technical help, etc.)

Your feedback will help us to improve this module.

Module overview

Welcome to this module

Dear learner, in our field of study and practice, a turn to Research Skills is at the heart of adult education. Research Skills enables us to explore various concepts in adult education and community development, cement our understanding of adult education research, developing skills on how to write a research proposal, data collection process, analyse and interpret data and production of research report. In this module, unit one, engages you in understanding various concepts related to research in adult education and community development. In unit two, you will learn how to use research guidelines to develop research proposal. Unit three, provides an opportunity to explore collection of data. Importantly, unit four will enable us to understand how to use research guidelines to analyse and interpret data (findings). Unit five, will enable us to understand how to use research guideline to write research report. This module gives us what we need to know about 'research skills' and its related practices. During your training, remain focused. Follow all the instruction provided. Make sure you cover all units and its subsequent assignments. Do not hesitate to contact your facilitators and coordinator in case you need assistance. I hope you will enjoy studying this module. Welcome!

General competence

After completing this module, you should be able to:

- Explain and define various concepts related to research in adult education and community development;
- To use research guidelines to develop research proposal;
- To explore collection of data;
- To understand how to use research guidelines to analyse and interpret data (findings); and
- To understand how to use research guideline to write research report.

Study skills

Essentially, you will be taking control of your learning environment. As a result, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to acquaint yourself with areas such as essay planning, coping with exams, and using the web as a learning resource.

Your most significant considerations will be time and space, i.e., the time you dedicate to your learning and the environment in which you engage in that learning.

Need help?

Dear learner, in the course of your study, you may need help with various issues such as the location of and how to get support from resource centres, clarification of various issues pertaining to your study materials, i.e., modules, and so on. If this happens, you are advised to ask for help from your centre coordinator or facilitator. You can also visit the website of the Institute of Adult Education, which is www.iae.ac.tz, or call +255 22 2150838 and ask for help.

Module assessment

After each unit, you will be required to attempt a one-unit assignment. This is not meant for submission, rather, for reflection on what you have learned in the whole module. You will also do tests and assignments for submission as guided by your module facilitator. Finally, you will sit for semester examinations to accomplish your assessment.

Getting around this module

Margin icons

While working through this MODULE, you will notice the frequent use of margin icons. These icons serve to "signpost" a particular piece of text, a new task or change in activity. They have been included to help you to find your way around the MODULE.

A complete icon set is shown below. We suggest that you familiarize yourself with them and their meaning before starting your study.

 Reflection	 Assessment	 Assignment	 Help
 Learning Outcomes	 Module Outcome	 Help	 Reflection

Unit 1

Concepts Related to Research in Adult Education and Community Development

Introduction

Dear learner, Dear learner, Unit one presents the concepts related to related to research in adult education and community development. It outlines concept such as research. It also provides an opportunity to identify and explain types of research and explain the importance of conducting research adult education context. Welcome.

Learning Outcomes

Dear learner, upon completion of this unit, you should be able to:

- Define concepts such as research.
- Identify types of research; and
- Explain the importance of conducting research in adult education context.

Concepts Related to Research

The following concepts are discussed in unit one.

Research: The term research has been defined differently over time. Research is viewed as 'systematic investigation to increase knowledge and/or understanding' (Merriam and Simpson, 2000). Conceptualising research as a systematic process used to expand knowledge base raises a number of questions, which is vital in understanding research. These questions include:

i) Where does knowledge come from?

ii) What is meant by systematically searching for knowledge?

iii) How and by whom will the knowledge be used? (Merriam and Simpson, 2000, p2).

Research is systematic process because it enables the researcher to identify problem, which needs attention, describing it categorically, explain carefully what it is all about, and predict what might happen while observing the phenomenon. In short, a research is a

systematic inquiry to describe, explain, predict, and control the observed phenomenon. It is an activity of systematic enquiry that seeks answers to a problem, which was identified and addressed. It involves the use of identified methods suitable for the research. Therefore, we can define a research as a systematic process, which involves identifying a research area and its subsequent problem, collection and organizing data, analyse and produce study report. On the hand, research is defined as 'the systematic method consisting of enunciating the problem, formulating hypothesis, collecting the facts or data, analysing the facts and reaching certain conclusions in either form of solution (s) towards the concerned problem or in certain generalizations for some theoretical formulations' (Kothari, 2004, p1).

The main purpose of conducting research is to generate new knowledge on the phenomenon (problem or issues) under scrutiny, ultimately improve the quality of practice. In adult education and community development, the purpose of conducting research entail problem solving, decision making, planning, instructing, evaluating (Merriam and Simpson, 2000). It also involves identifying potential learners, understanding the challenge facing adult learners, developing new curriculum, developing productive market strategies for newly developed adult education programme, addressing immerging challenges, put together programme expansion plan and identifying new opportunities for adult learning. It is important to note here that, conducting research requires commitment, which may lead to improvement in your field of practice. It is the responsibility of the researcher to identify the purpose of his/her research and state it amply. Therefore, to be able to do a good research, the researcher is expected to follows a systematic approach to capture accurate data. The researchers ought to abide with available guideline, ethics and codes of conduct while making observations or drawing conclusions.

There is a need to note that, each research has it is own specific purpose, which guide the researcher to achieve knowledge of phenomena and ultimately contributes to the general body of knowledge. Each research has its own specific purpose and objectives. The essence of understanding the objectives of conducting research may ultimately give the research student skills

on how to identify types of research. In fact, we need to state the objective of conducting research. According to (Kothari, 2004), research objectives may include:

i) To gain familiarity with a phenomenon or to achieve new insights into it (exploratory or formulative research studies);

ii) To portray accurately the characteristics of a particular individual, situation or a group (descriptive studies);

iii) To determine the frequency with which something occurs or with which it is associated with something else (diagnostic research studies); and

iv) To test hypothesis of a casual relationship between variables (hypothesis testing research studies) (Kothari, 2004, p2).

The relevance of discussing research objectives is to have clear understanding of research objectives and it is subsequent categories. It is within that research objective and its subsequent process, the types of research emanates.

Types of Research

It is important to identify and discuss types of research in adult education and community development. The classification differs accordingly basing on the perspective, purpose and objectives under which the research activity is initiated and conducted. It also depends on the general perspectives such as application of research study, objectives in undertaking the research and inquiry mode employed for research.

1. Classification based on Application

a. Pure / Basic / Fundamental Research:

Pure / Basic / Fundamental Research - is a research activity taken up to look into some aspects of a problem or an issue for the first time. This type of research involves developing and testing theories and hypotheses that are intellectually challenging to the researcher but may or may not have practical application at the present time or in the future. The knowledge produced through pure research is sought in order to add to the existing body of research methods. Pure research is theoretical but has a universal nature. It is more focused on creating scientific knowledge and predictions for further studies.

b. Applied / Decisional Research:

Applied research is done based on pure or fundamental research to solve specific, practical questions; for policy formulation, administration and understanding of a phenomenon. It can be exploratory, but is usually descriptive. The purpose of doing such research is to find solutions to an immediate issue, solving a particular problem, developing new technology and look into future advancements etc (Kothari, 2004). This involves forecasting and assumes that the variables shall not change.

Having discussed basic and applied research and gain a glimpse on what it is all about, let us outline the basic differences between basic and applied research.

i) Basic Research can be explained as research that tries to expand the already existing scientific knowledge base. While, applied research is used to denote the scientific study that is helpful in solving real-life problems.

ii) Basic research is purely theoretical; in contrast, applied research has a practical approach.

iii) Basic research is widely applied and used compared to applied research, in the sense that the former is universally applicable whereas the latter can be applied only to address specific problem, for which it was designed and carried out.

iv) Basic research primary focuses on developing scientific knowledge and predictions, while, applied research cement itself on the development of technology and technique with the help of basic science.

v) The basic goal of the basic research is to add some knowledge to the already existing one, while applied research is directed towards finding a solution to the problem under scrutiny.

2. Classification based on Objectives

a. Descriptive Research: Is an attempt to explain systematic a situation, problem, phenomenon, service or programme, or provides information on living condition of a community, or describes attitudes towards an issue. It is used to answer questions of who, what, when, where, and how associated with a particular research question or problem. This type of research makes an

attempt to collect any information that can be expressed in quantifiable terms that can be used to statistically analyse a target audience or a particular subject. Descriptive research is used to observe and describe a research subject or problem without influencing or manipulating the variables in any way. It simply 'portray an accurate profile of a person, events or situation and requires extensive previous knowledge of the situation' (Robson, 2002, p 59). Thus, such studies are usually correlation or observational. This type of research may be flexible and it may employ fixed design.

b. Co relational Research: This is a type of research base on non-experimental research method, in which a researcher measures two variables, understands and assesses the statistical relationship between them with no influence from any extraneous variable. It is undertaken to discover or establish the existence of a relationship/ interdependence between two or more aspects of a situation. For example, adult learner educational background and performance in the college. It is all about establishing a relationship between two variables, educational background and performance in the college. Co relational research is looking for variables that seem to interact with each other. Therefore, when you see that, one variable is changing, you have a reasonable idea how the other variable will change.

c. Explanatory research: the primary purpose of explanatory research is to explain why events occur, to build, elaborate, extend or test a theory. It is more concerned with displaying, explaining and presenting what is already known about particular phenomena. For example, conducting a survey on the factors that contribute to adult learners' satisfaction and establish variables that compel them to enrol in another college of above, similar or lower ranking. The findings of this kind of research helps the organizations take up necessary corrective measures.

d. Exploratory Research: Exploration is an essential part of human nature. It is all about looking out for new things, new destinations, new food, and developing new approach in education. Exploratory research is conducted to find a solution for a problem that has not been studied more clearly, intended to establish priorities, develop operational definitions and improve the final research design. Exploratory research helps determine the best research design, data-collection method and selection of subjects.

For such a research, a researcher starts with a general idea and uses this research as a medium to identify issues that can be the hub for future research. It is often referred to as grounded theory approach or interpretive research as it used to answer questions like what, why and how.

3. Classification based on Inquiry Mode

a. Structured approach: The structured approach to inquiry is usually classified as quantitative research. It is based on predetermined research process - objectives, design, sample, and the questions that you plan to ask of respondents. It is more appropriate to determine the extent of a problem, issue or phenomenon by quantifying the variation for example, stabling the number of adult learners facing difficulty in accessing learner support services.

b. Unstructured approach: The unstructured approach to inquiry is usually classified as qualitative research. This approach allows flexibility in all aspects of the research process. It is more appropriate to explore the nature of a problem, issue or phenomenon without quantifying it. Main objective is to describe the variation in a phenomenon, situation or attitude. For example, description of an observed situation facing adult learners, the historical enumeration of events, an account of different opinions people have about an issue on adult learning, description of adult learning condition in a particular study centre. In many studies, you have to combine both qualitative and quantitative approaches. For example, establishing the popularity of adult learning program and the number learners enrolled in different college. The extent of their popularity is the quantitative aspect as it involves estimating the number of learners enrolled in the programme and calculating the other indicators that reflect the extent of popularity.

4. Other Types of Research

(i) Descriptive v/s Analytical: Descriptive research includes surveys and fact-finding enquiries of different kinds. Descriptive research provides descriptions of the state of affairs, as it exists at any given time. In the process of conducting descriptive research,

the researcher is expected to report about the factors identified in the field without and form of modification of the available details. In this scenario, it is clear that the researcher does not have any control over variables under scrutiny. Methods of research utilized in descriptive research are survey methods of all kinds, including comparative and co relational methods. In analytical research, the researcher has to use facts or information already available, and analyse these to make a critical evaluation of the material (Kothari, 2004).

(ii) Applied v/s Fundamental: Research can either be applied (or action) research or fundamental (basic or pure) research. ***Applied research*** aims at finding a solution for an immediate problem facing a society or an industrial/business organization, whereas fundamental research is mainly concerned with generalizations and with the formulation of a theory. Research concerning some natural phenomenon or relating to pure mathematics are examples of fundamental research. Other example includes research studies on human intended to make generalizations about human behaviour. Research aimed at certain conclusions facing a concrete social or business problem is an example of applied research. Research to identify social, economic or political trends that may affect a particular institution or the copy research (research to find out whether certain communications will be read and understood) or evaluation research are examples of applied research. Thus, the central aim of applied research is to discover a solution for some pressing practical problem, whereas basic research is directed towards finding information that has a broad base of applications and thus, adds to the already existing organized body of scientific knowledge (Kothari, 2004).

(iii) Quantitative v/s Qualitative: Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. E.g. Studying the number of enquiries received for room bookings through different modes like internet, emails, calls, letters, or different sources like travel and tours operators, companies and government organizations etc. Qualitative research, on the other hand, is concerned with qualitative phenomenon. That is phenomena relating to or involving quality or kind. For example, studying the stress levels among adult learners and establishing reasons for varying performances in their different learning

sessions. The same learner may perform differently with the change of learning session timings. It can involve performing research about changing preferences of adult learner as per the change of season. Another example is attitude or opinion research. These are research intended to find out how people feel or what they think about a particular subject or institution. This is a qualitative research in nature. Through behavioural research, we can evaluate the diverse factors which motivate people to behave in a particular manner or which make people like or dislike a particular thing. It is therefore important that to be relevant in qualitative research in practice the researcher should seek guidance from qualified individuals from the field opted.

(iv) Conceptual vs. Empirical: Conceptual research is associated with theoretical idea(s) or presupposition and is generally used by philosophers and thinkers to develop new concepts or to get a better understanding of an existing concept in practice. According to Kothari (2004, p4) 'empirical research draws together the data based on experience or observation alone, often without due regard for system and theory'. It is data-based research, coming up with conclusions which are capable of being verified by observation or experiment. It is also known as experimental research as it is essential to get facts first-hand, at their source. An experimental design is then developed based on variables that can modify or concur the results to prove that he has given a valid statement. This also affirms that, the researcher has a reasonable control over the variables and can get different results by giving different values to them. Empirical research is appropriate when proof is sought that certain variables affect other variables in some way. Evidence gathered through experiments or empirical studies is today considered to be the most powerful support possible for a given hypothesis (Kothari, 2004).

The importance of Conducting Research

Let us focus our attention of the importance of conducting research in the field of adult education and community development. The main purpose of conducting research in an applied field is 'to improve the quality of practice of the discipline' (Merriam and Simpson, (2000, p 7). This kind of improvement ought to have

significant impact to firm and those who are involved. Research enables the researcher to find answers to things that are unknown. It helps the researcher to fill gaps in knowledge. It helps to improve various practices in adult education and community development. Therefore, conducting research in this field will enable us to understand on how to build knowledge and facilitate efficient learning in adult education and community development. It helps us to understand various issues related to adult education and community development. It may help us to establish the truth about adult learning and enable us to seek various opportunities in adult education as a field of practice. Let us consider the importance of research in the wider context. It is important to note that, no matter how many experiences you have or how diverse your social circle is; there are things you do not know. Therefore, research will help us to unlock the unknowns, to explore the world from different perspectives, and to gain deeper understanding of the world around us. Hence, research is important in the following ways:

i) Research expands your knowledge base. Research provides opportunity to learn more and expand knowledge about a topic or area of your interest. Essentially, research opens up new opportunities for learning and growth.

ii) Research gives you the latest information. It encourages you to find the most recent information available. Research helps us to stay update and prevents us from falling behind. It enables us to paint the whole picture of our field of practise, and be able to equip ourselves on the subject and build on ideas.

iii) Research helps you know what you are facing (up against). It gives you traction on understanding the nature of the competitors you are facing in your field of practice. Essentially, it helps the institution to formulate plans and strategies.

iv) Research builds your credibility. Doing research gives you a solid foundation on which you can build your ideas and opinions. It gives you confidence to speak about the facts obtained accurately.

v) Research helps you narrow your scope. Most of the time, the amount of work ahead of you is overwhelming. Whether you are writing a paper or formulating a business plan, it is important to narrow the scope at some point. Research helps you identify the most unique and/or important themes. You can choose the themes that fit best with the project and its goals.

vi) Research teaches you better discernment. Doing research helps, you filter through low-quality and high-quality information. The more research you do on a topic, the better you will get at discerning what is accurate and what is not. You will also get better at discerning the gray areas where information may be technically correct but used to draw questionable conclusions.

vii) Research introduces you to new ideas. The more you research, the more viewpoints you will come across. Research might change your mind about something. It helps to figure out how to position ideas as the best ones.

viii) Research helps with problem solving. Research helps to look outside your box for help. It depends on what kind of issues you are dealing with. You might just need more information on the subject matter and generate good information, as well as apt solution.

ix) Research helps you reach people. Research is used to help raise awareness of issues like climate change, racial discrimination, gender inequality, and more. Facts obtained from the field proves that climate change is getting worse. The public needs to know what the facts are, so they have a clear idea of what "getting worse" or "not progressing" actually means.

x) Research encourages curiosity. Research opens you up to different opinions and new ideas. It also builds discerning and analytical skills. The research process rewards curiosity.

Unit Reflection

After the completion of this unit reflect on the following:

1. The meaning of research in adult education and community development context;
2. Identify types of research in adult education and community development;
3. The importance of conducting research in adult education in community development.

Unit Assignment

Do the following questions; remember to put your work in your portfolio:

1. In your own words, explain the basic features of research.
2. In your experience as adult learner, what are the purpose of conducting research in the field of adult education and community development?
3. By using your experience as an adult learner, explain the major objectives of conducting research in the field of adult education.
4. The classification of research differs accordingly. In your own words, describe briefly the classification of research.
5. 5. Explain how the field adult education and community development can benefit from research.

Unit 2

Use Research Guideline to Develop Research Proposal

Dear learner, Welcome to unit two. In this unit, you will learn the whole process of developing a research proposal. Please, note that, the more you read and commit yourself on learning a particular topic, the more you will know more about the essence of the topic. You have to take a centre stage in your learning process. Take your time to think about research, and the whole process of developing a research proposal. Think about the area of your interest, issues you want to address and begin explore it. Choose an area of interest, which you feel you, can be able to make a difference. Find out components of a research proposal and establish how you develop one. Make sure you remain focused on the learning process. Do not hesitate to consult your facilitator wherever you face any difficulty. Enjoy your lesson.

Learning Outcomes

Upon completion of this unit, you should be able to:

- Define the term 'research proposal';
- Describe components of a research proposal; and
- Write a research proposal.

Research Proposal

A research proposal is a plan on what the researcher intends to do. The research proposal lays out the problem for research. It describes exactly how the research will be conducted, and outlines in precise detail the resources in terms of factual and instrumental the researcher expects to use to achieve the desired objectives. A research proposal is a blue print of future activities of a research project. Once a research proposal is approved, we can define it as a document, which describes the necessary features, and the

strategies whereby the investigation will be conducted and produce the report.

The academic research proposal is a structured presentation of what a research student plan to do in research and states categorically how he/she plan to do it. The term "research proposal" has been used differently, depending on the intention of the researcher. Other similar terminology includes:

i) Research outline;

ii) Synopsis of research;

iii) Plan of research;

iv) Research/project proposal; and

v) Thesis plan.

Before we embark on discussing the components of the research proposal, let us think about the area of the study, the criteria ought to be used to select the topic/area, and formulating the working title/tentative title.

Selection of the area of study

Area of study is any topic/issues of interest. It can be any topic in your field of practice such as education, sociology of education, geography, history, engineering, law etc. Having identified area of your interest, you are expected to:

i) To read various literature related to your area of interest; make sure you become familiar with what other researchers have published about your topic area;

ii) Narrow your topic and develop specific research questions;

iii) Identify a working hypothesis to investigate; and

iv) Keep record of the information obtained. Make sure all you keep complete record of the bibliography for each source; record all key notes about what is in each source.

The criteria used to select the topic/area

The process of selecting a research topic needs your attention. It is a process requires you to go from a broad topic area to a specific research question or questions. You have pay attention on:

i) Choosing wisely something, you are genuinely interested in studying it.

ii) Do not pick a topic because it seems to be simple to do it;

iii) Think about doing something caught your interest – in the community, in the class, in your field of practice. Think of the key issues you want to address and explain why you think it is relevance to you and the community.

iv) Make sure you work closely with your supervisor/research adviser. He/she can help to decide whether topic is likely to succeed or not.

Formulating the working title/tentative title

There is a need to formulate a working title during the early stages in the research process. The working title helps to cement the focus of the study. The working title has similar function in the same way the research problem does. When you formulate your working title, make sure that:

i) The title clearly indicates what your research is about;

ii) Keep it brief (do not exceed 20 words), informative, and attractive;

iii) It should include relevant descriptive keywords that readers are most likely to search for;

iv) Avoid using jargon as it might make the title too complicated and difficult to understand; and

v) Follow the guideline provided in your department or research unit.

The example of working title

i) The Effect of Flipped-Classroom in Teaching for Secondary Students;

ii) Model Building in Biology: Its Effects on Student's Critical Thinking;

iii) The Use of Role Playing in Teaching Characterization for College student; and

iv) Factors that Affecting the Students Attention in Modular Learning of College Students in Lake Zone.

Components of Research Proposal

The components of research proposals differ in terms of their components and presentation. It depends on much the faculty, college, school or University requirements. There is no universal set template for a research proposal. Therefore, as a future researcher, make sure you contact your research coordinator, and/or research supervisor concerning the format you are expected to use for your research proposal. Therefore, for the success of this module, the following components of a research proposal including the title (see section 2.3.3- 2.3.4 above); Introduction (the background); statement of the problem; Objectives of the study (research); Research questions; significance of the study; limitation and delimitation; scope of the study; literature review; research methodology and bibliography/reference.

The Title of research proposal

The researcher is expected to develop a working title, which explains the research project. The title ought to capture the main concepts of the study and communicate clearly the focus of research. A well-developed title, should make a lasting impression to the reader. When developing your proposal, avoid too long title, and or self-contradictory title. As researcher, you should be feeble and accommodate all the suggestions from the reviewers and your research adviser (supervisor). Make sure you follow the guideline provided in your college.

Introduction (the background)

The introduction (background) to the topic of your interest ought to be focused. It has to be clear and precise. It must provide an in-depth explanation of the key points of your subject. It has to provide current developments in the field and their timelines. It should explain why you chose the topic. It has to explain why you think your research the topic is required. Explain thoroughly how this study can influence the subject matter (knowledge contribution). The impact and the significance in a subject area

must be clearly outlined. The introduction needs to portray clearly in a scientific way to picture the problems you are addressing. Your arguments must be supported by documentary evidence on the subject matter. The citations must be used carefully. Take extra care to use and record them accordingly. Therefore, the introduction ought to cover the following:

i) A clear and unambiguous statement outlining core research issue and the purpose of the proposed study;
ii) Specific background information clearly signifying to the importance and necessity of research on the issue your study is addressing;
iii) Focused explanation of the rationale for the choice of the proposed research topic;
iv) Credible discussion and explanations on the benefits of the proposed research area;
v) Detailed explanation on the identified key variables of the proposed research topic;
vi) Credle hypothesis statement and or research questions; and
vii) Arguments indicating probable limitations and obstacles to the proposed research.

2.4.3 Statement of the problem

A statement of the problem is used in research work to outlines the problem addressed by a study. It explains briefly the problem that the research will address. Identifying and defining a research problem is vital in the whole process of developing a research proposal. The research problem Research Skills 25 states firmly what the researcher wants to solve and what questions wishes to answer. It outlines an area of concern, a gap in the existing knowledge and issues that need investigation. The main objective of writing a statement of the problem is to make your study focused. It helps you to change the general problem into focused, well-defined problem; one that can be resolved through focused research and careful decision-making. Evidence suggests a good research problem should have the following characteristics:

i) It should address a gap in knowledge;

ii) It should be significant enough to contribute to the existing body of research;

iii) It should lead to further research;

iv) The problem should render itself to investigation through collection of data;

v) It should be of interest to the researcher and suit his/her skills, time, and resources; and

vi) The approach towards solving the problem should be ethical (https://www.editage.com).

When you write a statement of the problem, make sure that it is convincing. A convincing statement of problem ought to provide a thorough description of the intended goal or the reality you are dealing with. It has to explain properly existing reality. You should explain how this reality should be. It should also describe conditions (issues) that hinder the goal, and explain how the existing reality hampers the goals. Moreover, it should explain the possible consequences. Ultimately, the researcher should suggest mechanism that would help to improve the current situation and how to achieve the intended objectives.

A sample of statement of the problem

> Continuing with this current disbursement method prevents consistency and causes decisions to become grossly political, which in turn inhibits the achievement of the goals of the funds. Developing a more informed disbursement system could help better implement the consistency focus of the ministry and at the same time help the ministry better monitor and evaluate its funds.
>
> This proposed research aspires to explore options for a new funds disbursement system that would focus on consistency. To do this, the researcher will carry out a full stakeholder analysis and use it to propose appropriate policy interventions (https://www.editage.com).

Objectives of the study (research)

The study objective is an active statement about how the study will answer the specific research question. Research objectives state the outcomes, which the researcher intends to achieve by conducting

research. Therefore, it is the responsibility of the researcher to create focused research objectives, which can help to achieve the overall research goals. The rationale of research objectives is to drive the operation of research project, including data collection, analysis and conclusions. It helps the researcher to narrow the focus of the research and key variables, guiding through the research process.

Once the researcher states categorically, the research objectives, he/she is obliged to align it with the research questions. In other words, the researcher has to turn research objectives into research question. The objectives ought to indicate the aim of the research study. It guides the researcher on the steps that he/she can take to achieve the aim of the research. It is the responsibility of the researcher to develop objectives, which is specific, measurable, achievable, relevant and time-bound. In the process of developing and stating the research objectives, the researcher has to:

i) Pinpoint the major focus of your research;
ii) Break down your research focus into research objectives;
iii) Write your research objectives in the SMART format;
iv) Keep your number of objectives limited; anf
v) Use action verbs such as Assess, Determine, Calculate, Compare, Explain, Establish, Describe etc.

Research questions and or Hypothesis

A research question is a question that a researcher sets out to answer. It pinpoints exactly what the researcher wants to find out in your research work. A good research question is essential to guide your research paper, dissertation, or thesis. A good research questions is expected to be:

i) Focused on a single problem or issue;
ii) Researchable using primary and/or secondary sources;
iii) Feasible to answer within the timeframe and practical constraints;
iv) Specific enough to answer thoroughly;
v) Complex enough to develop the answer over the space of a

paper or thesis; and

vi) Relevant to your field of study and/or society more broadly.

When the researcher is in the process of developing research question, he/she needs to observe the following:

i) Choose an interesting general topic. Most professional researchers focus on topics they are genuinely interested in studying;

ii) Do some preliminary research on your general topic;

iii) Consider your audience;

iv) Start asking questions; and

v) Evaluate your question.

Hypothesis

Hypothesis is an assumption or some supposition to be proved disproved. It may be a question, which the researcher needs to answer. It is tentative explanation for certain behaviours, phenomena, or events that have occurred or will occur. It is an imaginary statement of the relations between two or more variable or an education guess. According to Kothari, (2004),

> ... hypothesis may be defined as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of established facts (Kothari, (2004, p.184).

Kothari (2004) mentioned two examples of hypothesis, including

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

Note that, hypothesis has to be objectively verified and tested. Cohen et.al (2007) claims that, a good hypothesis are statements about the relations between variable; and that, it carry clear implications for testing the stated relations. Hypothesis also discloses well-suited information with current knowledge. They are expressed in carefully phrased statements. For example: Let us assume that, 'social class background determines academic achievement'

Look at the two variable 'social class' and 'academic achievement'. Both can be measured. According to Cohen et.al (2007), hypothesis as a tool of research, has the following importance:

i) They organise the effort of researchers. (It outline what the researcher have to do, understanding the problem with clarity, it provide framework for collecting, analysing, and interpreting data);

ii) It is the working instruments of theory;

iii) They can be tested, empirically or experimentally, hence resulting in confirmation, or rejection; and

iv) Hypothesis are powerful tool for advancement of knowledge because if allow us to get out of ourselves.

Evidence suggests that, hypothesis is ought to have the following characteristics:

i) Hypothesis should be clear and precise;

ii) Hypothesis should be capable of being tested;

iii) Hypothesis should state relationship between variables, if happens to be a rational hypothesis;

iv) Hypothesis should be limited in scope and must be specific;

v) Hypothesis should be stated as far as possible in most simple terms so that the same is easily understandable by all concerned;

vi) Hypothesis should be consistent with most known facts i.e., it must be consistent with a substantial body of established facts;

vii) Hypothesis should be amenable to testing with a reasonable time; and

viii) Hypothesis must explain the facts that gave rise to the need for explanation (Kothari, (2004, p.185).

Significance of the study

The significance of a study is its importance. It is the contribution and impact of the study on the research field. It is an explanation on the benefits from the research findings and its justification. When writing significane of the study, keep in mind the following sequence:

i) Consider the study gaps your study is addressing;

ii) Look at your research from general to specific approach in terms of its expected results; and

iii) Start writing identified points connecting them to the study.

When you write the significance of the study, you may use the following opening lines:

i) The particular significance of this study lies in the....

ii) We argue that this study moves the field forward because....

iii) This study makes some important contributions to....

iv) Our finding deepens the current understanding about ... (cwauthors.com)

When writing significance of the study, there is a need to avoid:

a) Do not make it too long;

b) Do not repeat any information that has been presented in other sections;

c) Do not overstate or exaggerate the importance;

d) It should match your actual findings.

Example The findings of this study will help improve the design of the afforestation technique in a way that balances local fauna, particularly pollinators, which are highly sensitive to microclimatic changes.

Limitation and delimitation

Research limitations involve the weaknesses of the study, based on factors that are often outside of your control as the researcher. These factors could include things like time, access to funding, equipment, data or participants. It is the difficulties, flaws or shortcomings, which can affect the achieving of the envisioned study objectives. It is an imposed restriction, which is essentially out of the researcher's control. It might emanate from unavailability of resources, small sample size, flawed methodology, etc. It is important to note that, there is no study, which is flawless. Limitations of study outline possible weaknesses, which are out of the researcher's control. The researcher has to list the limitations faced in the research process. Listing the flaws faced, is an indication of honesty, transparency and understanding of the topic. These limitations are closely associated with the chosen research

design, statistical model constraints, funding constraints, or other factors.

Delimitation

The delimitations of a study refer to the scope of the research aims and research questions. It focuses on the definitions that the researchers decide to set as the boundaries or limits of his/her study's aims and objectives so that it does not become impossible to achieve. Delimitations are in the researcher's control. It is mainly concerned with the study's theoretical background, objectives, research questions, variables under study and study sample. Delimitations are not positive or negative but rather a detailed account of reasoning which enlightens the scope of the study's core interest. It is related to research design and underpinning philosophical framework.

Scope of the study

The scope of the study refers to the basics that will be covered in a research project. It describes the boundaries of the research. The researcher needs to decide the scope of his/her study in the preliminary stages. The main purpose of the scope of the study is to explain the extent to which the research area will be explored and specifies the parameters, which will be observed in the study. It enables the researcher to define what the study will cover and the elements that it will not. Thus, while writing the scope of the study cover issues such as:

i) Time period: State the time periods the study will cover.

ii) Geography: The researcher should state the specific aspect of the data that needs to be collected like the geographic locations and the variables.

iii) Research population: The sampling plan must clearly indicate the sample universe, target population, profile and sample size with justification.

iv) Theories: The researcher should state the academic theories that are being applied to the data collected. This is presented in the 'theoretical framework' section.

v) Purpose: The scope of the study must indicate the purpose

behind it. It must briefly define the larger picture, that is the overall goal the researcher is trying to achieve.

vi) Limitations: It is impossible to avoid roadblocks in research. Every research is restricted in scope and is subjected to certain limitations. By acknowledging these limitations and how they are restricting the study makes its findings even more credible (Chetty, 2020).

Literature review

Literature reviews is an academic writing representing the academic literature on a specific topic of interest. It is a critical evaluation of the publication or summary of the previous research on a topic. It provides an overview of current knowledge, allows the researcher to identify relevant theories, methods, and existing gaps to be addressed in research. During the process of writing the literature review, the researcher is expected to:

i) Search relevant literature on the topic of interest;

ii) Evaluate the sources;

iii) Identify themes relevant to your topic, debates, and knowledge gaps;

iv) Outline the literature (follow the chain of your study objective); and

v) Write your literature not in summary form but rather in analytical, synthetical and critically evaluate it to paint a picture of what is known, and what is not yet known which your study intends to address.

Research methodology

Research methodology is the specific procedures or techniques used to identify, select, process, and analyse information about a topic. It is the process of turning the researchers' idea into a comprehensive study that can produce valid and reliable result scientifically. It is a set of specific procedures or techniques, which the researcher uses to identify, select, process, and analyse information about a topic. It is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles

associated with a branch of knowledge. The researcher has to indicate clearly the nature of his study. He/she have to indicate if the study is qualitative (descriptive data) or quantitative in nature (quantifiable data). It is also important to decide the methods that can be used in the data collection process and its associated logistics.

Bibliography/reference

A list of references is prepared by listing out the books, journals, articles, or other documents that you have cited in the research proposal. This list has to be arranged in alphabetical order by the author's last name. Note that, there are different styles of formatting references and you should check the guidelines to see if any style has been specified. For the success of this module, you advised to use APA style provided in your computer. You could also consult your research supervisor.

Write Research Proposal

A research proposal should contain all the key elements involved in the research process and include sufficient information for the readers to evaluate the proposed study. You can manage to write a convincing research proposal by answering the question provided in Table 1.

Table 1: Guiding questions for developing research proposal

Question to be asked	Steps to be taken	Elements of the step
What is the problem? Why should be studied?	Selection and statement of the problem	- Problem identification - Problem prioritization - Justification
What information is already available?	Literature review - Sources -Reviewing	-Sources -Reviewing

Why do conduct research? What is the achievement of the research?	Formulation of aim and objectives	- Aim, goals -General and specific objectives - Hypothesis
How to carry out the research? How to collect data and information? Wherefrom to collect data and information?	Research methodology	- Variables - Types of the research - Data collection techniques - Sampling - Data analysis process, plan -Data processing plan -Data interpretation process, plan
Who will collect and when?	Work plan	-Personnel, manpower - Timetable
How will be monitored? How the research findings will be used?	Research administration plan	- Administration - Monitoring - Identification of potential users
What and how much resources are needed? Who will provide the resources?	- Budget -Funding - Organizations	3 Ms: Man, materials, money - Fund collection, fund raising
Who will submit? How to submit? Where to submit?	- Proposal preparation - Proposal presentation - Appropriate authority	- Researcher - Proposal - Presentation techniques

Source: Writing Winning Research Proposal 28022019.pdf

Prospective researcher has to go through all question provided in Table 1 and produce a comprehensive answer in area of his choice. The answer to the questions provided has to be in their area of their choice. During the process of writing his/her proposal, the researcher should provide information on the listed subheading. These subheadings include:

a) Title,
b) Introduction,
c) Statement of the problem,
d) Objectives of the research,
e) Research question/ Hypothesis,
f) Rationale/justification/significance of the research,

g) Scope and limitations of the study,
h) Operational definitions of terms used,
i) Review of literature,
j) Methodology Used,
k) Time schedule/work plan,
l) Budget/estimated cost built up,
m) Organization of the report/chapter outline,
n) Bibliography/References,
o) Conclusions, and
p) Appendix.

The researcher must abide with the guidelines provided in the department, faculty, college and the advice from his/her research adviser/supervisor.

Unit Reflection

I hope you have successfully learnt from this unit. Before proceeding to the next unit, assess yourself by answering the following reflective questions.

i) As a researcher, what are the component of academic research proposal?
ii) What is literature reviews? Discuss the relevance of literature reviews in the whole process of developing research proposal.
iii) The choice of research area depends much on the researcher's interest. Tell us your view on this statement.
iv) The research objectives present direction of the research. Meditate careful about this statement.

Unit Assignment

Attempt the following questions and put your work in your portfolio:

1. Identify and discuss vital criterion used in the selection of research topic/area.
2. As researcher in the field of adult education and community development, explain importance of research question.
3. What is a working title? Discuss key issues the prospective researcher is expected to take into account when formulating the working title.
4. Discuss the relevance of documentary evidence in the whole process of developing a research proposal.
5. What is a research problem? Describe characteristics that can be used to determine the relevance of a research problem.

Unit 3

Collect Data

Introduction

Dear learner, Welcome to unit three. In the previous unit, you have spent time learning the whole process of developing a research proposal. In this unit, you have to focus your attention on the data collection. Ask yourself about the meaning and importance of data. Think about preparation of data collection tools, the criteria and relevance for developing data collection tools. Find out how you can manage to use the tools developed. Make sure that you consult different reading materials. Do not hesitate to consult your module facilitator wherever you get into any difficult about this unit.

Learning Outcomes

Dear learner, after completion of this unit you should be able to:

- Define the term data;
- Sample and sampling procedure;
- Prepare data collection tools; iv. Use data collection tool to collect data.

The Meaning of Data

Data is a facts and statistics collected together for reference or analysis. It is information, especially facts or numbers, collected to be examined, considered, and used to help decision-making. It may be information in an electronic form that can be stored and used by a computer. In research, data are the raw materials collected, processed and studied in the undertaking of research. It can be any information that has been collected, observed, generated or created to validate original research findings. Data is used to make meaning on what has been found in the field. These data include primary data generated or collected by the researcher, or secondary data collected from existing sources and processed as part of the

research activity. Research data may include documents, spreadsheets, laboratory notebooks, field notebooks, diaries; questionnaires, transcripts, codebooks; audiotapes, videotapes; photographs, films; test responses; slides, artefacts, specimens, samples; collections of digital; outputs; data files; database contents (video, audio, text, images); models, algorithms, scripts; Contents of an application (input, output, log files for analysis software, simulation software, schemas).

Sample and Sampling Procedures

A sample is a strategically and systematically identified group of people or events that meets the criterion of representativeness for a particular study (Merriam and Simpson, 2000, p.57). A sample comprises research participants selected from the study population. It part of the whole population (unit) to represent the study population. Before embarking into the sampling process, there is a need for the research to define the population on which the study will focus. The study population comprises all the possible respondents for the study.

Population is defined as "universe of elements from which the sample elements are drawn. It can be a literal population (i.e. of people) but is also used more generally (e.g. could be the population of all hospital in a given region)" Robson, 2002, p.550). Therefore, the sample is a small group selected to represent the whole population. Meanwhile, to determine the size of the sample, the researcher has to consider the purpose of the study and the nature of the population under scrutiny (Cohen et al, 2007; Kothari, 2004). The author further claims that, "a sample size of thirty is held as a minimum number of cases if researchers plan to use some form of statistical analysis on their data" (Cohen et. al, 2007, p.101).

Sampling Techniques

The nature and objective of the study helps the researcher to determine sampling technique relevant for the project you are dealing with. Sampling techniques can be broadly divided into two types: random sampling and non-random sampling.

Random sampling

Probability sample – the researcher select the respondents randomly from the wider population. These are representatives of the wider population of which the researcher can be able to make generalization. In contrast, 'a non-probability sample deliberately avoids representing the wider population; it seeks only to represent a particular group, a particular named section of the wider population such as class of student' (Cohen et.all, 2007, p.110).

Simple random sampling – each member of the population under study has equal chance of being selected. It is selection of the respondents at random from the population. Each selection is entirely independent from other member of the population. It can be done by picking names randomly from a roster of names or pick names from a container until the you meet the expected number you required.

Systematic sampling –it is a modification of simple random sampling. It involves the researcher to select respondents from the list provided in a systematic manner. For example, ' if from the population of, say 2000, a sample of 100 is required, then every twentieth person can be selected' (Cohen et.all, 2007, p.111).

Stratified sampling – in the process of using this strategy, the researcher has to divide the population into homogeneous groups, which contains subjects with similar characteristics. Moreover, the researcher has to derive characteristics from the wider population, which must be included in the sample. If the researcher choose to use stratified sampling, he she is excepted to: first, identify features that appear in the wider population, which needs to feature in the sample; second, the researcher judgement is required to randomly sample within those group. For example, the study population includes 100 tutors in a selected college. Both males and female respondents expected to be selected. The academic qualifications for these tutors are divided into three strata including Diploma, Bachelor and Masters Degree. For the success of the study, the research can select one strata such as those with Masters Degree – both male and female as a sample.

Cluster sampling – the researcher can use cluster-sampling procedures when he/she realizes that the population for the

proposed study is large and widely dispersed. Imagine that, we want to conduct study on the level of fitness for secondary schools' students across Tanzania mainland. In this scenario, it is impractical to select students randomly. You cannot travel to every school. Therefore, to achieve the intended objective, the researcher has to select a specific number of schools and test all students. It advised, to divide the nation into zones, and then from each zone, the researcher can pick one or two school, depending on the time available and other basic resources. It is also important to make sure that all zones are equally represented. Each cluster has to be represented in the study.

Non-probability sampling - involves the researcher targeting a particular group, in the full knowledge that it does not represent the wide population and it simply represent itself (Cohen et. all, 2007). It is used for a small-scale research especially ethnographic oriented study. Non-probability sampling includes, convenience sampling, quota sampling, dimensional sampling, purposive sampling and snowball sampling.

(i) Convenience sampling – (accidental or opportunity sampling. When employing this technique, the researcher is expected to choose the nearest individuals who are accessible and ready to serve as respondents and continue that process until the required number of respondents is obtained. The researcher can simply choose respondents whom he/she can access easily. Convenience sample, does not seek to represent the whole population, but rather representing itself. Its finding is not generalizable.

(ii) Quota Sampling - According to Cohen et. all, (2007) quota sample strives to represent significant characteristics (strata) of the wider population. It seeks to represent a specific portion of the wide population. For the researcher who intend to employ quota sampling, they are expected to:

a. Identify those characteristics (factors) which appear in the wider population, which must also appear in the sample (e.g. males and female)

b. Identify the proportions in which the selected characteristics appear in the wider population, expressed as percentage;

c. Ensure that the percentage proportions of the characters selected from the wider population appear in the sample (Cohen et. all, 2007, p.114)

(iii) Purposive Sampling – It involves the researcher on his/her wishes to pick the cases to be included in the sample based on their judgement. These are respondents who hold specific roles and responsibility, which cannot be complemented with any other respondents. It can involve respondents such as college principals, senior manager of secondary schools, student representatives etc. It involves respondents, who are knowledgeable, those with professional responsibilities, power and expertise.

(iv) Dimensional Sampling – is a further refinement of quota sampling. If the researcher opts for this sampling procedure, he/she have to identify diverse features of interest in a population and obtain respondent of every combination of those factors. The best example is studying social relations in the community of immigrants, which involves first, second and third generation Indian in Tanzania.

(v) Snowball Sampling – involves the researcher choice of small number of respondents who possess qualities of interest. These respondents are then used to inform the researcher on other possible respondents, who qualify for discussion, and involvement in the study. Similar procedures can be repeated until the researcher obtains adequate number of respondents in the study. This is a very useful sampling technique especially when the researcher is facing some difficult in accessing difficult population.

Planning a sampling Strategy

When the researcher plan the sampling strategy, is advised to follow the following strategy:

i) Decide whether you need a sample, or whether it is possible to have the whole population; ii. Identify the population, its important features (the sampling frame) and its size;

ii) Identify the kind of sampling strategy you require (e.g. which

variant of probability and non-probability sample you require);

iii) Ensure that access to the sample is guaranteed. If not, be ready to modify the sampling strategy (step 2);

iv) For probability sampling, identify the confidence level and confidence interval that you require. For non-probability sampling, identify the people whom you require in the sample;

v) Calculate the numbers required in the sample, allowing the non-response, attrition, and sample mortality, i.e. build in redundancy; and

vi) Be prepared to weigh (adjust) the data, once collected (Cohen et all, (2007, p.117).

Preparation of Data Collection Tools

Data collection tools are very important for the success of the research project. The quality of the data collection tools may determine the quality of the data collected. Data collection tools are devices used to gather data such as questionnaire, computer assisted interviews. Therefore, the researcher has to develop data collection tools relevant to his/her study. The information obtained from the field is expected to provide concrete answer to the proposed research questions and its subsequent objectives. The researcher needs to think carefully and choose the most appropriate instrument for data collection relevant to the study objective and its design. Therefore, when you construct data collection tools make sure you observe the following:

i) Define and list all the specific objectives or research questions for study.

ii) List all the associated questions from each objective or research questions that need to be answered through the study.

iii) List the key information required to answer the research questions formulated.

iv) Formulate questions to acquire such information.

Note that, the choice of data collection methods depends much on the kind of research questions the researcher is seeking to answer, the time and resources available. Therefore, preparation of tool has to be guided by research question and its subsequent objective. When preparing these tools, you have to consider the method you

want to use in data collection process. These tools may include questionnaire, interviews, checklists, observation, and survey.

Data Collection Methods

Data collection methods are technique used by researchers in the process of obtaining data for their respective study. The information obtained includes primary data and secondary data. According to Kothari, (2004), "primary data are those, which are collected afresh and for the first time, and thus happen to be original in character, while, secondary data are those which have already been collected by someone else and which have been passed through the statistical process" (Kothari, 2004, p. 95). It is the responsibility of the researcher to decide on the type of data required for study basing on the nature and objectives of the study. For the success of this module method for collecting primary data such as observation, questionnaire, and schedules are discussed.

i. Observation method – is widely used. It involves the researcher to observe various issues randomly or systematically. Observation needs careful planning and administration. This method is very useful in minimizing bias, as the researcher observe and record the phenomenon under investigation without any influence. The information obtained relates to what is happening in the field in that particular time. This method is independent from the respondent's willingness to participate in the study. Despite the advantage mentioned, this method is expensive and it require seriousness during its uses. It also provides limited information and it may be affected by unforeseen factors.

The category of observation methods includes structured (standardised observation) focus om outlining the units to be observed, style of recording and standard condition under which the information obtained. While, unstructured observation takes place without prior determination of issues to be observed. It occurs naturally. Furthermore, observation can either be participant of non-participant. The distinction depends much on the researcher involvement and participate with the respondents or not. When applying participant

observation, the researcher interacts with the respondents and act as part of the community involved in the study. While, non-participant observation the researcher works with those involved without the knowledge of the respondents that they are being observed.

According to Kothari (2004) the merits of participant observation include:

(a) The researcher is enabled to record the natural behaviour of the group;

(b) The researcher can even gather information which could not easily be obtained if he observes in a disinterested fashion; and

(c) The researcher can even verify the truth of the statement made by informants in the context of the questionnaire or schedule (Kothari, 2004, p.97).

ii. Interview Method - Interview as a data collection method involves the researcher asking questions, with the expectation of receiving response from the respondents. This method is divided into three type, which include structured, semi-structured and unstructured interview.

The difference between the three types of interview is based on the degree of structure or standardization of the interviews.

(a) Structured interview – is characterised by predetermined questions with fixed wording. It uses open-response questions.

(b) Semi-structured interview – it has predetermined questions, but the sequence of asking questions can be modified to suit the reality the researcher id facing. In some cases, the researcher can change question wording (customized), some questions can be omitted, or additional questions included.

(c) Unstructured interview – It can uninformal interview. The researcher has area of concern in mind, and he/she can let the conversation take place naturally (Robson, 2002).

Researchers are advised to observe the following when preparing to carryout structured interviews:

(i). Appearance – dress in similar way to those you will be interviewing;

(ii) Approach – be pleasant. Try to make the respondent comfortable;

(iii) Familiarity with questionnaire/ interview schedule- view yourself as an actor, with interview schedule as your script. Know it thoroughly.

(iv) Question wording – use the exact wording of questions and keep their sequence;

(v). Fixed-alternative response questions – allow only the standard alternatives

(vi). Open-ended response questions either code immediately or record the answers exactly for later codding. Don't make cosmetic adjustments correct or fabricate (Robson, 2002, p.253).

iii. Questionnaire – if the researcher chooses use questionnaire, he/she has to prepare a number of questions in a definite order using a tablet or set of forms. The respondent has to respond to the questions at his/her own convenience (Newell, 1993). When the researcher plans to use questionnaire, he/she must plan the questions in advance.

The researcher is advised to:

(i) Decide the purpose/objectives of the questions;

(ii) Decide the population and the sample:

(iii) Generate the topic/constructs/concepts/ issues to be addressed and the data required in order to meet objectives of the research;

(iv) Decide the kind of measures/scale/question/ responses required;

(v) Write the questionnaire items;

(vi) Check that each issue from (iii) has been addressed, using several items of each issue.

(vii) Pilot the questionnaire and refine items as a sequence;

(viii) Administer the final questionnaire (Cohen et.al.2007, p.318).

The questionnaire can either be structured, semi structured and unstructured. The size of the sample involved can help to

determine the nature of the questionnaire to be used. If the sample is large, you are advised to use highly structured questionnaire. Therefore, "the larger the size of the sample, the more structured, closed and numerical the questionnaire may have to be, and the smaller the size of the sample, the less structured, and more open and word-based the questionnaire may be" (Cohen et.al.2007, p.320). The researcher needs to have adequate knowledge on questionnaire items. These items include:

1. **Closed and open question** - Closed questions prescribe the range of responses from which the respondent may choose (dichotomous question, multiple choice, rating scale). Open question allows the participant to respond freely in his or her own terms. The use of open equation in the data collection process, may lead to collection of information (data) which is irrelevant and redundant to study.
2. **Multiple choice question** - the researcher can prepare statement (stem) with a corresponding range of choices and request the respondent to select the best option.
3. **Rank order** – the researcher prepare a statement with a number of responses which are all likely to be correct. The respondent is requested to respond on the item provided by giving priorities on the items.
4. **Rating scales** – it focuses on establishing the degree of intensity on the items provided, e.g. Likert scales.
5. **Open ended questions** - it is very useful for smaller scale research. It can also be part of questionnaire. This type of question enables the respondents to give genuine response on the subject matter. For example, please, indicate the causes of academic staff attrition rate in secondary schools in Tanzania.

iv. Schedules – is a tool or instrument used to collection data from the respondents. Schedule contains questions, statements and blank spaces/ tables for filling up the responses from the respondent. If the researcher plan to use schedule in data collection, he/she mast prepare schedule basing on the study objectives and its subsequent research question in advance. During the data collection process, interviewee fills all the

answer provided by the respondents. This method is more or less similar to questionnaire or interview schedule. The only difference is the direct contact between the respondents and the interviewer.

Data Collection – Ethical Issues

Before embarking into data collection in the field, you have to take into account some ethical issues. You have to adhere to all ethical matters on conducting research in your field of practice. Make sure you are familiar with the following:

i) Make sure you obtain permission of conducting research from your faculty or any other authority in your field of practice.

ii) Respondents cannot be coerced to participate in your study.

iii) You have to respect their informed consent.

iv) Respondents have the right to withdraw at any stage or not complete particular items in the questionnaire.

v) You have to guarantee you respondents that the study conducted will not harm them.

vi) You have to provide guarantee of confidentiality, anonymity, and no traceability in the research.

vii) Avoid offensive, abusive, intrusive, irritating, misleading, biased and misguided words in your data collection tools (Cohen, et.al. 2007).

Unit Reflection

I hope you have successfully learned the provision of teaching and learning resources from this unit. Before proceeding to the next unit, assess yourself by answering the following reflective questions.

i) Why do we need data in research?

ii) It is argued that, sample is an inseparable components research proposal Discuss

iii) Given an opportunity to prepare data collection tools, what will be your priority and why?

iv) If you are requested to advice nove researcher on ethical matters in conducting research, what would be your priorities and why?

Unit Assignment

Attempt the following questions and put your work in your portfolio

1. It is contended that, "purpose of the study and the nature of the population under scrutiny is at the core of sampling process". Discuss.
2. What is quota sampling? As a novice researcher, give an account of issues you are expected to observe before embarking on using this sampling procedure.
3. As a novice researcher, discuss vital issues you are expected to observe when preparing high quality data collection tools.
4. Choose any data collection methods of your choice. Explain its basic premises. What are the advantages and disadvantages of the selected data collection methods?
5. In your own words, explain the relevance of ethical matters in the research process.

Unit 4

Use Research Guidelines to Analyse and Interpret Data/ Findings

Introduction

Dear leaner, well come to unit four. In the previous unit, you have learned about data collection and its related proceedings. This unit focuses on how to use guidelines to analyse and interpret data/ findings. For the success of this unit, focus on the meaning of data analysis, identifying tools for data analysis (SPSS, Excel, Word), use of appropriate method to analyse data and data interpretation. Make sure you remain focused. Spend much time reading various publications on research methodology and research method in education. Do not hesitate to consult your module facilitator, wherever you encounter any difficulty.

Learning Outcomes

Upon completion of this unit you should be able to:

- Explain the meaning of data analysis;
- Identify tools for data analysis (SPSS, Excel); and
- Use appropriate method to analyse data; iv. Interpret data.

The Meaning of Data Analysis

Data analysis is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making (wikipedia.org). The main purpose of data analysis is to make meaning of the information obtained in the field, extract useful information from data and make decision based on the meaning of the information obtained in the field.

After the completion of data collection exercise, the researcher has to analyse the data. The process of data analysis involves data reduction, data display, and conclusion drawing/verification (Robson, 2002). The researcher is advised to start the process of data analysis before data collection exercise is completed. The researcher has to start reducing the pile data obtained by making summaries, and abstract, coding and writing memos. During the process of data reduction, the researcher can achieve it "through descriptive, and summary statistics; data display through graphs and tables of correlations; conclusion drawing through the use of inferential statistics, test of significance" (Robson, 2002, p.476).

It is important to note that, the researcher is obliged to make document sheet, which clarifies context and significance, and summarize content of the document. Then, he/she must establish code of analysis, which emanates from research questions, concept and themes used in your study. The aim of coding is to assign value to each piece of information obtained in the field. All these help the researcher to gather all the related information or instances.

The coding process involves the following steps:

- Developing the coding frame for both pre-coded and open questions;
- Creating code book and coding instructions;
- Coding the questionnaires;
- Transferring the value to a computer;
- Checking and cleaning the data (Fielding, (1993, p.220).

For example, 20 college students were requested to give their opinion on moral issues in their college.

Marital status	**Code**
Married	5
Not married	10
Living as married	2
Widowed	1
No response	2

Figure 1: Coding for variable – Marital status

Opinion on moral issues in the college	Code
Very usefully for college life	5
Not useful at all	1
Need improvement	2
Need strong enforcement	12

Figure 2: Coding for variable – on moral issues in their college

Relevance of data analysis:

i. Informed decision-making: it helps management to make decisions based on facts and not simple intuition. It helps to understand where to invest your capital, detect growth opportunities, predict your incomes, or tackle uncommon situations before they become problems.

ii. Reduce costs: It helps in reducing costs, by spotting improvement opportunities, trends, and patterns in their data and plan their strategies accordingly.

iii. Target customers better: Customers are arguably the most crucial element in any business. It helps to understand the behaviour of the customers and address any occurrences. It also helps to track customer satisfaction by analysing your client's reviews or your customer service department's performance.

Tools for Data Analysis (SPSS, Excel)

In the field of research, many data analysis tools are available. The selection of the tools to use depends much on your needs and expertise. Some of these data analysis tools includes

Microsoft Excel; Python; R; Jupiter Notebook; Apache Spark; SAS; Microsoft Power BI; Tableau, KNIME and SPSS. Understanding the basics of each tool requires significant investment on time for training and resources for purchasing licence and software and hardware. For the success of this unit, attention is paid on SPSS and Exel.

What is SPSS?

SPSS is a Windows based programme, which is used to perform data entry, analysis and to create tables and graphs. It is capable of handling large amounts of data and can perform all of the analyses covered in the text. It is commonly used in the Social Sciences and in the business world, so familiarity with this program should serve you well in the future.

SPSS (Statistical Package for the Social Sciences) is a versatile and responsive program designed to undertake a range of statistical procedures. SPSS software is widely used in a range of disciplines. It is important to note that SPSS is not the only statistical software – there are many others that you may come across if you pursue a career that requires you to work with data.

Microsoft Excel

Excel is the world's best-known spreadsheet software. It features calculations and graphing functions that are ideal for data analysis. It is very useful and easily accessible. It also has a variety of other functions that streamline data manipulation. It is an important and powerful data analysis tool, and with many plug-ins available, you can easily bypass Excel's shortcomings. Excel analyses the complex task that summarizes the data with a preview of pivot tables that helps in filtering the data as per client requirements. It is very useful in business analysis option, which helps in modelling capabilities. Whatever the tool you may decide to use, make sure you have undergone adequate training on its application and uses. Do not west your time, go for training.

Appropriate Method to Analyse Data

Primary methods for data analysis include qualitative data analysis techniques and quantitative data analysis techniques. These data analysis techniques can be used independently or in combination with the other to enable mangers to make relevant decision insights from different data types. For qualitative data analysis, the researcher needs to consider the principle of "fitness for purpose". The researcher has to be clear what he/she want the data analysis to do. This will determine the kind of analysis that is undertaken (Cohen, et.al. 2007). Therefore, the researcher can set out to describe, portray, summarize, interpret, discover theme, generate theme, to raise issues, to test etc.

Interpretation of Data

Data interpretation refers to the process of using diverse analytical methods to review data and arrive at relevant conclusions. The interpretation of data helps researchers to categorize, manipulate, and summarize the information in order to answer critical questions.

During data interpretation, the researcher has to distinguish the differences between correlation, causation, and coincidences. He she must think of any other factor, which might have caused bias, or may have influenced the result.

Qualitative Data Interpretation (categorical). With qualitative analysis, data is not described through numerical values or patterns, but through the use of descriptive context (i.e., text). These data is the outcome of narrative data is gathered by employing a wide variety of person-to-person techniques such as Observations, Focus groups, Secondary Research and Interviews.

Quantitative Data Interpretation (numerical): Quantitative analysis refers to a set of processes by which numerical data is analysed. During quantitative data analysis, the researcher has to use statistical modelling such as standard deviation, mean and median.

Mean: a mean represents a numerical average for a set of responses. When dealing with a data set (or multiple data sets), a mean will represent a central value of a specific set of numbers. It is the sum of the values divided by the number of values within the data set.

Standard deviation: this is another statistical term commonly appearing in quantitative analysis. Standard deviation reveals the distribution of the responses around the mean. It describes the degree of consistency within the responses; together with the mean, it provides insight into data sets.

Frequency distribution: this is a measurement gauging the rate of a response appearance within a data set. When using a survey, for example, frequency distribution has the capability of determining the number of times a specific ordinal scale response appears (i.e., agree, strongly agree, disagree, etc.). Frequency distribution is

extremely keen in determining the degree of consensus among data points.

Unit Reflection

I hope you have successfully learnt how to us research guidelines to analyse and interpret data/ findings. Before proceeding to the next unit, assess yourself by answering the following reflective questions.

1. Describe data analysis process.
2. What is coding? Explain why coding is believed to be at the core of qualitative data analysis.
3. In your own words, explain the relevance of data analysis in your field of practice.
4. Explain the difference between primary and secondary data.
5. Data interpretation is an inseparable component in the process of data analysis. Discuss.

Unit Assignment

Attempt the following questions and put your work in your portfolio:

1. What is coding? Describe the steps involved in data coding process.
2. Choose data analysis tools of your choice and explain its applicability in the data analysis process.
3. What is data interpretation? Explain the proceeding of qualitative data interpretations.
4. What is the difference between qualitative and quantitative data analysis?
5. In your own words, describe the relevance of data analysis.

Unit 5

Use Research Guideline to Write Research Report

Introduction

Dear leaner, well come to unit five. In the previous unit, you have learned about the use of research guidelines to analyse and interpret data/ finding. This unit focuses on how to use research guidelines to write research report. For the success of this unit, focus on the meaning of research report, ways of disseminating research findings, describe components of research report and compilation of research report. Make sure you remain focused. Spend much time reading various publications on research methodology and research method in education. Do not hesitate to consult your module facilitator, wherever you encounter any difficulty.

Learning Outcomes

After completion of this unit you should be able to:

- Define research report;
- Identify ways of disseminating research findings;
- Describe components of research report; and
- Compile research report.

Research Report

Research reports are recorded data prepared by researchers or statisticians after analysing information gathered by conducting organized research, typically in the form of surveys or qualitative methods. Research report is the systematic, articulate, and orderly presentation of research work in a written form.

Features of a Good Report

A good report is expected to have the following features:

1. Simplicity, 2. Clarity, 3. Brevity, 4. Positivity, 5. Punctuation, 6.

Approach, 7. Readability, 8. Accuracy, 9. Logical Sequence, 10. Proper Form and 11. Presentation.

1. Simplicity: when preparing the report make you use simple language so as to it easily understandable. Avoid jargons and technical words.
2. Clarity: make sure the language used is clear and straight. It expresses categorically what is intended to be expressed. Therefore, the report has to be written in correct form and following correct steps.
3. Brevity: Make sure your report is not be unnecessarily long. Make it attractive to the reader. Avoid any form of contradiction or ambiguity. Make sure your report is complete and meet the expected result.
4. Positivity: the researcher is advised to use positive statements, and avoid negative ones.
5. Punctuation: when you prepare your report, make sure you abide with the guideline and standards of writing. Punctuations have to be carefully and correctly used.
6. Approach: when preparing your report, make sure you meet the required standard. You must be aware of the approaches required such as person or impersonal.
7. Readability: make sure your report is readable. The presentation style and the diction (use of words) have to meet the expected standard.
8. Accuracy: make sure your report is accurate. Report what has been found in the field and not fabrication. Avoid any form of bias and report accurate data instead of your personal feelings.
9. Logical Sequence: make sure the points in a report are arranged in a logical sequence, step by step and not in a haphazard manner. Therefore, proper planning and abiding with provided guideline is necessary before a report is prepared.
10. Proper Form: make sure your report is in a necessary form. A report must be in the proper form. Abide with the entire legal requirement in the production of your study report.
11. Presentation: make sure your report is attractive and presentable. Ensure that it meets high quality of typing or printing as well as quality of paper used.

Ways of Disseminating Research Findings

Dissemination is a process of getting the findings of your research to the people who can make use of them, to maximise the benefit of the research immediately.

A good dissemination involve:

Stakeholder engagement: Before engaging in the dissemination process, you have to identify and contact your potential stakeholders. Identify your primary audience and engage with them early. It is important to identify all possible secondary audiences and others who necessary are engage in the dissemination arrangement.

Format: make sure you produce targeted outputs by using appropriate format provided.

Utilise opportunities: you are advised to build partnerships with established networks. Exploit all possible opportunities, existing conferences and events to exchange knowledge and raise awareness of your work.

Context: you have made sure that, you understand the context of your research, and get influential opinion from leaders onboard.

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