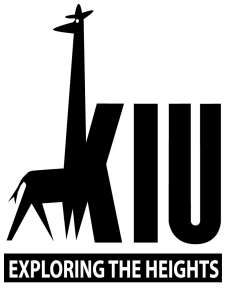

REASERCH METHODS

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RESAERCH METHODS LETCURE NOTES

What is Research?

Research has been defined in different ways by different investigators and writers.
It is a critical and exhaustive investigation or experimentation that aims at discovering new facts, and their correct interpretation; the revision of accepted conclusions and theories in the light of theory discovered facts (Amin, 2005).

Sekaran (2003) defines research as a process of finding solutions to a problem after a thorough study and analysis of situational factors.

Charles (1995) conceptualizes research as a careful, systematic, patient investigation undertaken to discover facts and / or relationships.

Such definitions highlight important characteristics of research such as;

- Research is a process; meaning that it goes through steps.
- It is intended to solve problems that is, without any problem to be solved, there is no need for research.
- It should be thorough that is, it involves a deep inquiry.
- It is careful meaning that it should be given attention.
- It is systematic, implying that it should follow logical steps.
- It is patient meaning that it may take long and
- It is intended to discover facts of it is qualitative and to discover relationships I it is quantitative.

Generally a good research is systematic, well planned, organized and has specific goals. It involves observing, theorizing, experimenting to test a theory or set of theories, drawing conclusions and reporting results (Kakooza; 2002).

Importance of Research

Research is intended to allow us, students to develop and demonstrate ability to collect data, relevant to a given problem, process and analyze those data to enable us make independent judgments basing on the analysis and to write clear reports. That is, through research participants (students) get involved in the process of systematic discovery which enables them to have insight into social problems and finding ways to solve them.

Generally research helps to;

1. Generate knowledge

This implies that research help to generate new knowledge and bring something that have not been in existence for example coming up with a new method of teaching that has not been in use.

2. Validate knowledge

This means that research help to check on the existing knowledge to prove or disprove this validity for example a study can be carried out to discover whether a certain drug can cure a certain disease or whether a certain law can help to overcome a certain crime in society.

3. Refine knowledge

This means that research help to improve on the existing knowledge. The world improves through research for example a study can be carried out to improve the existing way of governance. Here the study uses the existing knowledge and / or practice and add something to improve it.

N.B: A study may begin with validating knowledge and then go a head to refine knowledge for example a study may be carried out on the chemical content of a splash with the aim of validating knowledge by finding out what already exist. The researcher wants to know what is in splash first. Then after knowing the strength of the chemical content in splash another study to improve the test of splash can be carried out for example "The effect of apples on splash taste". This study aims at improving splash to make the better and o it requires knowledge.

Qn. Identify three studies that generate validate and refine knowledge.

1.1 Purpose of Research

According to Mugenda & Mugenda (2003), the following are the purposes of research.

1. The main purpose of research is to discover new knowledge that is facts, and methods of practice, etc. Therefore research is a major source of knowledge. Amin (2005) observes that research is a systematic search for new knowledge. It is an intellectual endeavour pursued at the frontiers of knowledge for the cardinal objective of extending such knowledge and improvement of society in general.

2. Research helps to describe a phenomenon in order to provide understanding of a phenomenon. Research tries to identify certain characteristics or events that can help to describe clearly that issue for example size, shape, age, weight, speed, etc.

3. Research predicts a phenomenon. Prediction means ability to estimate interaction of phenomenon for example the movement of the earth and the sun help to predict seasons. We can also use a set of variables to predict another for example we can predict the effect of behavior characteristics on performance of employees.
4. Research help to control phenomena. This means the ability to regulate a given event of phenomena. Many scientific experiments help to do this. Here one group of a study subjects is held constant while another group is manipulated (using the treatment) to see the effect of a given factor for example to find out how a certain learning method affect learning, we give a lesson using the new method to one group (experimental group) and the same lesson is taught to the second group (control group) using the normal or usual method after which we compare the performance of the two groups.

N.B: Control and prediction are related and are both vital characteristics of experimental studies and both are used mainly to generate knowledge.

5. Research explains phenomena. Explanation in this respect means accurate observation and measurement of a given phenomena. To explain a given phenomena one should be able to describe it, predict its occurrence and observe factors that bring its occurrence and change. Studies whose purpose is to explain are mainly validating knowledge.

6. Research explores or enables theory development. This involves formulating laws concepts and generalization about a given phenomenon. Research can develop a theory, confirm or validate an existing theory or falsification.

How do we classify Research

Research and be classified in the following ways;

1. Research according to subject

By subject or discipline we refer to the area of specialization or study. Subject can be looked at individually in which case we for example have law, education, and business, or in terms of their two major groups, that is either pure or social sciences. Thus we can talk of business research, law research and education research while at the same time we can have pure, basic, hard or natural sciences or research in the social or behavioural sciences.

Behavior sciences are one studied without practical applications while natural sciences deal with material phenomena and based mainly on observation; experiments and induction. Thus when we talk of pure or basic or natural sciences research we are referring to research usually carried out in artificial or laboratory setting in such subjects as physics, chemistry and biology.

A social science on the other hand is a study of human society or behavior in such disciplines as education, law and management (Sykes: 1982). Thus when we talk of "social or behavior science research" we mean that research involving behavior of human beings as friends sharing resources on this planet.

2. Research according to scope

Research varies according to scope, scale or "unit of analysis" for example a study on "Motivation and staff performance at Top times High School" is interested in bringing out how motivation affect performance of an individual staff thus the unit of analysis is the individual staff at Top times High School. However, other researchers may be interested not in individual performance as a unit of analysis but in comparing the whole organization like a school or a district for example a title like motivation and performance of school in Masaka District.

The two examples suggest that as per their scale, scope or "Unit of analysis" we can classify research as micro or macro. Micro (for example motivation and staff performance) is the one interested in

comparisons between small individual entities (for example staff and students) as unit of analysis. While macro research is that interested in variation between large entities (for example schools and districts) as units of analysis.
Note: As students we are advised to opt for micro research on account of time, cost and skills limitation.

3. Research according to purpose
Basing on purpose research can be classified as either applied or pure. (Bailey, 1994) a research that is concerned with finding a solution to an immediate problem for example burning of schools or child sacrifice etc that research is said to be "Applied", "Problem solving" or "Action" research. Otherwise if research is trying to provide answers to questions of theoretical, hypothetical or academic nature, then the research is said to be pure, basic, academic, hypothetical or theoretical research.

As students at Bachelors level which kind of research is expected or suitable or us and why?
4. Research according to approach
Research varies according to approach or paradigm that is research is classified as quantitative or qualitative.
Quantitative research is the type of research where the researcher is interested in quantities or numbers and it aims at discovering relationships the methods suitable for this are mostly, survey and experiments. The instruments are usually structured questionnaires, observation check lists and interviews and data analysis is mainly statistical.

Qualitative research on the other hand is one whose data is basically descriptive in nature and this means that the data to be obtained are ordinarily obtained in none numerical terms. Qualitative research aims at discovering facts. That data collected is usually subjective and the main measurement tool for collecting data is the investigator himself / herself.

N.B: There is no research that is purely qualitative or quantitative but elements of the two approaches appear in all researches although one may dominate.

QULITATIVE AND QUANTITATIVE RESEARCH APPROACHES
(a) Qualitative Research Approach
The qualitative and quantitative methodologies are two main approaches in social science research.

The qualitative approach
The purpose of qualitative research is to promote greater understanding of the way things are and why they are the way they are. It is through intensive and extensive observation, interviews and discussions that promote greater understanding of how and why people behave the way they do.

Using the qualitative approach researchers explain and gains insight and understanding of phenomena through intensive collection of narrative data.

In qualitative research, data collection is usually subjective and the main measurement tool for collecting data is the investigator himself / herself. Therefore before conducting effective research, the researcher needs intensive training and practice in the method planned to be used.

Qualitative research is one whose data is basically descriptive in nature. This means that the data to be obtained are ordinarily expressed in none-numerical terms. Although descriptive is emphasized this does not mean that numerical figures are never used.

The approach is one where by the inquirer often makes knowledge claims based primarily on constructivist perspectives (that is the multiple meanings of individual experience, meanings, socially and historically constructed with an intent of developing theory or pattern or participatory perspectives (that is change oriented) or both.

Principles of qualitative research methods

1. Openness

Qualitative methodology is not predetermined or prestructured by hypotheses and procedures that might limit its focus, scope or operation. Its perception and approach are open in all aspects mainly with regard to its research objects, or the method to be employed.

2. Research as communication

Qualitative research is embedded in a process of communication between researcher and respondent. There is no intention to establish independence of the researcher from the respondent.

3. Reflexivity of object and analysis

In qualitative research, every symbol or meaning is considered to be a reflection of the context in which they are developed. The meaning of an object of expression is understood through a reference to its symbolic or social context.

4. Explication

Qualitative research is set to explain clearly and accurately how respondents will be approached. The steps of the research process, as well as the rules of its operations are expected to be made known as much as possible.

5. Flexibility

Qualitative methods are flexible in many ways for example with regard to the choice of research instrument and research procedures that is the research is not rigidly set but rather flexible and can change during its execution. In qualitative research, the design is more likely to include guidelines than strict rules.

Characteristics of qualitative research

The characteristics of qualitative approach to research include;

1. The research involves holistic inquiry carried out in a natural setting.

This means that the researcher is a participant who is highly involved in investigation and tries to study all elements present in the setting in which the inquiry takes place.

2. Humans are the primary data gathering instruments

The qualitative researcher prefers to rely on human power of observation rather than measurement instruments like paper and pencil tests. This is because no non human instrument is sufficiently flexible to adapt to the complex situation as it evolves, identifies and takes into account biases that result from the interactions and value differences.

3. Emphasis on multiple realities

Qualitative data gathering procedures are preferred because they are considered more amenable o the diversity of multiple realities one finds in a complex field situation.

4. Purposive rather than random sampling

The qualitative research is more likely to uncover the full array of "multiple realities" relevant to an inquiry when the sampling of respondents is done purposely rather than probabilistic sampling methodology.

5. Inductive data analysis

The qualitative researcher used complex reasoning that is multifaceted, iterative and simultaneous. The thinking process is interactive, with a cycling back and forth from data collection and analysis to problem formulation and back.

6. Design emerges as the research progresses

The researcher has a very tentative design (or in some cases none at all) and develops the design as the inquiry progresses. This permits adapting the design to include variables that were not anticipated prior to the start of the observation. The rationale for emergent design is that it is impossible for enough to be known ahead of time to develop an adequate research design.

7. Emphasis on social progress qualitative

Studies focus upon social processes and the meaning that participants attain to social situations. Qualitative researchers do not narrowly pre-define their research methods before the study has begun.

Strength of qualitative research

- Researching people in their natural settings.
- Stressing interpretation and meaning.
- Achieving a deeper understanding of the respondents' world.
- Harmonizing research process by raising the role of the research.
- Allowing higher level of flexibility.
- Presenting a more realistic viewing of events and the world.

Weaknesses of qualitative research

- Problem of reliability caused by extreme subjectivity.
- Risk of collecting meaningless and useless information.
- It is very time consuming.
- Problem of representative and generalizability of the findings.
- Problem of subjectivity and detachment.

Quantitative approach

Quantitative research refers to the type of research that is based on methodological principles of positivism and neo-positivism and adheres to the standards of strict research design developed before the research begins.

It involves collection of numerical data in order to explain, predict and control phenomena of interest, data analysis being mainly statistical.

It involves collecting data in order to test hypotheses or answer questions concerning the current status of the subject of study. Quantitative research is applied in order to describe current conditions or to investigate relationship.

Methods of data collection employed by quantitative researchers are many, diverse, simple and straight forward. The most common ones are surveys, documentary methods, observations and experiments.

Quantitative research warrants generalization. To achieve representativeness is one of the aims of quantitative research and several methods have seen devised for this purpose. Most of these methods deal with probability sampling as well as determining the right sample size and composition of the sample in general.

Quantitative research attempt to control as many variables as possible. They therefore, prefer research strategies such as random sampling, random assignment and use of standardized instruments.

The quantitative research process involve

1. Preparation
2. Selection of research problem
3. Data collection
4. Data analysis
5. Reporting

1. The approach is based on vigorous and sophiscated techniques of analysis.
2. The approach involves the collection of numerical data in order to explain, describe, understand and predict phenomena and interest.
3. Quantities researchers typically concentrate on a small number of variables in order to describe current conditions or to investigate relationships including – and – effect relationship. This is because they are more concerned with generalizability of their findings than the meaning of those findings.
4. Quantitative researchers try to be as objective as possible that is, being value free at a more operational level. Quantitative approaches are more focused and out come oriented.
5. Concepts and theories pre-determined guide what data to be collected, impersonal reports of findings are presented and researchers take an objective detached stand from the results.
6. In quantitative research the problem statement and research questis or hypotheses are usually directed and state a relationship or comparison.

Critique of quantitative methodology / approach

1. It is argued that reality cannot be defined objectively but subjectively. Objectively can only lead to technocratic and bureaucratic dehumanization.
2. Quantification often results into meanings that are close to the beliefs of a researcher other than those of the respondents.
3. Quantitative researcher restricts experience in two ways. First, by directing research to what is perceived by senses and second by employing only standardized used tools, based on quantifiable data to test hypothesis.

4. In quantitative research methods are considered to be the most important elements of research. They are more important than research object; research is carried out by using already established methods.
5. Because quantitative research work on the principles of natural sciences (that is, objectivity neutrality), research objects are seen as scientific objects and are treated as such. Respondents are therefore treated as objects and as informants or producers of data. But social sciences are not natural sciences and respondents are not objects but partners and experts whose views are being thought.
6. The researcher procedure employed by the quantitative researcher pre-supposes the presence of a research design, including hypotheses before the research begin. Consequently this design determines what is relevant and what should be studied and what is meaningful and required even before the stud start. This restricts the option of the research process, blocks initiative and the motivation of the researcher and produces artificial data, which do not reflect reality.

In a nut shell, although the quantitative approach in social research is criticized on a number of grounds. It is important to consider the goodness because for it's the theory is already in place and researcher does not waste a lot of time to formulate a theory and complicate hypotheses.

The approach is very direct and clear compared to qualitative approach. Again by using quantitative methods a researcher can carryout his / her research and finish it within a given time. However, it is not good for a researcher to rely on only one research approach. There is need to use both the quantitative and qualitative approach in order to enrich the research work.

Qn. What are the main differences between qualitative and quantitative approaches to research and what are the advantages and disadvantages of these approaches?

Qn. (a) Explain the steps followed in carrying out a research study.
(b) What are the considerations in formulating a research topic / project.

Qn. (a) what are the postulates (presumption) of social research.
(b) What are some of the main practical utility of research

1.6 Basic Postulates (Presumptions) of Social Research

Social research presumes the existence of the following situations.

1. Possibility of an objective study

It is presumed that the researcher would be able to make a neutral or unbiased study of a social problem. Although it is difficult in practice, it is not impossible altogether to attain an impartial judgment an this require non-interference, sincerity and honesty.

2. Existence of some social norms and law

It is presumed that in society there is some kind of natural law or norm and any social event is based on it. Thus prediction become a possibility for, there is some definite trend of social phenomena at least.

3. Causal relationship

In social research, a cause – effect relationship between social behaviour and events is presumed to exist.

4. Representative sample

Social research presumes the possibility of drawing a representative sample from the whole of the population. It also assumes that the result of the study from the representative sample may be made applicable to the whole population.

5. Existence of similar and ideal group

It is assumed that society consist of fairly homogeneous groups known as the ideal groups. Such that the behaviour of this ideal group is the same as that of other groups. That is they have similar likes and dislikes for example if different groups of people from the same profession emigrate, the causes would be regarded as similar for all groups.

6. Social events

Social events are also amenable to scientific study, for human behaviour follows some definite trend.

7. UTILITY OF SOCIAL RESEARCH

Social research is a curious course of inquiry satisfying human desires to know the facts hither to unknown or obscure. It increases the social stock of knowledge. It focuses our attention to social reality and social events. It help use to scientifically judge and accept a phenomenon by discarding all superstitution, clinches orthodox belief and ignorance. The following are the practical utility of social research.

1. Control social phenomena

Knowledge is power. Social research can keep one with detailed and sufficient knowledge about the working and organization of society and its institutions. In this way it can give greater power of control over social phenomena for example the growth of leadership is facilitated by social research.

2. Social planning

Any planning would depend on the systematic knowledge of the resources, problems, and objectives of the society. Social research can give us the detailed picture of the contemplated aspect of social planning.

3. Social understanding and good will

Social research pinpoints the need for interdependence among different social groups. It gives the clean weight age to the independent and respond opinion and help to promote good will and understanding. It brings out the unity among diversities and help to strengthen social cohesion.

4. Social growth

Social research point out to society a right and normative way of development by pin pointing the evil effects of the wrong course of action. Given the constraints, the direction of social growth can be given by social research by study of societal organizations, value motivation and so on.

5. Social prediction

Social research aims at finding an order among the social facts by making causal connection. This affords a sound basis for prediction in a large number of cases. Although the prediction may not be perfect due to a variety of limitations and constraints, a reasonable results may be ascertained.

6. Modernization of tools and techniques

With the progress of social research, the tools and techniques of analysis become modernized and up-to-date. Necessity is the mother of invention. Due to the exigency of new situations, better tools for social research may be devised and better and more efficient results may be expected.

7. Social welfare

Social research can untold and identify the causes of social evils. In this sense, it can help to take the necessary action for eradication of social evils. Social research can give sound guidelines for appropriate measures of reform and social welfare.

1.8 QUALITIES OF A RESEARCHER

A researcher is one who involves more and more about less and less. This shows that a good researcher must have a specialized area of interest. It is almost impossible to delineate the actual qualities of a good researcher. However, some broad qualities of a good researcher may be indicated in the following general ways.

1. Scientific Mind

A researcher must have a scientific frame of mind. He / she should not be influenced and guided by pride and prejudice, and by superficial facts. He / she must give up personal likes and dislikes. He / she must be bold enough to discover new things and to discard superstitution and taboos.

2. Seeker of Truth and Knowledge

A researcher must be a seeker after truth. Therefore he himself must be truthful and sincere. He must have a desire for knowledge. The lure of discovering the unknown fact is the starting point of the research. A researcher has to be prepared to make any type of sacrifice in terms of time, money and energy to find out real truth.

3. Alertness and Imagination

A scientific mind must always be alert to appreciate minutest changes in situations. This habit has to be patiently cultivated and practiced. This mind must be prepared to work under all circumstances. A researcher should be accurate in observation, quick in perception and must have precision of statement. His mind must be thoroughly disciplined and must have high degree of imagination.

4. Quick Power of Understanding

A research worker would have the ability to grasp things quickly so that he is in a position to make the best of his research.

5. Trained and Educated

A researcher must have intimate knowledge of his area of research. The concepts, symbols and the implications of his project must be very clear to him. He must have sufficient experience and training to

understand, analyze and tackle the problem. A researcher must be acquainted with the sophisticated and latest techniques of research.

6. Patience and Perseverance

Research is a curious mixture of success and failure. It is an intellectual exercise requiring endurance and patience. A researcher must not feel defeated at any stage. He requires supreme courage of conviction. It may require a year or so to complete a research project and the researcher must not give up hope.

7. Objectivity. A researcher must be objective in his approach. A scientist must try to avoid sentimental and emotional interpretation of his result. He must have an open mind. He must also be very cautious in his approach.

HOW DO WE DO RESEARCH

The research process consists of a number of related steps which are essentially interdependent. The process begins with conceptualization of a problem and ends with report writing and dissemination. We shall conceptualize the process of research as composed of five major steps as reflected by headings of this section.

Conceptual Stage

This stage involves identifying and stating the research title / problem. The first step in identifying a research title is to pick an area of interest. This area is related to one's professional interest and goals. The next step is to identify a specific problem within the researcher's area of interest. This problem should be important and serious in that it needs a solution immediately. It is from the problem that a researcher formulates a research title. Examples of research problems are workers productivity in the public sector; student's performance at university level, strikes in secondary schools.

Characteristics of a good research problem

1. It must be directed towards a solution to a problem.
2. Covers a reasonable scope that is not too narrow and not too general.
3. It should be generating, adding or validating existing body of knowledge.
4. It must be stated clearly showing the problem area.
5. It must be researchable in terms of time, data, money, etc.

Thus when selecting a research problem put in mind the following;

(a) The time available to conduct the study.
(b) The money available / which can be raised for the study.
(c) The availability of equipments and other tools required for the study.
(d) Availability of subject or respondents for the study.

Proposal Stage / Design and Planning Phase

In this phase a proposal is developed and data collection or research instruments is designed among other activities. A research proposal is a plan for the proposed research study and is written in a future tense for example "The study will ……" and if it is well prepared it carries up to 60% or more of the research report.

Empirical phase/ Data collection or research stage

In this phase / stage the researcher collects data pertaining to the study (that is primary and secondary data). Primary, first – hand or field data collection is aiming at new data by contacting or observing respondents or specimen right in the "field". A research has at least three methods of collecting primary data, namely, via

observing relevant respondents or specimen, interviewing respondents and using survey. In addition to primary data collection some researchers (especially qualitative researchers for example those doing historical research) also use secondary, desk, documentary or library data collection which takes place at desk.

Analytical Phase (Data Analysis phase)

In this phase the processed data are analyzed and interpreted. Data analysis can generally be classified a qualitative and quantitative depending on the preferred research approach.

Reporting and dissemination phase

In this phase, the research methodology (that is how findings were arrived at) is summarized, together with findings themselves and their implications. (That is dispersion, conclusion and pertinent recommendations). Such reporting is for future use or reference by the researcher and other interested parties such as future researchers. While the term research report is common to all research findings; they (the findings) can take on different norms such as dissertation or thesis in the case of students or conferences and journal articles in the case of senior research.

N.B: The research process is an outline and / or description of key activities or steps in research thus the number of steps or key activities may vary depending on what one (that is writer or teacher) consider to be pertinent steps. While in this paper we have separated conceptualization of the problem from designing and planning phase, other writers / teachers may combine the two and call it the proposal stage hence having five steps in the process. At the same time data processing and analysis can be combined can given one name (that is data analysis or analytical phase) bringing the number of stages to four.

The importance of the research process to us students is to help us conceptualize in summary what we are supposed to (in logical order) during the process of writing or research; the details of which are provided in the next chapters.

APPLICATION OF THE RESEARCH PROCESS

RESEARCH PROBLEM / TITLE / TOPIC

Identifying / searching for a research problem

One of the most challenging task of any research project (which all students face) is the identification of a suitable research problem and hence topic or title yet the problem is the centre or and which the whole research efforts turn. The heart of every research project is thus the problem and the identification of a good research problem should be considered a discovery in itself.

The selection of a problem even to the experienced researchers is always a difficult step in the research process yet problems are abundant. The issue is not really the lack of problems to be studied; selecting the problem/ topic from a multitude of problems may be the problem.

A problem obtains when differences exist between observed and expected outcome. For example difference of productivity between one employee and another under different styles of management. This evokes an interrogation in the mind and gives one the challenge to go and search for solution in a systematic study.

In this section we argue that research problems and hence topics or titles can arise from the following sources.

(a) Lectures

As we progress with lectures in our respective disciplines a number of un-resolved problems are identified and printed out. For example several theories can be raised, a number of which are yet to be tested in different context through research. While there are several major sources of problems, the most meaningful ones are generally those derived from theory. There are for instance may educationally relevant theories such as the human capital theory of investment in education by Adam Smith (1776) which asserts that training of employees is one way of investing in human capital in that later, that training will raise employee productivity.

Such a theory is asking for such research as that entitled "Training and Productivity of Employees in Masaka Hospital in addition, class discussion, seminars and out of class exchange of ideas with fellow students and lecturers unveil a wealth of stimulating problems to be solved through research studies.

(b) Past experience

Many research problems, and hence topics or titles result from a potential researcher having experienced some problems in personal life or society.

(c) Mass Media

These are communication channels with large audience and / or viewship and include newspapers, radios and televisions and internet. For example in the recent past several news paper articles have raised the problem of low salaries in Uganda and researcher may want to study the effect of that problem say on employee performance in which case a topic such as reward and employee performance in …"

(d) Scholarly Literature

Scholarly or academic literature refers to text books, professional and academic journal, and research reports, dissertations or thesis. Same textbooks have chapter heading relating variables and hence suggesting academic research topics or titles. Other text books especially research text books have suggested researchers for example pp. 446 – 448 Amin, 2005 gives 30 research topics.

(e) Consultation with instructors

Consultation with the course instructor(s) is helpful. Although the student should not expect problems to be assigned, consultation and discussion with facilitator(s) is desirable. For their first time beginner are not expected to present a completely acceptable problem. Thus they can always be advice to clarify their thinking achieve a sense of focus and develop a meaningeable problem from one that may be too vague and complex.

(f) Practical issue

Every society is always faced with many burning issues which are hard to completely explain for instance cost sharing in universities, gender and women's status. A researcher can therefore decide to take one of these issues and investigate it logically with a view of finding a solution to the problem.

Evaluating a Research Problem

After a thorough search from one or more of the suggested sources, you will come up with at least one problem and hence topic such as motivation and staff performance in KIU. Note

that a research title should have variance (that is motivation and performance) and a context in which the proposal study is to be done (that is KIU).
However, before such a topic is approved, several criteria have to be satisfied including asking and positively answering questions to do with.

(i) Newness

While the verb "to research" literary means "to search again" a given research topics ought to be adequately a new so that it does not involve too much duplication. We consider "content newness" that is in terms of variables. Contextual newness that is in terms of area where the study is to take place; "Temporal newness" that is in terms of time.

(ii) Interest

If you choose a research topic that is not interesting to you, you will find it hard to overcome / fight challenges that will come at every step in your research process. This partly explain why as a student you are advised to search for problems and hence topics to your area of specialization.

(iii) Significance

Any selected research topic should be significant or justifiable in that if it is pure or basic, it has some important theory underpinning it and it will contribute to generation of knowledge; if it is applied it should have some practice. It intends to improve.

(iv) Feasibility

A research problem or topic should be feasible or viable in terms of skill, time and money. If not it should be changed or discarded. For example, a research problem like "Is life existing on planet mars? Time and the resources to finish the project are obviously beyond the reach of most researchers.

(v) Assurance of guidance

This answers the question: Is there a potential supervisor for you? This partly explain why as students, we are encouraged to search for topics in our area of specialization where we are assured of guidance or supervisors from our respective teachers.

(vi) Facility available

In choosing a research topic or title we consider the availability of adequate facilities such as literature and this is another reason why as student you should search for and propose research topics in your area of specialization where you are assured of adequate literature.

Research Variable

Introduction

Social science research is mostly based on the study of variations. Making a variable a key element in research. Therefore with in the section of the paper, a broader definition of term variable will be given, the types of variables and their role in research and the level at which such variables are measured.

What is a variable?

A variable can generally be defined as anything that can take on differing values (or conditions for different individuals). The value can differ at various times for the same object or person for example of variables include age, sex, social economic status, level of education, production units, management style, motivation, etc.

Age of respondent may be given as 25, another 32 and another 40 or categorized as young, middle age or old.
Sex can be categorized as male and female.
SES can be categorized as middle and high.
The level of education is categorized as no schooling, primary education, secondary education and university, etc.
A variable differ from an attribute in that an attribute is a specific value of a variable for example sex has two attributes that is male and female. A variable agreement has 5 attributes that is strongly agree, agree, neutral, disagree, strongly disagree.
There are two basic characteristics of variables

1. Each variable should be exhaustive that is it should include all possible answerable responses. For example if the variable is religious affiliation and the only options are Catholics, protestant, Muslim and there are others not known to the researcher it is important to include others …. Followed by the word specify to ensure that all religions are captured.
2. The attributes of a variable should be mutually exclusive. No respondent should be able to have two attributes simultaneous.

Types of variables

- Dependent variable
- Independent variable
- Extraneous variable
- Moderator variable
- Categorical variable
- Numerical variable
- Direct variable
- Continuous variable

Dependent Variable
The dependent variable also known as the criterion variable is the predicted or expand variable. It is the variable of primary interest to the researcher. The researcher interest is to explain its variability or predict it. For example a research may be concerned about a high dropout of the girl child in secondary schools in Uganda. Dropout is the dependent variable that is the presumed effects that is caused by other factors. Through the analysis of dependent variable or finding out what variable influence it, it is possible to find solutions to the problem.
Independent Variable
The independent variable is the predictor variable or explanatory variable. Any variable upon which the value of one's variable depend. It is the one that influences the dependent variable and it is the presumed cause of variation in the dependent variable(s). It explains or account for variable in the dependent variable.
The independent variable may affect the dependent variable in a positive, negative or both ways; for example on a positive side the increase in teachers pay (independent variable) might lead to institutions commitment (dependent variable) and on the negative side for example banning of corporal punishments on schools have tended to increase students indiscipline (dependent variable).

On both positive and negative; the adoption of genetically modified foods lead to high yield and less food nutrition content.
Also one, two or more independent variable(s) may lead to one dependent variable for example students academic achievement (dependent variable) may be a result of the school environment, home environment and students' interest, etc.
Significance also takes into account the researchability of a problem. A research problem is one that can be investigated through the collection and analysis of data problems dealing with philosophical or ethical issues are not researchable. Research can only assess how people "feel" about such issues but it cannot solve them.
Whether or not there is reward punishment in heaven may be an important problem to many people but it is not researchable. There is no way to collect it through collection and analysis of data (at least at the present time).
Extraneous Variables
This is also known as intervening variable, confound or covariate. It is a variable(s) that compete with the independent variable in explaining the dependent variable. It is any variable other than the treatment variable (independent) that if not controlled, can affect the research outcome and it may be difficult to know whether the observed change in the experimental research group are due to experimental treatment or to some extraneous variable.
Example
A researcher may want to study how a new education programme (independent variable) may affect the students' willingness to learn (dependent variable). With in the students there are those with low, medium and high willingness to learn. Time may however be an extraneous factor because willingness to learn across the three categories (high medium and low) can also vary over time.
The Moderator Variable
This is the secondary independent variable which is selected for the study to determining if it affects the relationship between the independent variable and dependent variable (for variables affected by independent variable and later in turn, they (moderate variables) will affect the dependent variable). For example, take a topic work force diversity and organization effectiveness. Because each group brings its own expertise and skills to the workforce effectiveness can be achieved when the manager know how to harness the special talents of the diverse work force. In this case, organization effectiveness (Dependent variable) which is positively influenced by workforce diversity (independent variable) is moderated by the manger's ability to harness the diverse skills and experience (moderate variable).

Categorical variable
A categorical variable is also referred to as a qualitative variable and consist of discrete categories. This variable has two or more categories that are distinguished from each other for example sex / gender, religion, SES, etc.

Numerical Variable
Also known as quantitative or continuous variable is one whose values of categories consist of numbers and difference between its categories can be expressed numerically for example students performance in exams, age, etc.

Relationship between categorical and numerical variables

In most cases, the independent variable or explanatory variable is categorical and dependent variable is numerical or continuous for example the number of crimes a person commits (dependent variable) may depend on the persons income level (high, medium and low). Thus income in this case is a categorical variable while number of crimes is a numerical variable. In other words the relationship is said to exist if the different categories of independent variable say (low, medium and high income group) predict different values of the dependent variable, say (number of a person commits crime).

Organization variable

This is the pre-existing characteristics of the individual under study and is not randomly assigned to individuals for example sex and age of an individual.

Control variable

A variable other than the independent variable of primary interest whose effect are pre-determined by the researcher.

Introducing a Research

(a) Introduction

Before getting to the empirical part of research, a student is expected to first develop a research proposal or guide, a document summarizing the systematic process to be followed in the study.

A proposal serves the following purpose / functions;

1. It helps the researcher or student to communicate his / her study idea to potential supervisors, funds an consenting agencies. However if you must talk to these people, without a written proposal they will not appreciate your study idea.
2. Secondly, the proposal will be your plan o action; planners summarize the purpose of planning in a philosophical saying that “on who has no plan has planned to fail”.
3. Third, as you develop your proposal, you are assessing the feasibility of your study idea.
4. Fourth, once complete your proposal it will serve as a guide, protocol or terms of reference to be followed by you (the researcher) your supervisors and the like.

The first element in a proposal is the title reflecting the independent variable, the dependent variable and the context of the study.

Regarding the structure of a research proposal, that is the content and order, there is yet to be a universally acceptable format. However, in this cause we shall consider a research as consisting of three chapters that is Introduction, Literature Review and Methodology, plus the accompanying data collection instrument(s).

CHAPTER ONE

INTRODUCTION

This chapter involves the following sub-section.

1.0 Introduction. This gives a brief layout of what is included in the chapter.
1.1 Statement of the Problem
1.2 Purpose of the Study
1.3 Objectives
1.4 Research Questions
1.5 Research Hypotheses
1.6 Scope
1.7 Significance or Justification

1.1 Background

A background refers to those "things that can be seen o heard behind other things that are closer or louder (Cambridge International Dictionary). In research there is a particular concern, referred to as "the problem" making you to think of a study. But behind that problem is a background to it. Which you will be expected to give first. A background to a research problem has at least four perspectives.

Historical Background / Perspective

The historical background brings to picture the area or institution of study, the population in question and its characteristic and also trace the history of the problem being investigated which is usually on the D.V. In addition to narrating how the problem came about historical attempts by other researchers to deal with the same problem that is to carry out studies with the same D.V as yours should be given showing gaps they left to justify your study.

Theoretical Perspective

In this part of the background, the researcher is expected to theories on the assumed relationship between the I.V and D.V in the study. This can be done by invoking a formal theory of relevance.

Conceptual Perspective

In this part of the background, the researcher conceptualizes or defines the variables. In conceptualizing a given variable, you are expected to begin with one or a few text book or dictionary definition an then go further to give an "operational definition" to the variable, that is how the variable will be understood in the study. This is done by identifying and stating basic elements or concepts that will constitute each variable.

Contextual Perspective

In the contextual background, the researcher is expected to usher in the situation in the area of interest, re-iterating the concern or problem with the D.V in the context tendering empirical indicators of the existence of "the problem".

1.2 Problem Statement

In this section the research officially state "The problem" that exist in the field he / she want to investigate upon stressing the urgency to study "the problem" with the view of understanding more and hence possibly suggest how to solve it (usually on a page or less).

A good problem statement has the following characteristics.

- It clearly shows the researchers interest that is what he / she want to find out or solve.
- It must be specific, objective and researchable.
- Must indicate the scope (coverage)
- Must give the purpose of the study.

While there are many ways of stating "the research problem" in a given study, it may be presented as follows. Start by stressing the importance of the D.V in the study; then lament "the problem on the D.V in your study context giving its empirical indicators. Suggest bad consequences of "the problem" and hence the need to solve it.

Argue that one way to solve "the problem" is to isolate its factors and point out that your study is interested in investigating the extent to which your I.V could be one of the factors contributing to "the problem" hence justifying your proposed study relating to I.V and D.V in your study context.

1.3 Purpose

This is also known as the general objectives, aims or goal (or main objective) of the study. It should state in concrete and concise terms the reasons for the study.

Here the researcher officially states the general intentions of the proposed study, which as the study title is to co-relate the I.V and D.V in the study context. If the purpose is accurately stated, the research study will be easy to conduct, but if it is poorly stated, the research will not provide the required answers.

In stating the purpose of the study common words used are: To determine; Compare, Investigate; Differentiate; Explore; Find out; Examine; Inquire; Predict; Describe; Control, etc.

However, the following words should be avoided to show; prove; confirm; verify; check; indicate and to validate.

1.4 Objectives

This is the break down of the purpose aim or general objective of the study into specific activities that when executed will result into achievement of the study purpose. In doing so the researcher with either use the "many to-one" linking strategy where the I.V is broken into many concepts but leaving the .V as one concept or the one-to- many linking strategy where the I.V will be left as one while breaking the D.V in many concepts (Amin 2005: 132 – 133).

The more objectives a researcher states, the wider his / her study will be.

Characteristics of specific objectives

(a) Should be measurable

(b) Attainable
(c) Should be feasible – in terms of resources
(d) They should be specific and in simple words
(e) Help to measure the independent and dependent variable.

1.5 Research Questions

Research questions are the specific objectives turned into question form it has been argued by some researchers that since research is expected to give answers to questions, then questions should be posed because there is no way the answers should be forthcoming.

Note: The research questions should be congruent (for example in terms of number content / variable and context) with the research questions.
The research questions guide the researcher in data collection that is the researcher collect data that will help to answer the research questions.

1.6 Hypothesis

A hypothesis is defined as a presumptive statement of a proposition or a reasonable guess based on available evidence that the researcher intends to check for example a hypothesis can be stated as; students taught using lecture method learn significantly more than those taught by discussion method. Hypothesis is a tentative answers to a problem. They are not absolute truth and not all researches need hypotheses for example descriptive studies (Amin 2005: 128).
Note: Like research questions, hypotheses should be congruent (for example in terms of numbers, content and context) with the objectives.

1.7 Scope

This is also known as the de-limitation or coverage of the study. The scope specifies the limitations boundaries or restrictions imposed on the study considering the limitations in terms of time, cost and skill (Amin 2005). The scope help to determine the boundaries of the research by providing answers to such questions as who, what, when, how many, etc.

A research study is expected to give at least three scopes; namely geographical scope, that is where the study is to take place; content or theoretical scope, that is the variables the study will consider or relate and the sample scope that who the respondent in the study will be.

1.8 Significance

The significance of the study states how the results of a research will influence the institution or society in question; why the study is worth the time, efforts and expense. That way the significance seeks authority say from government and also persuades donor agencies to support the study.

The significance section of the proposal should answer at least two questions: First how will policy makers or practitioners (for example government and other stakeholders benefit from the study findings?), second, how will theoreticians, academicians or researchers benefit from the study findings.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

Since researchers are only contributing to an on-going debate a good proposal should include literature review that is through a systematic location and study or reading of document that have information related to your research problem.

The review helps the researcher to achieve many things including;

1. To obtain detailed knowledge about the topic / problem under study.
2. Share with proposal readers what earlier researchers and / or writers found and / or said about a given research issue.
3. To identify gaps left by earlier researchers and / or writers for the current study to fill.
4. To see how others went about relate studies, with the aim to replicate their ideas and methodologies in the proposal study.

In reviewing literature a researcher may have to review theories of relevance to the proposed study from which he / she may derive a conceptual framework or model and then review literature related to the respective study objectives.

2.1 Theoretical Review

The theoretical review section in this chapter of the proposal is usually an expansion of the theoretical perspective of the background in that, any theory raised therein is expanded by giving in details. What theory it is, who suggested it, when it was suggested, what the theory stipulates and how relevant it is to your study that is how does it link the I.V and D.V in the proposed study.

But, what is a theory? A "theory" can be regarded as a formulation regarding the cause and effect relationship between variable (Mugerwa, 2008). According to constructs, definitions and propositions that present a systematic view of phenomena by specifying relations among variables with the purpose of explaining and predicting the phenomenon.

In research a theory bridges the I.V and D.V by providing an explanation o why and how we should expect the I.V to explain or predict the D.V.

There are a number of theories related to our area of specialization out of which we shall use path-goal theory of leadership as an example. This theory propounded by Robert House (1971) stipulates that a good leader should enhance subordinates' job performance by showing them goals to achieve and the paths to take in order to achieve the said goals. Studies involving leadership as one of the variables (for example leadership styles and performance of administrative staff in the Magistrates Court in Makindye) can make use of that theory.

Researchers on motivation as one of their variables (for example Motivation and Support Staff Performance in the Faculty of Law KIU) can explore the relevance of such theories of motivation as equity theory on motivation by J. Peason (1943) which postulates that individual employees for example compare what they receive in terms of salary, allowances, treatment and so on, with what

other employees of the same rank, education, same work load, rank and so on receive and if the two are comparable, there is equity and hence motivation to work; the opposite occur otherwise.

2.2 Conceptual Framework or Model

After reviewing theory (ies) of relevance a researcher may go on to develop a conceptual framework or model usually in form of a diagram which visualizes how the researcher views inter-connections between variables in the proposed study, in order to achieve the study objectives.

The frame work (especially for a quantitative study) should at least show the IV and DV in the study and how each is conceptualized or operationalised (a process that start in the conceptual perspective of the background and continues when deriving specific objectives).

While it may not be a must in all studies and also not included in our sample proposal, in addition to the IV and D.V a conceptual model (especially on the demand of the S.visor) may include / reflect extraneous variables (E.V) that is variables competing with the IV to explain the D.V. A framework may also reflect moderating variable (for details about E.V and M.V revisit our section 2.3.2).

As suggested in our sample proposal, it is conventional for the I.V (and E.V if any) to be on the left side the M.V if any to be in the middle while the D.V on the right. Relationships between concepts in the framework are represented by arrows directed from the left to the right some times via M.V.

A given conceptual framework or model should be given an identification number (for example Fig. 2.2) and a working title The Frame work should also be described with the description highlighting how the I.V (E.V, M.V) and D.V are or were conceptualized or operationalised and related.

2.3 Related Literature

After reviewing theories of relevance to the propose study and developing or adopting a conceptual framework or model there from a research may now return to the review of “related literature” that is “Literature related to the respective specific study objectives.

Note that literature related to any objective does not have to be specific to the study context for example in our sample proposal while each objective relate behaviour characteristics to performance of employees in agro based export enterprises in central Uganda the respective section in literature in the proposal are silent about agro-based enterprises and central Uganda. Implying that the review went beyond employees in agro-based enterprises and central Uganda.

Also note that literature related to any specific objective start with a mini “conceptual review”, that is definition of (new) concepts in the objective; then related literature proceeds to a mini “Theoretical review”, that is an explanation of why the concepts in an objective are expected to be related.

Lastly literature related to any objective given an empirical review that is past study (ies) findings of relevance to the objective such as review of any past study should reveal who undertook the study,

when, where and what was studied (that is the variables related), how the study was carried out (that is the methodology) briefly its main findings of relevance to the objective; the gaps(s) the study left for the proposed study to fill.

Sources of Literature Review

Sources of literature review include documents such as periodicals, abstracts, books and other research books. These sources are classified into two categories, namely; secondary and primary sources.

Secondary sources

These are publications written by an author who was not a direct observer or participant in the event described. In Uganda history for example Buganda made an agreement with the British in 1900. According to this agreement some of the land was to be under the care of the Queen of England. A portion of Buganda land was given to the King of Buganda and his chiefs. Different authors on this 1900 Buganda Agreement who were not born by that time have made several publications. So what they write is referred to as secondary sources of information (Amin, 2005).

Primary source

This is a direct description of an occurrence by an individual who actually observes or witnesses are occurrence. For example UPE in Uganda was introduced in 1997 from that time, many authors have made publications to this effect. Such authors who have observed and witnessed the beginning and progress of UPE provide a primary source of information on the subject.

Both sources are useful and very important. However, as much as possible the review of literature should be based more on primary sources since the authors of secondary sources may slant the intentions o primary sources to agree with their own view and leave out information that may contradict their personal views.

Literature review helps in the various phases of the research process, that is in research problem, identification, in the theoretical perspective of a study; conceptual perspective of the study, in the conceptual perspective of a study, in the methodological view point and in discussing findings of the study. For details visit Amin 2005 pp 140 – 150 and an indication that you have conceptualized will be your being able to provide answers to the following questions.

Discuss the ways by which literature review help in the various phases of the research process.

5. PROPOSING A METHODOLOGY FOR A RESEARCH

5.0 Introduction

After searching for and evaluating the research problem / topic in clear cut terms (our topic two) and justify a study on it (our third topic) and having officially reviewed literature related to the study (topic four), the researcher's intention is now turning to the methodology of the proposed study, that is the systematic process the researcher will follow in the empirical part of the study.

5.1 Design

A research design is a plan for carrying out a research project. It is a structure within which the (quantitative) research is conducted and constitute the blue-print for the measurement of variables, collection and analysis of data.

The research design include an outline of what the researcher will do from writing or formulating the hypothesis to the final analysis of data. The research design decision try to answer the following questions that may be considered by the researcher.

- What is the study about?
- Where will the study be carried out?
- What type of data is required?
- What period of time will the study include?
- What will be the sample design?
- What technique of data collection will be used?
- How will the data be analyzed?
- In what style will the report be prepared?

It is worth noting that choice of research design is contingent upon choice of research approach or paradigm where by the research is either qualitative or quantitative.

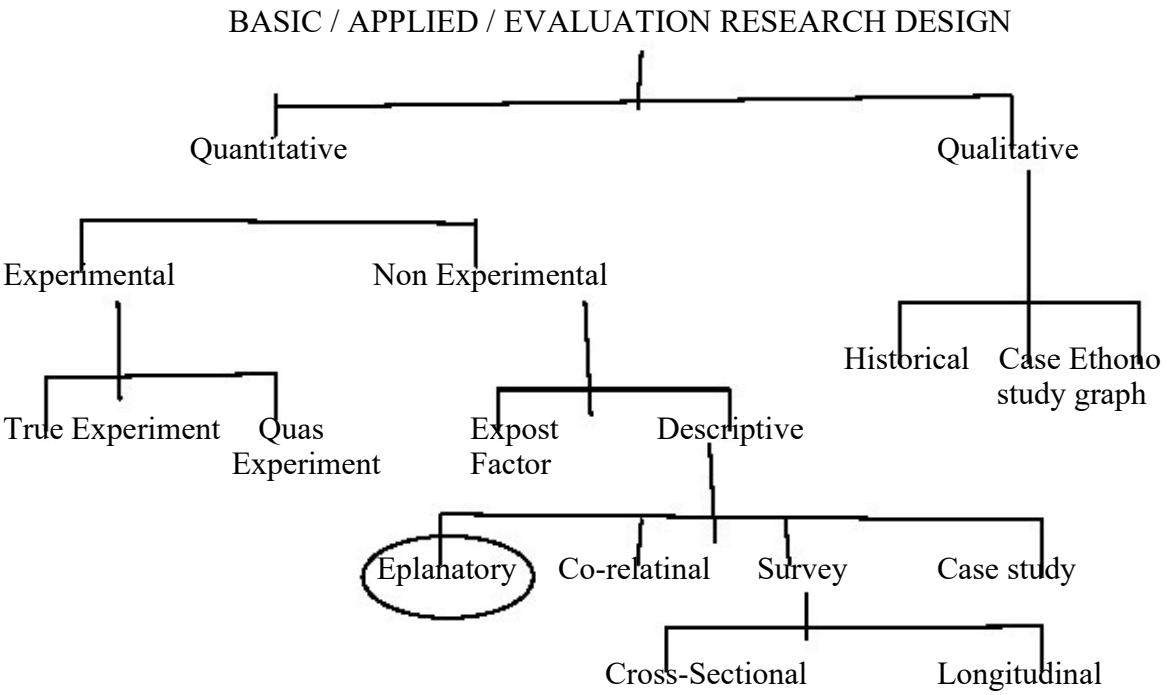

Fig. 5.1: Classification of Research Design.

Fig. 5.1 shows a number of research designs under the quantitative and qualitative approaches. However, although both approaches are welcome and also used in KIU, in this paper we shall concentrate on the commonly used designs which mainly follow under the quantitative paradigm or approach.

According to fig. 5.1 if a research takes the quantitative approach or paradigm it may take either the experimental or non experimental design, with experimental research being one where the researcher manipulate variables (for example by varying the amount o control given to the subjects); while non experimental research is intended to simply report something that has happened without manipulating or experimenting with variable.
It is worth noting that quantitative social research are usually non experimental in which case (Fig. 5.1) we have descriptive and exposit factor research.

Descriptive research which is common for us students is concerned with describing the characteristics of an event, community or region providing data about the population or item being studied. Descriptive research is classified into co-relational and survey.

Co-relational research is interested in testing whether two or more variables are co-related (for example your current research topic). Survey research is that involving relatively large number of respondents or informants.

Fig. 5.1 further suggest that survey research may either be cross-sectional or longitudinal where the cross-sectional design involve getting responses from informants at once as opposed to longitudinal researches which involve contacting or checking specimens repeatedly. (Bakkabulindi, 2004). Note that your work will be cross-sectional in order to reduce time and costs involved. For a sample of quantitative research design, see our sample proposal section 3.1 where the writer declares his study as taking the quantitative paradigm with a co-relative, cross-sectional survey design.

5.2 Population

A population is the entirety of the unit of analysis (for example customer, staff, specimen, etc) about which you, the researcher will measure your variables. In the population section of your proposal, you are expected to describe the nature of your "target or parent population" that is your intended respondents, informant or specimen; who or what they will be; where they will be found, why they have been chosen for your study and how many they are; usually by categories. For a sample of such section seethe sample proposal section 3.2.

5.3 Sample size

There is no fixed and inviolate rule on how large a research sample should be rather it is the circumstances that dictate what number or fraction of the population you will study. Owolabi (2003) observes, that, the larger the sample size you will use, the more representative your sample will be of your target population although the more costly your study will become.

While there are several methods of determining appropriate sample size, including complicate ones (for example Amin, 2005:257 – 260) many social science researchers and students make use of Krejcre and Morgan (1970)'s table determining minimum sample size(s) from a population of a given size (N). This table is given as appendix A in Amin (2005). For example according to this table size, N = 400 students, the suggested minimum sample size you should select is 196.

5.4 Sampling Strategies

Apart from determining the sample size, sample selection should detail how the researcher intends to select the sample ensuring representatives of the target or parent population. Amin (2005) refers to sampling as a process of selecting elements from a population in such a way that sample elements selected represent a population.

Amin (2005) further observes that since a sample represents a population, most characteristics of a population should be represented in the sample selected. Characteristics of a sample may include gender, level of education, economic background, religious affiliation and many other dictated upon by the nature of the study.

Sampling strategies take two major forms that is scientific, statistical, probabilistic or random sampling and non scientific sampling approaches.

On account of representatives, quantitative researchers use scientific sampling methods. These are methods of selecting a sample which ensures that all elements in the population have some probability of being selected.

There are a number of types of probability sampling which include; probability sampling takes at least 4 forms.

(a) Simple Random Sampling

A simple random sample is a sample obtained from the population in which a way that samples of the same size have equal chance of being selected. This sampling strategy involve the use of lottery method, where by a name or number is written on a tag that identifies elements of a population to be sampled. The tags are placed in a

container and well stared. A tag is then drawn from the container and the process is repeated until the required number of tags is obtained.

(b) Stratified Sampling

This is a sampling strategy in which subjects are arranged according to their sub groups. Then the researcher selects participants randomly from each group for example members may be arranged according to age, sex, income level, colour, tribe, etc.

(c) Systematic Random Sampling

This is when the researcher selects a participant every after a given interval. For this method not to be biased and to avoid sampling errors, participants should be randomly arranged so that each category is represented. Alphabetical order may not be good. The basic rule to determine a sampling interval is to divide the total population by the sample size for example if your population consist of 8000 and your sample size is 400, then divide 8000/40 = 40, this means that every 20th participant is chosen until the sample is obtained.

(d) Cluster Sampling

This is where a researcher selects a particular group as case sample. It is used when the population is very large or scattered over a large area. All members in the group sample are used for example if one want to study malaria patients in Uganda, he / she may use referral hospitals as clusters.

Non-Probability Sampling

This is also referred to as biased sampling and is used when the researcher is not interested to a good sample that can represent a population. Non-probability sampling takes the following forms.

(a) Purposive Sampling

This is where one select participants who have the required information according to the objectives of his / her study. The participants are selected according to the researchers interest in them. But the researcher must specify the procedure of choosing the participants for example a given range, religion sect, education level, etc.

(b) Convenient Sampling or Accidental Sampling

This is where one selects participants depending on how easily he / she can find them (for example in a radio programme, they ask a few listeners who can call in. This method is biased. This method involve use of volunteers or the existing group. The researcher may for example, positive him / herself at a particular spot such as

entrance to a super market, a street point at any given time. Subjects are chosen until a desired sample is obtained. Result of such sampling technique should be generalized to the target population with caution.

5.5 Data collection / Research Methods

While there are two general approaches to data collection namely primary and secondary, quantitative researchers usually use the former; further while there are at least three "methods" of collecting primary data, namely observation, interview and survey, most researchers especially quantitative researchers usually rely on the survey method of primary data collection.

5.6 Data collection instrument

Having declared the choice of data collection method, the researcher must specify the instrument he / she will use to collect data from participants. It can be self administered questionnaire, interview guide or observation checklist among others. Research instrument(s) are constructed following a framework. They should be very simple and clear for example in a questionnaire. For each objective; one designs them (questions) that can help him / her to get data on it. If the questionnaire is correct, so will be the data collected and meaningful results will be got. But if the research instrument is wrongly designed or set, the whole research becomes useless. Therefore, as research student you must be very careful in setting the objectives and questionnaires because they determine the meaningfulness of your research.

5.7 Data Quality Control

Data quality refers to the quality of your data collection or research instrument. Thus in this section of the proposal you deal with how the validity and reliability of your proposed instrument will be ensured. Details of the same are to come in the next topic. (For details on the same; see our sample proposal section 3.6).

5.8 Data analysis

This section of the proposal outline how the data collected will be processed and analyzed method of data analysis depends on the type of data one has and the types of variables. Many researchers use mathematical or statistical methods to organize and present data for example data can be presented using frequencies, tables and percentages.

Computer packages such as excel, spss and stata can all aid in data analysis.

N.B: Beginning researchers should not be disturbed within scientific data, analysis, there are specialized staticians who can do this work. So if you reach this section, consult your statisticians in the research department of your school / faculty.

5.9 Procedure

In this section, you should narrate how your respondents or informants will be contacted for example, whose permission will you seek? What assistants will you use in contacting respondents, say in distributing and following up RMQs?

REFERENCES

Here all the cited books, articles, journals, magazines, newspapers and internet websites are recorded in an ordery and acceptable manner following the APA style in the case of KIU.

APPENDICES

Other important things but which are not part of the research findings are not put inside the proposal, they are put at the end as appendices. Common appendices are introductory letter, research instrument, budget and time frame.

List of reference for this topic

Amin, M.E. (2005). Social Science Research, Conceptions, Methodology and Analysis. Kampala, Makerere University.

Owolabi, S.J. (2003) Research Sample papers presented at a research seminar for teachers and post graduates. Dept of high education Makerere University May 23, 2003 Kampala Uganda.

6. DESIGNING AN INSTRUMENT FOR A RESEARCH

6.0 Introduction

A research is incomplete unless it is accompanied by at least one data collection or research instrument. In this section we shall argue that a research instrument result from repeated conceptualization or operationalization of the variables in the study, a process that is facilitated by constructing the conceptual framework or model.

6.1 Conceptual Framework or model

One designing a data collection instrument should base on the particular study's conceptual framework which is usually a diagram that visualizes how a given researcher views inter-connection between variables in the proposed study in order to achieve the study's objectives. For a sample (or conceptual model) re-visit our sample proposal.

6.2 Identification of variables (or concepts or constructs in the study)
A conceptual framework should help a research instrument designer to identify the variables (at least independent variables and dependent variables) in the study.

6.3 Conceptualization (or operationalization of the variables)
A conceptual framework or model should help a data collection research instrument designer at a glance to see how each variable has been conceptualized or operationalized. For example our sample proposal indicate that, the independent variable (buz behaviour characteristics) were conceptualized as pro-activeness, achievement orientation and commitment.

6.4 Hence the instrument
From the repeated conceptualization or operationalization the pertinent data collection or research instrument will emerge; with sections of the instrument reflecting the variables (independent variables and dependent variables) and how they have been subdivided or conceptualized. Under the subsection are the respective questions or items. However, as our sample proposal suggest an instrument should, like any other academic document start with a;

Main title
As the sample suggests, this title should reflect the type of the instrument (in which case, researcher made questionnaire (RMQ), the unit of analysis (or target respondent) the context and variables in the study.
In addition the instrument should have an:
Introductory or cover letter
This letter should among other things, identify the address of the researcher; the purpose of the study, why and how the respondents have been chosen. It should request for the respondents cooperation while assuring the respondent of anonymity or confidentiality of responses. The letter should also specify the time frame within which the instrument should be filled or administered and whom to return it, ending with thanks and the identity of the researcher then these sections

A – Dependent variables
B – Independent variable I
C – Independent variable II
D – Independent variable III
E – Background variable

Note that, the number of sections for the independent variable(s) depends on number of variables (independent variable) in the study or on how they are conceptualized and operationalized. In our sample proposal the independent variable (business behaviour characteristics) was conceptualized as proactiveness,

achievement orientation and commitment, thus reflecting three sections of the independent variable in the instrument.
We note further that most questions in the instrument were asked in an opinion or attitudinal format, and even called for opinion or attitude scaling using Likert's scale (Amin 2005).

The section of the background classification or stratification variables contains items for classification of respondents into different backgrounds. We shall observe that background questions or items are usually factual (and not opinion questions) soliciting facts and hence have yes (correct) or no (wrong) answers.

Note that contrary to expectations, the background questions may not be put at the start (see our sample proposal) but the end of the RMQ. This is in agreement with Oppenheim (1992) who advices that "personal data questions should … come near the end of the questionnaire ….." (p. 109).

In designing the instrument (RMQ) questions or items relating variables should be avoided; then co-relation will be done by the researcher in the analysis phase of the study.

Questions or items in the instrument should be self-rating, that is prompting a respondent to talk about self and not about others. All items should also prompt a respondent to talk about how things are; and not how things should be. Thus theoretical questions or items should be avoided. Redundant questions or items (for example repetition) should also be avoided.

Further guidelines

DESIGNING AN INSTRUMENT FOR A RESEARCH PROPOSAL

By Dr. Tindi Seje & Dr. Gulebyo Said.

Paper presented in the staff and students' seminar on March 31st, 2012

Kampala International University

College of Higher Degrees and Research

Institute of Research

Introduction

A research proposal is not complete without a data collection instrument. There are many research instruments that can be used to collect data, for example, a questionnaire (this can be standardized or researcher-made), interview guide, observation guide, etc. In this paper, we demonstrate one case, where the instrument in question is a researcher-made questionnaire.

NB: it is better for a student (like you) to always chose one instrument of data collection, to make your data analysis easy and to avoid confusion during interpretation. You can read about the advantages of using a questionnaire later but this paper is interested in guiding you on how to construct it.

What is a questionnaire?

It is a set of questions intended to collect some data from a given group of people on a given aspect.

Guidelines on how to construct a good researcher-made questionnaire

1. The questionnaire should have three parts, following the first three objectives in your proposal; I) Face sheet (Profile or demographic characteristics of respondents); questions on this should be in line with those mentioned in the first objective and are factual in nature; II) Questionnaire on IV (to determine level of IV); and III) Questionnaire on DV (to determine level of DV).

2. Look at your variables IV (s) & DV (s). E.g. in the title; "Managerial Skills and Success of Small-scale Entrepreneurs in Kampala Uganda", the said variables are; IV = Managerial Skills; and the DV = Success (of Small-scale Entrepreneurs)

3. Define your variables; i.e.
   I) Define Managerial Skills and Success (of Small-scale Entrepreneurs). E.g.;

   Managerial Skills refer to the ability of a manager (in this case a small-scale entrepreneur) to perform managerial tasks or roles effectively and efficiently (Zuzana & Matej, 2007); and it involves one's ability and possession of conceptual, human and technical skills related to a business (Mullins, 2002).

   Success (of Small-scale Entrepreneurs) refers to the extent to which the set objectives are achieved and it is broken into internal or personal and external success.

4. Break each variable into specific constructs, which are called the indicators or measures. The construct are derived from literature definitions. E.g.;

   I) Managerial Skills were broken into conceptual, human and technical.

II) Success (of Small-scale Entrepreneurs) was broken into internal or personal and external or environmental.

5. For each construct, break it further into small and smaller constructs. This is called "repeated conceptualization". Use your literature review to do this repeated conceptualization. For example;

I) Each of the three constructs on managerial skills was further conceptualised as follows;

Conceptual Skills. Refer to understanding of the business one is doing and it involves planning and organising skills.

Planning skills include goal setting, resource allocation and resource mobilisation while organising skills include task identification, task distribution, team building, departmentalisation and delegation.

Human Skills. Refer to understanding of how to deal properly with the people one is working with in the business such as employees, suppliers and customers. It involves social skills, leading skills, conflict resolution skills, motivation skills and communication skills.

Technical Skills. Refer to ability to do or perform activities and tasks involved in the business one is doing, e.g. ability to cook in case of a restaurant. Technical skills involve professional skills, marketing skills, bookkeeping skills, budgeting skills, time management skills and legal skills (Zuzana & Matej, 2007).

II) Each of the two constructs of success was further conceptualised as follows;

Internal or personal success refers to personal benefits like increased profits, sales, personal satisfaction, expansion, improved life and long term survival)

External success refers to benefits to the society such as increased jobs, output, improved quality, relations and number of trained people.

6. For each of the small construct from repeated conceptualization we ask a relevant question (s) on each, depending on what you want to measure or to come up with.
7. Determine how you want to phrase your questions. This depends on how you want to measure the variables, e.g. you may want to know how many, how much, how high or low, how rough/smooth, how efficient/inefficient, how long, how good/poor, how

profitable or not, how fast, how attractive, how is the perception or attitude (negative/positive) etc. Check the word you used in your objective two and three; i.e. whether level, degree or extent.

8. Then phrase your questions. Make sure that all questions on a single variable have the same flow, i.e. Positive, negative or just relative.

Note the following;

- In most cases questions measuring the IV & DV are asked in an opinion or attitudinal format, i.e. they ask for opinions or examine the respondents' attitude or perceptions on the things they see or do. In such a case, the opinions, attitudes or perceptions are scaled using a common or standard scale, e.g. the four or five point Likert scale.
- Do not ask questions relating variables in the questionnaire. Respondents are not asked to relate, rather they are asked to rate, rank, show attitude or perceptions over a construct. The work of relating variables is done by the researcher during the analysis phase. E.g. you should not ask such questions; "how do management skills affect success?"; "how do technical skills affect success?" etc.

LOOK AT A SAMPLE QUESTIONNAIRE

KAMPALA INTERNATIONAL UNIVERSITY

SCHOOL OF POSTGRADUATE STUDIES AND RESEARCH

Ph.D. PROGRAM

_____

Dear Entrepreneur,

I am a Ph.D. candidate in Business Management undertaking a dissertation on Managerial Skills and Success of Small-scale Entrepreneurs in Kampala Uganda. In view of this, I request you to participate in this study. Kindly answer this questionnaire without leaving any question unanswered. Please be assured that the information you give will be treated with utmost confidentiality and will be used for academic purposes only.

I request that you fill this questionnaire so that I get it back in a maximum of one week. Before answering this questionnaire, kindly read and sign the "informed consent" below, where 'I' refers to you the respondent (entrepreneur).

Thank you very much in advance.

Yours faithfully,

……..

Kibuuka Muhammad

_____

INFORMED CONSENT

I am giving my consent to be part of the research study of Kibuuka Muhammad that will focus on Managerial Skills and Success of Small-scale Entrepreneurs in the enterprise I presently own.

I am assured of privacy, anonymity and confidentiality and that I will be given an option to refuse participation and right to withdraw my participation anytime.

I have been informed that the research is voluntary and that the results will be given to me if I ask for them.

Initials _____

Date _____

FACT SHEET

Code #_____ Date Received by Respondent _____

PART A: RESPONDENTS' DEMOGRAPHIC CHARACTERISTICS

A1. Your sex; 1. Male 2. Female

A2. Education level; 1. Secondary 2. College certificate 3. Diploma 4. Degree

A3. Which division Kampala is your business in?

A4. What is your age? _____years

A5. What form of business do you have?

1. Sole proprietorship 2. Partnership 3. Limited company

A6. Which sub sector best describes your business? (Tick in the right space)

___1 Business Services (e.g. School, law firm, consultancy)

___2 Computer and communication (telephones, computers, studio)

___3 Foods and drinks (restaurant)

___4 Stationary and printing art and designs

A7. How many workers are you currently employing? _____

A8. How long have you been in this business? (state the years)_____

_____

PART B: MANAGERIAL SKILLS QUESTIONNAIRE

Rate your ability, knowledge or skills on the following item by ticking the number corresponding with each item. Key; 1=Very little or no skill at all; 2=Little; 3 = Moderate; 4 = Much; 5=Very much skills

Conceptual Skills						
Business planning skills						
1 Ability to carry out feasibility studies	1	2	3	4	5	
2 Ability to write business plans (for marketing, finance, sales & risk management)	1	2	3	4	5	
3 Ability to evaluate business plans	1	2	3	4	5	
4 Ability to set clear & relevant goals (goals that are achievable and measurable)	1	2	3	4	5	
5 Ability to mobilize physical resources	1	2	3	4	5	
6 Ability to mobilize human resources	1	2	3	4	5	
7 Ability to mobilize financial resources (money)	1	2	3	4	5	
8 Ability to distribute physical resources	1	2	3	4	5	
9 Ability to distribute human resources (staff)	1	2	3	4	5	
10 Ability to distribute financial resources (money)	1	2	3	4	5	
11 Ability to make resource allocation plans (e.g. budgets)	1	2	3	4	5	
12 Ability to allocate resources in the in the most productive way	1	2	3	4	5	
Organizing skills						
13 Ability to identify the most important tasks	1	2	3	4	5	
14 Ability to determine time and others resources required to perform each task	1	2	3	4	5	
15 Ability to distribute tasks	1	2	3	4	5	
16 Ability to supervise tasks for quick completion	1	2	3	4	5	

17 Abilityto assign group work	1	2	3	4	5
18 Abilityto supervise teams or groups	1	2	3	4	5
19 Abilityto communicate vision, mission and objectives to teams	1	2	3	4	5
20 Abilityto identify strengths and weaknesses of teams	1	2	3	4	5
21 Abilityto identify similar/related tasks	1	2	3	4	5
22 Abilityto divide work into small related tasks and jobs	1	2	3	4	5
23 Abilityto group similar work or tasks into one department	1	2	3	4	5
24 Abilityto define and delegate specific tasks (with specific output and deadlines)	1	2	3	4	5
25 Abilityto make people you delegate accountable/responsible	1	2	3	4	5
26 Abilityto give feedback on results from delegated duties	1	2	3	4	5
Human Skills					
27 Ability to interact freely with others (e.g. employees and customers)	1	2	3	4	5
28 Ability to trust and share freely with others (e.g. employees and customers)	1	2	3	4	5
29 Ability to screen people's characters, motives & intentions	1	2	3	4	5
30 Ability to induce positive reactions from others (impressions management)	1	2	3	4	5
31 Ability to control your own emotions (Emotional intelligence ability)	1	2	3	4	5
32 Ability to learn and use new environments (Social adaptability)	1	2	3	4	5
33 Ability to listen to and understand other people's views	1	2	3	4	5
34 Ability to process and give feedback to subjects	1	2	3	4	5
35 Ability to unite and cooperate with others	1	2	3	4	5
36 Ability to instill integrity in others (e.g. employees and customers)	1	2	3	4	5
37 Ability to encourage and motivate people to do work (workmates)	1	2	3	4	5
38 Ability to respect and appreciate people you work with	1	2	3	4	5
39 Ability to identify employee needs	1	2	3	4	5
40 Ability to satisfy employee needs	1	2	3	4	5
41 Ability to identify positive and negative conflicts	1	2	3	4	5
42 Ability to manage conflicts (settle conflicts, identify & exploit positive conflict)	1	2	3	4	5
43 Ability to set clear goals/objectives to reduce conflict over them	1	2	3	4	5
44 Ability to identify and apply conflict reduction measures (e.g. fair resource distribution, clear human resource policies, proper communication channels, etc.)	1	2	3	4	5
45 Ability to communicate clearly and	1	2	3	4	5
46 Ability to encourage others to speak out their feelings and emotions	1	2	3	4	5
47 Ability to communicate business objectives to employees	1	2	3	4	5
48 Ability to orient employees on what they are supposed to do	1	2	3	4	5
49 Ability to communicate promises and failures properly	1	2	3	4	5
Technical Skills					
50 Ability to identify new markets and/or customers	1	2	3	4	5
51 Ability to identify customer needs	1	2	3	4	5
52 Ability to satisfy customer needs	1	2	3	4	5
53 Ability to develop a marketing budget	1	2	3	4	5
54 Ability to identify competitors' strength and weaknesses	1	2	3	4	5
55 Ability to apply competitive strategies (e.g. cutting prices, improve quality, design new products, packages etc, fashion, colour, etc.)	1	2	3	4	5
56 Ability to respond quickly to competitive forces.	1	2	3	4	5
57 Ability to manage cash flows (income and expenditure)	1	2	3	4	5
58 Ability to audit and understand business financial position	1	2	3	4	5
59 Ability to prepare financial documents (e.g. cash books, petty books, journals, ledgers & bank reconciliations)	1	2	3	4	5
60 Ability to set performance goals and standards	1	2	3	4	5

61 Abilityto evaluate results basing on budgetary goals	1	2	3	4	5
62 Abilityto prioritize or budget according to goals and objectives	1	2	3	4	5
63 Abilityto time table tasks and activities (determine what activity to do & when)	1	2	3	4	5
64 Abilityto apply time saving measures (e.g. quick decisions, clear delegation)	1	2	3	4	5
65 Abilityto meet deadlines and appointments.	1	2	3	4	5
66 Abilityto deal with business legal forms, contracts and laws	1	2	3	4	5
67 Abilityto register businesses trademarks and acquire licenses	1	2	3	4	5
68 Abilityto understand business rights and consumer protection laws.	1	2	3	4	5
For questions B68–B70 indicate the extent to which you agree with the statement. Answer key; 1=Strongly disagree; 2=Disagree; 3=Neither disagree nor agree; 4=Agree; 5 = Strongly agree.					
69 You have adequate qualifications in line with the business you are doing	1	2	3	4	5
70 You have adequate training in line with this business	1	2	3	4	5
71 You have ever worked in a similar business related to the one you currently own	1	2	3	4	5

PART C: ENTREPRENEURIAL SUCCESS QUESTIONNAIRE

Direction: As honestly as you can indicate the extent to which there has been an increase or an improvement in the following aspects from the start of this business. Tick the number corresponding with each item. Key; 1=very low or no at all; 2=low; 3=Moderate; 4=high; 5=very high.

****

Internal / personal success					
1 Total Sales Volume or number of customers served	1	2	3	4	5
2 Revenue	1	2	3	4	5
3 Profits in general	1	2	3	4	5
4 Number of branches opened	1	2	3	4	5
5 Number of assets acquired	1	2	3	4	5
6 Food quality at home	1	2	3	4	5
7 Access to quality medical care	1	2	3	4	5
8 Access to a good house	1	2	3	4	5
9 Access to assets at home (e.g. TVs, radio, car, computer etc)	1	2	3	4	5
10 Your ability to pay children's school fees in time	1	2	3	4	5
External success					
11 Full time workers	1	2	3	4	5
12 Part time workers	1	2	3	4	5
13 Trained workers	1	2	3	4	5
14 Quantity produced or services delivered	1	2	3	4	5
15 Stock in store	1	2	3	4	5
16 Trust from customers	1	2	3	4	5
17 Public confidence	1	2	3	4	5
18 Employee confidence	1	2	3	4	5
19 Attendance of social functions for customers	1	2	3	4	5
20 Assets (e.g. vehicles or other equipments to carry goods)	1	2	3	4	5
21 Working capital	1	2	3	4	5
22 Working space (e.g. premises, offices or buildings)	1	2	3	4	5
23 Business savings (available cash)	1	2	3	4	5
For questions C24 – C28, indicate the extent to which you agree with the following statements about your products or services. Answer key: 1=Strongly disagree; 2=Disagree; 3=Neither disagree nor agree; 4=Agree; 5 = Strongly agree.					
24 Customers prefer your products to those of your competitors	1	2	3	4	5
25 The quality of your products is superior to that of your competitors	1	2	3	4	5

26 Your customers are now more satisfied than before	1	2	3	4	5
27 Your skills have improved while doing this business	1	2	3	4	5
28 You have trained some people to do this kind of business	1	2	3	4	5
29 In doing your business as an entrepreneur, have you experienced any closure?				Yes	No

THANK YOU VERY MUCH!

6.5 Validity of the instrument

Before a data collection or research instrument is declared fit for use, it usually has to jump at least two other hurdles; validity and reliability test which are dealt with in this and the next sections respectively. According to Kakinda – Mbaaga (2000:132), "Validity" of an instrument is the degree to which it measures what is intended to measure, and does so correctly, giving an example that if length is measured with a foot ruler, that is valid measurement, while measuring length with a thermometer is invalid measurement!!

In the social science, if an instrument is constructed to measure say "job satisfaction" then the designer ought to ensure that it is measuring that, and not something else say "Motivation".

Amin (2005: 286 – 293) discusses several ways of validating an instrument such as "Face or content validity (validation)" and "concurrent validity" read about them.

6.6 Reliability of the instrument

Reliability of an instrument is its degree of consistence. A "reliable" instrument will give the same score even when used many / several times to measure the same variable, provided the variable has not changed for a given entity. Kakinda – Mbaage (2000) illustrates, "reliability" of an instrument using the case of wood ruler which will give same length of an object irrespective of the number of times the measurement is repeated. He argues however that if the ruler expands when it is hot and contracts when cold, then the length got will depend on the weather and hence the plastic ruler will not be reliable or consistent!!

Amin (2005) gives several methods of testing reliability of an instrument such as test – retest and parallel form methods; Read about them.

7. DATA ANALYSIS

7.0 Introduction

Data obtained from the field in row form is difficult to interpret. Such data must be cleaned, coded, key-punched into a computer and analyzed. This topic (chapter) is devoted to the process of data editing, data categorizing, data entry and data presentation.

7.1 Data editing

During the process of data collection the respondent or interviewer can make errors. Data editing or cleaning is the process by which errors in complete data collection instruments are detected and eliminated. A data editor or cleaner should check for such errors as;

(i) Incompleteness or omissions or non – response

A data editor should check whether there is a response to every question or item. Thus the editor should check whether an unanswered question is just not applicable (for example, a respondent may be asked to state whether he / she has a PDG, the awarding institution and year of award. For not application the response would respond with N/A or NIL) or a refusal that is "non response".

The editor can even try to deduce answers to an answered questions from answers to related questions. Usually if an instrument is not 75% answered it should be eliminated from analysis: (Sekaran, 2003).

(ii) Inconsistencies

The editor should check whether answers to reflected questions or items are in agreement. For example is the respondent who has reported not to be studying giving current course of study?

(iii) Non-uniformity in recording answers

Here the editor is interested in finding out whether all answers to a given question were recorded as instructed.

(iv) Eligibilities

This is concerned with whether all answers particularly those pertaining to "open ended questions" are legible or readable. This may involve contacting friends (for example fellow students) to help you understand poor handwriting or in some cases (for example in the case where respondents reveal names) re-contacting them for clarification.

7.2 Data categorizing

Data categorizing and / or coding is a process by which answers to each question in the completed data collection instrument are categorized and each category given an identification code (for convenience of the computer where it is to be used for analysis). For example a question about the rank for university staff can be categorized and / or coded as '1' for lecturer, '2' for assistant / junior lecturer; '3' for senior administrator and '4' for assistant administrator.

These numerical codes are particularly useful if the data or responses are to be entered into computer for further processing and / or analysis. This is because they are easier to enter as opposed to words and take less storage in the computer.

7.3 Data entry

If a computer is to be used in coming up with summary frequency tables and subsequent data analysis, then the responses have to be transcribed from each coded data collection instrument into computer.

Use of a computer for data processing and / or analysis is recommended particularly if complex or multiple analysis are to be performed, or if a large number of respondents are involved. However, Gay and Aurasia (2003) advices beginning researchers not to use the computer to perform analysis that they have never done manually, lest they fail to appreciate computer output.

7.4 Data presentation

After data or responses have been "entered" into computer they have to be presented or analyzed so that they can be analyzed. Statistics as a tool for research offers a data presentation at least two tools for data presentation namely frequency tables and graphics.

7.4.1 Graphics

A graphic or a figure or a chart is any illustration than a table, thus a graphic may be a graph, a photo, drawing and so on. Such graphics have advantages such as attraction of readers, they have visual appeal that breaks monotony, ability to give an overall pattern of result at a glance among others.

However graphies suffer disadvantages such as difficulty of drawing (although computer have eased this).

Another disadvantage is that a graphic requires readers to estimate value as opposed to say a table which gives exact value.

As to when to sue a particular graphic (for example pie graph, bar graph, etc) one should consider advantages of that graphic over others in the circumstances. For example a pie or circular graph is used for comparing sizes of components of a numerical variable for example expenditure sub divided by sub categorical variable for example sectors for example Kagezi LC I (2002) used to a pie to show expenditure to the different ministries of its cabined as shown in figure.

Figure 7.1: Showing expenditure pattern of Kagezi LC I

Second, a bar graph is used to compare value of a numerical variable (for example expenditure) for example NCHE (2006) used the bar graph to Fig. 2.2 to stress how university expenditure in Uganda.

Figure 7.2: Bar graph showing university expenditure in Uganda 2003

As to the content of any graphic, we should recall that a good graphic supplements rather than duplicate test, convey only essential facts, omitting visual distracting details.

Further a good graphic should have the main title, axis of title, unit of measurement, scale used; if not to scale, this should be mentioned using such phrases (in the title) as "sketch…..", spruce(s) of data and so on.

7.4.2 Frequency table

There are special type of table for data presentation interested in how frequently different events occurred. They are perhaps the most popular tool(s) for research data presentation because of their ability to summarize. For example one can use frequency tables to summarize (illustrate) the distribution of respondents say by attitude (that is poor or good) towards a given subject like mathematics.

Table 7.1: Distribution of respondents by attitude towards maths

Attitude	Frequency
Poor	140
Good	60

Total	200

Such a frequency table is referred to as a one way or simple frequency table because it pertains to one variable (in this case attitude ….). Another one way or simple frequency table can be used to illustrate the distribution of the same respondents by gender.

Table 7.2: Distribution of the said respondent by gender

Gender	Frequency
Male	112
Female	88
Total	200

Analysis of data in one way or simple frequency tables are common for presenting data on categorical variables. When two one way or simple frequency tables are cross tabulated, we get a two way or complex frequency table or cross tabulation or x-tab such as

7.3: Illustration of a cross tab

Attitude	Gender		Total
	Male	Female	65
Poor	34	31	135
Good	78	57	200
Total	112	88	

such a cross tab as in table 7.3 may be constructed manually, but better still, to avoid the tedious work involved, is better generated using a computer program (for example spss). A across tab is useful when studying co-relation between two categorical variables (for example table 7.3) between attitude towards math and gender.

7.4.3 Relative and Cumulative frequencies

Using frequency tables the research may be interested in computing “relative” frequencies and “cumulative frequencies”.

Example

Consider the “absolute frequencies” pertaining to the distribution of teaching staff in KIU by rank.

Table 7.4: Illustration of computation of “relative frequencies”

Rank	Absolute frequency	Relative frequency (%)

Ass. Lecturer	52	(52/145) x 100 = 35.9
Lecturer	54	(54/145) x 100 = 37.2
Sir Lecturer	24	(24/145) x 100 = 16.6
Ass. Prof	6	4.1
Prof	9	6.2
Total	145	100.0

In that case, we may wish to compare the absolute frequencies, in which case we may express the absolute frequency of each category relative to the total number of respondents, thus getting the "relative frequency" of each category (as in the 3rd column of table 7.4).

In interpreting the computed "relative frequency" (or percentage) we see that the lecturer category contributes the highest percentage (over 37%) followed by assistant lecturer (almost 36%) suggesting that, the respondents in the teaching category in KIU were dominated by lower ranking staff.

Cumulative frequencies

If the categories in the frequency table are not only normal but also ranked, then in addition to "relative frequency" we can also use "cumulative frequencies" as tools of analysis.

Example

Reconsider the absolute and relative frequencies pertaining to the distribution of teaching staff in KIU by rank as already given in table 7.4 but here below reproduced in the second and fourth column of table 7.5;

Table 7.5: Illustration of computation of cumulative frequencies

Table 7.4: Illustration of computation of "relative frequencies"

Rank	Absolute frequency	Cumulative absolute frequency	Relative frequency (%)	Cumulative relative frequency
Ass. Lecturer	52	52	35.9	35.9
Lecturer	54	106	37.2	73.9
Sir lecturer	24	130	16.2	89.7
Ass. Professor	6	136	6.2	93.8
Prof.	9	145	100.0	100.0
	145			

When interpreting the computed "cumulative frequencies" we see that 52 (almost 36%) were in the lowest teaching category (assistant lecturer). Cumulatively 106 (over 78%) were in the second category (lecturer) and less, suggesting respondents was dominated by lower cadre.

Conclusion

This course has given the steps followed in writing a research. After defining concepts and giving the purpose of research, the course dealt with, searching for a research problem types of variables and their role in research; introducing a research; reviewing literature pertaining to a research; proposing a methodology for a research; designing a research instrument, data analysis and ended with academic writing. Research is wide and cannot be conceptualized at once. Thus constantly refer to the content of this course as you are writing research proposals and other academic documents where necessary.

ELEMENTS OF A RESEARCH PROPOSAL