CHAPTER 4: DESIGN AND METHODOLOGY

INTRODUCTION

After completing the introduction and literature review, the next task in the proposal is the methodology. This chapter of the research deals with the description of the methods applied in carrying out the research study. It is organised under the following sections: research philosophy and paradigm, research design, research site, population, sampling techniques, research instruments, data collection procedures, and data analysis.

RESEARCH PHILOSOPHY AND PARADIGM

Research philosophy deals with the source, nature and development of knowledge (Bajpai, 2011). In simple terms, a research philosophy is a belief about the ways in which data about a phenomenon should be collected, analysed and used. Although the idea of knowledge creation may appear to be profound, you are engaged in knowledge creation as part of completing your thesis. You will collect secondary and primary data and engage in data analysis to answer the research question and this answer marks the creation of new knowledge.

In essence, addressing research philosophy in your thesis involves being aware and formulating your beliefs and assumptions. As it is illustrated in figure 4.1: Research philosophy in the 'modified research onion', the identification of the research philosophy is positioned at the outer layer of the 'research onion guided by the nature of the study, accordingly it is the first section to be clarified in research methodology chapter of your thesis.

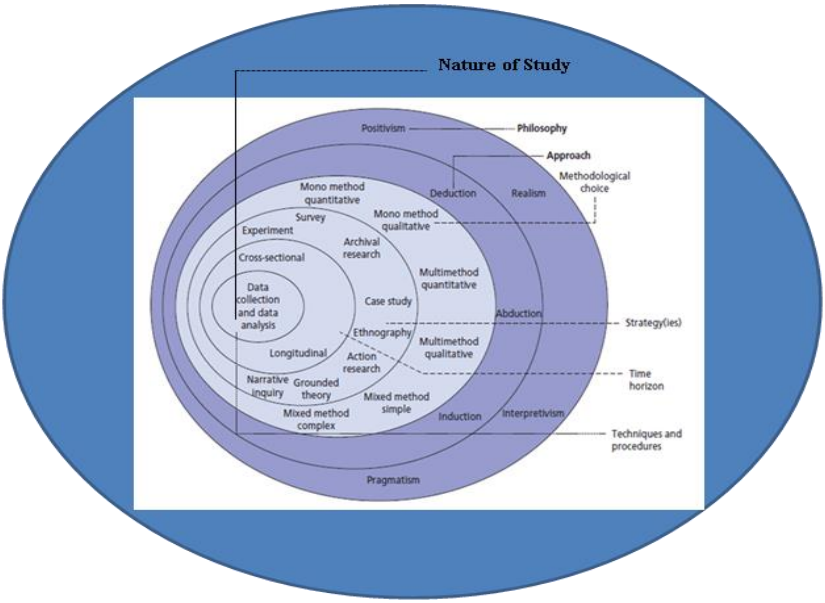

Figure 4.1: *Research philosophy in the 'research onion'* (Modified from Saunders, Lewis and Thornhill, 2012)

Each stage of the research process is based on assumptions about the sources and the nature of knowledge. The research philosophy will reflect the author's important assumptions and these assumptions serve as base for the research strategy. Generally, research philosophy has many branches related to a wide range of disciplines. Within the scope of business studies in particular there are four main research philosophies:

- **Pragmatism**

Pragmatism research philosophy accepts concepts to be relevant only if they support action. Pragmatics recognise that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there may be multiple realities.

- **Positivism**

In its essence, positivism is based on the idea that science is the only way to learn about the truth. As a philosophy, positivism adheres to the

view that only 'factual' knowledge gained through observation (the senses), including measurement, is trustworthy. In positivism studies the role of the researcher is limited to data collection and interpretation in an objective way. In these types of studies research findings are usually observable and quantifiable.

- **Realism**

Realism research philosophy relies on the idea of independence of reality from the human mind. This philosophy assumes of a scientific approach to the development of knowledge. Realism can be divided into two groups: direct and critical. Direct realism, also known as naive realism, can be described as 'what you see is what you get'. In other words, direct realism portrays the world through personal human senses. Critical realism, on the other hand, argues that humans do experience the sensations and images of the real world. According to critical realism, sensations and images of the real world can be deceptive and they usually do not portray the real world.

- **Interpretivism (Interpretivist)**

Interpretivism also known as interpretivist involves researchers to interpret elements of the study, thus interpretivism integrates human interest into a study. Accordingly, interpretive researchers assume that access to reality (given or socially constructed) is only through social constructions such as language, consciousness, shared meanings, and instruments. Development of interpretivist philosophy is based on the critique of positivism in social sciences. Accordingly, this philosophy emphasises qualitative analysis over quantitative analysis.

The four research philosophies are premised on three research paradigms which are epistemology, ontology and axiology. Epistemology seeks to understand what is deemed as acceptable knowledge in a particular field. Ontology is explained by Saunders *et al*., (2019, p, 135) through the question 'What assumptions do we make about the way in which the world works?' and states that ontology relate to the description of reality. Ontology has two aspects namely subjectivism and objectivism. Objectivism depicts that social object exist in a

reality that is not affected by the social actors around them while subjectivism argues the opposite where social objects are produced from the actions and perceptions of individual social actors related to their existence. This research philosophy aims at understanding the role played by values in research choices. As values are a part of human nature, it is imperative to appreciate the part they work on all stages of a research to come up with credible results. A summary of the research philosophies and their paradigms in relation to the four philosophical assumptions found in business research is shown in Figure 4.2.

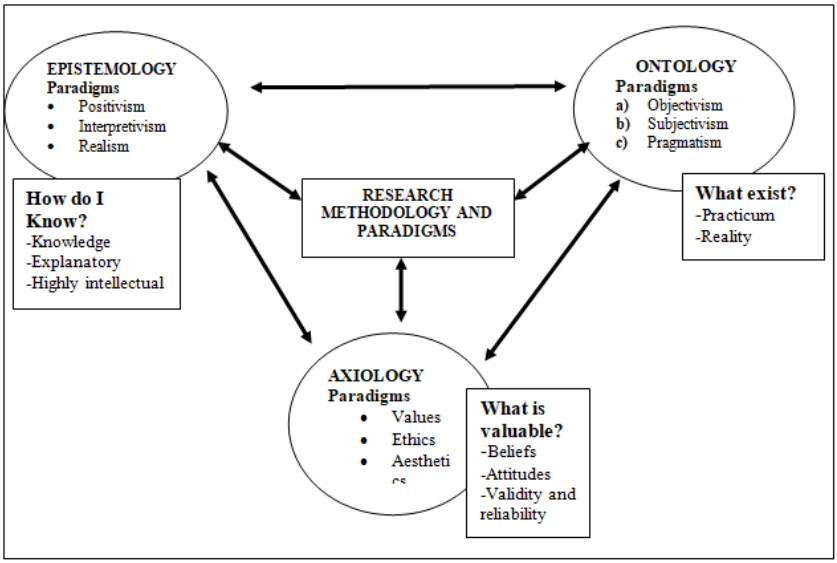

Figure 4.2: *Research philosophies and paradigms* **(**Ruturi, 2016)

THE CHOICE OF RESEARCH PHILOSOPHY

The choice of a specific research philosophy is impacted by the nature of the research problem and the practical implications. There are important philosophical differences between studies that focus on facts and numbers such as an analysis of the impact of foreign direct investment on the level of GDP growth and qualitative studies such as

an analysis of leadership style on employee motivation in organisations.

RESEARCH DESIGN

A research design can be thought of as the structure of research. It is the 'glue' that holds all of the elements in a research project together. A design is used to structure the research, to show how all of the major parts of the research project work together to try to address the central research questions. Research design was defined as being concerned with the plan of the research (Saunders et al., 2012). Cooper (2003) describes a research design as a roadmap, a blueprint for visualising and obtaining answers to research questions. A research design can be regarded as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance with the research purpose. It is the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data (Aletaiby, 2018). Figure 4.3a and 4.3b shows examples of research designs.

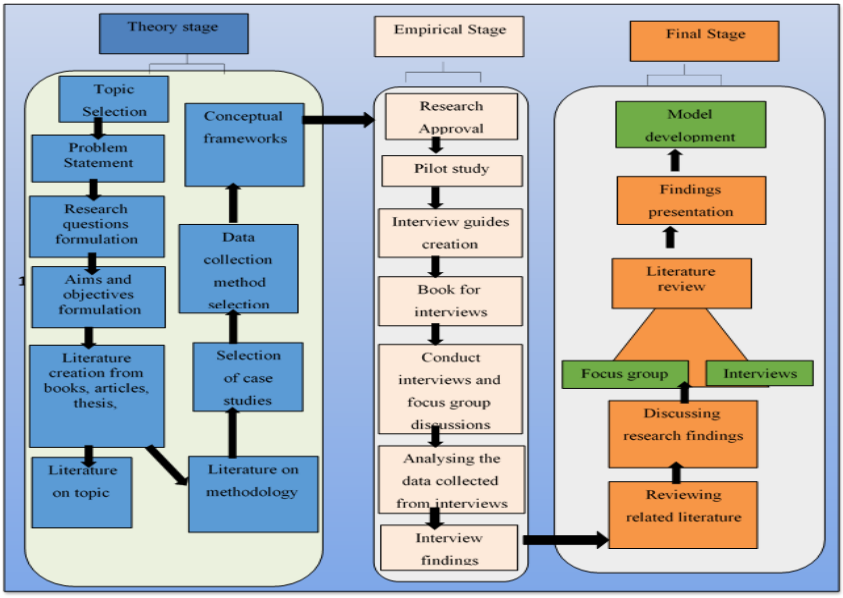

Figure 4.3a: *Research design* **(**Basera, 2021)

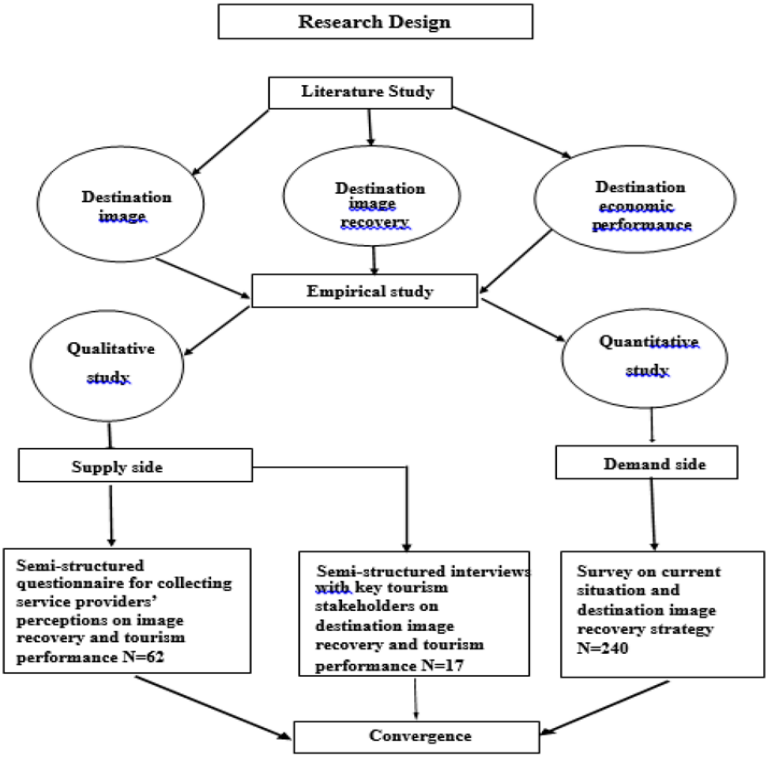

Figure 4.3b: *Research design* (Kanokanga, 2019)

TYPES OF RESEARCH DESIGNS

It is important to understand the relationship among various designs. This will assist the researcher in making research design choices and thinking about the strength and weaknesses of different designs. The designs are as follows:

DESCRIPTIVE DESIGN

The major purpose of descriptive research is description of the situation as it exists. The researcher reports the findings. Saunders *et al*., (2007) point out that descriptive studies are not only restricted to fact findings but may often result in the formulation of important principles of knowledge and solution to significant problems. They are

more than just a collection of data. They involve measurement, classification, analysis, comparison and interpretation of data.

Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Easterby-Smith, Thorpe, & Jackson, 2014). It can be used when collecting information about people's attitudes, opinions, habits or any of the variety of education or social issues (Saunders, Lewis, & Thornhill, 2007). For example, teachers in schools can carry out a survey to find out students' attitudes towards their teaching styles or discipline. When using this design, the researcher should ensure the following:

a. Construct questions that will solicit the desired information.
b. Identify the individuals that will be surveyed.
c. Identify how the survey will be conducted
d. Summarise the data in a way that provides the designed descriptive information.

EXPERIMENTAL DESIGN

In this design, subjects are randomly assigned to an experimental group which receives the treatment or to a control group which does not receive treatment. Assuming the two groups were initially equivalent the researcher can compare their performance. In this design cause and effect can be easily determined. If you decide to use this design, you must be certain of the independent and dependent variables and must guard against the influence of extraneous variables.

The design enables the researcher to assess the degree of relationship that exists between two or more variables. It analyses the correlation between two or more variables (Easterby-Smith, Thorpe, & Jackson, 2014). For example, if you compare the examination performance of a group of university students who prepare their own meals every day and those who eat at the cafeteria, you will use a correlation design. Suppose the academic performance of students who prepare their own meals is lower than those who eat at the cafeteria, then you may deduce that preparation of meals by students has an impact on their academic performance. However, you might not be able to prove conclusively that the poor performance was caused by time used for cooking. Nevertheless, if you have carefully controlled other possible variables that might produce the difference, then a causal relationship exists. The use of correlational research designs

will enable you to map out the relationship between two or more educational variables.

CASE STUDY DESIGN

A case study seeks to describe a unit in detail, in context and holistically. It is a way of organising educational data and looking at the object to be studied. In a case study, a great deal can be learned from a few examples of the phenomena under study. For example, factors affecting quality management systems adoption in Zimbabwe hotel industry. A study of hotels in Harare as a case study can allow an in-depth investigation of the problem at hand. It will bring about deeper insights and better understanding of the problems faced by hotels in adopting quality management systems.

You should use case study design if you intend to analyse an issue in detail. Ensure that you have justified why you selected a case study.

CROSS CULTURAL RESEARCH DESIGN

This is used to compare the behaviour patterns of different cultures. Using this design, you can perceive how various cultures perceive certain educational and social outcomes. For example, you can compare holiday travel motives of people in rural areas and people in urban areas and find out to what extent cultural variations influence holiday travel.

STEPS TO FOLLOW IN SELECTING A RESEARCH DESIGN

Below are some of the steps a researcher should follow while selecting a research design:

- Identify the kind of research you intend to carry out. Being aware of the purpose and objectives of your study and your theoretical foundations will considerably influence how you design your research: where you go, for how long, with whom you talk, and the kind of questions you ask. Deciding if you intend to test or elaborate existing theory or are trying to build a new, grand theory, or are using existing theory in a new way, has implications in the kind of information you need to collect.
- Use the library to analyse samples of research designs from books and periodicals. The Internet is another option.

- Discuss with colleagues on the validity and reliability of your research and decide on what design will assist in answering your research questions appropriately.

QUALITIES OF EFFECTIVE RESEARCH DESIGN

a) They are systematic and logical. They effectively address the questions raised in the study. Based on this design the researcher can construct questions that will solicit the desired information.
b) They contribute to accurate and fair interpretation of results.
c) They clarify to the researcher the respondents and how the study will be conducted.
d) They contribute to deeper insights and better understanding of the research topic.

GUIDELINES IN SELECTING A RESEARCH DESIGN

The following are essential points that researchers should adhere to while selecting a research design:

- Identify the research questions to be addressed by the study: The researcher should identify and reflect on the research questions raised in the study. Reflection should include brainstorming on issues such as:

a) Do the questions raised in the study require collecting information by interviewing or questionnaires? If the response is positive, then the researcher will use a survey design.
b) Do the questions raised in the study require systematic manipulation of independent and dependent variables? If the answer is yes, then the researcher will use an experimental design.
c) Does the study require the researcher to assess relationship between two or more variables? If the answer is positive, then a correlation design will be used.
d) Does the study seek to describe a unit in detail? If so, then a case study design will be used.
e) Does the study seek to compare the behaviour patterns of different cultures? If the answer is positive, then a cross-cultural research design will be applicable.

- After identifying the research design to be used read materials related to that design to understand its advantages and disadvantages.

Indicate the research design pointing out its validity and reliability to the current research.

PITFALLS IN THE SELECTION OF RESEARCH DESIGNS

While selecting a research design, researchers should lookout for the following pitfalls and avoid them:

a) Choosing a design that cannot assist in meeting the research objectives.
b) Choosing a design that is too complex for research at the level at which the student is studying.
c) Choosing a design that requires extensive study and much time while the time assigned to the research is limited.
d) Lack of clarity about the design.
e) A research design that lacks flexibility.

From the above, in selecting a research design, the researcher should ensure that it links concepts and questions with the study, and it is flexible and expansive enough to adapt to various complexities.

EXAMPLES OF RESEARCH DESIGN

Example 1: **Ndhlovu (2015) An assessment of the innovative measures employed by small to medium size hotels in Harare, Zimbabwe**

The study adopted the multiple-case study design. Case studies are widely used in tourism studies due to the uniqueness of each tourist destination studied. The differences between culture, location, history and degree of tourism development of destinations necessitated the intensive examination of each one.

Example 2: **Maphosa (2014) An investigation of the causes of non-adherence to set quality standards in lodges in Zimbabwe: A case study of operators in Harare**

In this study, the researcher employed the descriptive survey design. Descriptive survey design is a type of research method that is used when one wants to get information on in the current status of a person, object or situation. It is used to describe what is in existence in respect to conditions or variables that are found in a given situation (www.ask.com/descriptive_survey: 02.11.2014). The research study wanted to find out causes of non-adherence to set quality standards in lodges in Zimbabwe of particular focus Harare operators. The study at this stage assumed that quality standards in lodges are deteriorating hence an investigation is sought. Descriptive survey involves gathering data that describe events and then organises, tabulates, depicts, and describes the data collection (Glass and Hopkins, 1984). It often

uses visual aids such as graphs and charts to aid the researcher in understanding the data distribution (www.learngen.org/.../41-01.html: 6.11.2014). An example of what would be, for instance the use of Statistical Package for the Social Sciences

(SPSS). SPSS opens up for descriptive statistics used to describe and summarise sets of data. It uses tables, graphs and charts (Foster 2001:6).

A sample of respondents is selected from the population. Leedy (1974:74) notes that the word survey has the basic connotation of 'the act of looking over and beyond'. Survey research enabled the researcher to collect original data for purposes of describing a population large enough to observe directly. Survey research enabled the researcher to choose a large and representative sample. For instance, the study surveyed 99 lodges and 2 Tourism and Hospitality stakeholders that are Zimbabwe Tourism Authority (ZTA) and Hospitality Association of Zimbabwe (HAZ) all in the Harare province. At least the survey would take note of different opinions, from the different principles found in the lodges industry a replica of 'Quality Circles' and 'Six Sigma' theory. Different opinions helped to arrive at conclusions, and more opinions that would help improve the Zimbabwe lodges industry. Survey also provides decision makers with information on which to base sound decisions. The findings should be useful to the Tourism and Hospitality administrators or decision makers.

Descriptive survey can be either quantitative or qualitative or both (Glass and Hopkins 1984). The design for this study was both quantitative and qualitative. It was quantitative in the sense that the questionnaires used provided quantifiable data. Statistical analysis used show the quantities involved. For instance, in this study SPSS was be employed for statistical analysis. SPSS aids in descriptive statistics for any quantitative variable or numeric variables with ordered values. It can be used to describe any quantitative variable whether or not its distribution is normal, and they may be useful descriptions for values that are code ordered categories such as 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly agree (SPSS Applications guide (1999:7). This would form conclusive research that enables the researcher to investigate specific relationships and to test hypothesis of the study hence, it was the most suitable research design.

The researcher's instrument for conducting the survey was mainly personal interviews. To complement, data collected through the questionnaire, the qualitative approach was used. The qualitative approach was in the form of a questionnaire guide which content open-ended questions. The qualitative approach focused on the process of social interaction and is holistic in that it attempts to provide conceptual basis for understanding complex issues (Cohen and Manion, 1994). In this case the focus is on acquiring information from relevant stakeholders (ZTA and HAZ) on causes that make lodges not adhere to set quality standards. This approach seeks insights rather than statistical analysis (Chisaka, 2001). Hence interviews were carried out with relevant stakeholders as follow-up to questionnaires.

RESEARCH SITE

The selection of a research site is essential. It influences the usefulness of the information produced. The idea is to start with a larger population and through progressive elimination, end up with the

actual site where data are collected (Saunders, Lewis, & Thornhill, 2007). It is important to do the following:

- Identify the largest areas which are relevant to your research questions and objectives.
- Consider the heterogeneity of the potential study population and choose areas or communities which represent the range of variations on the most important characteristics.
- Identify and select actual communities which fulfil these criteria by making site visits, discussing with community leaders.
- Issues of accessibility should also be considered.

EXAMPLE OF STUDY LOCATION

Kanokanga, (2019): Development of a destination image recovery model for enhancing the performance of the tourism sector in Zimbabwe

To holistically explore DI and performance as drivers of the tourism sector in Zimbabwe, samples were drawn from several tourism and hospitality stakeholders from both the demand and supply sides in the country. Geographically, the study covered Harare, Victoria Falls, Kariba, Gweru, Zvishavane, Bulawayo, Masvingo and Kwekwe. Theoretically, the research was based on image repair, tourism performance and stakeholder theories. From the demand side, international tourists were part of the study population while the supply side included several service providers which comprised the Civil Aviation Authority of Zimbabwe (CAAZ), ZTA, Hospitality Association of Zimbabwe (HAZ), the Tourism Business Council of Zimbabwe (TBCZ), Zimbabwe Parks and Wildlife Management Authority, Ministry of Environment, Tourism and Hospitality Industry, Travel agents and the Association of Zimbabwe Travel Agents (AZTA), Air Zimbabwe and Zimbabwe Board of Airline Representatives, hotel operators and managers and the Hospitality Association of Zimbabwe (HAZ). The study was conducted from 2014 to 2018.

POPULATION

A population is a group of individuals, objects or items from which samples are taken for measurement (for example a population of students). Population refers to an entire group of persons or elements that have at least one thing in common, for instance, students at Manicaland State University of Applied Sciences. Population also refers to the larger group from which the sample is taken. It is important for the researcher to find out as much as possible about the

study population. This includes some of the overall demographics such as age, gender and class of the population. The greater the diversity and differences that exist in the population, the larger the researchers sample size should be. Capturing the variability in population allows for more reliability of the study.

For example, if a study is on the effect of the slum environment of basic education, it is important that the majority of the population of the respondents is from the slum environment.

EXAMPLE OF STUDY POPULATION

Kanokanga, (2019): Development of a destination image recovery model for enhancing the performance of the tourism sector in Zimbabwe
International tourists, tourism and hospitality service providers and key informants comprised the study population. The accessible population was from Victoria Falls, Bulawayo, Zvishavane, Kwekwe, Gweru, Masvingo, Kariba, Chinhoyi and Harare. Table shows the study population.

The study population

POPULATION	**UNITS**	
Total number of tourists received in 2018	2 579 974	
% of foreign tourists (16%)	412 796	
Number of foreign tourists in the country per month 412 796/12	3 440	
Number of foreign tourists in Harare and Victoria Falls .65 x 3440		2 236
1000 registered service providers x .60 (6 provinces)		600
10 tourism-related organisations in key/regulatory positions (key informants)		10
TOTAL		**2 846**

The following are the qualities of an effective population sample:

a) Diversity: All effective population sample attempts to be as diverse as possible. The greater the diversity and differences that exist in the

population sample, the higher the applicability of the research findings to the whole population.

b) Representative: It is important for the researcher to identify and s elect respondents that fulfil the questions the research is addressing

c) Accessibility: All effective population sample is one that is accessible to the researcher.

d) Knowledge: An effective population sample should have some idea of the topic being investigated.

GUIDELINES IN POPULATION

In population sampling, the researcher should carry out the following:

a) Reflect on the research title particularly the independent and dependent variables and the study objectives. This enables the researcher to identify the type of population that will be most suitable for the study.

b) Identify the largest population which can relevantly be used as respondents in addressing the research questions and meeting the specific objectives.

c) Consider the heterogeneity of a potential study population and choose areas or communities which represent the range of variations with the most important characteristics.

d) Evaluate the effectiveness of the selected population in meeting the objectives of the study. Issues of accessibility to the respondents should also be considered during evaluation.

SAMPLING TECHNIQUES

Sampling is the procedure a researcher uses to gather people, places or things to study. It is a process of selecting several individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group (Bryman & Bell, 2017). A sample is a finite part of a statistical population whose properties are studied to gain inform the whole (Bryman & Bell, 2017). When dealing with people. It can be defined as a set of respondents (people) selected from a larger population for the purpose of a survey. Research conclusions and generalizations are only as good as the sample they are based on. Samples are always

subsets or small parts of the total number that could be studied. Sampling is the act, process or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristic of the whole population. The way in which a researcher selects subjects for a study will determine how one can generalise the results of the study.

SAMPLING DESIGN

The term 'sampling design' refers to that part of the research plan that indicates how cases are to be selected for observation. Sampling designs are divided into two broad areas of probability designs and non-probability designs.

PROBABILITY SAMPLING

The key component behind all probability sampling approaches is randomisation, or random selection. In probability sampling people, places or things are randomly selected. Each unit in the population has an equal chance of being selected. This sampling gives every member of the population equal chances of being included in the study. Probability sampling enables the researcher to generalise to the larger population and make inferences. If the purpose of your research is to draw conclusions or make predictions affecting the population, then probability sampling is appropriate. Various methods have been established to accomplish probability sampling. These include the following:

a) Simple random sampling

This method is referred to as simple random sampling as no complexities are involved. All you need is a relatively small, clearly defined population to use this method. For example, in a town of 10,000 residents, the researcher may simply obtain a list of all residents, and then using a sequence of numbers from a random numbers table (or draws of a hat, flips of a coin), selects say 10% or 20%, or some portion of names on that list, making sure that he/she is not drawing from any letter of the alphabet more heavily than others. Advantages of simple random sampling are that the samples yield research data that can be generalised to a larger population. This method also permits the researcher to apply inferential statistics to the data and provides equal opportunity of selection for each element of the population. It is a procedure in which all the individuals in the

defined population have all equal and independent chance of being selected as a member of the sample.

DISADVANTAGES OF SIMPLE RANDOM SAMPLING

This includes the following:

- It is not the most statistically efficient method of sampling, The researcher may, just because of luck of draw, not get good representation of subgroups in a population,
- Bias in selection is common.
- Some samples may be over or underrepresented.
- Nonresponse error is high. Some of the members selected may have moved to other areas.

b) Stratified random sampling

Stratified random sampling involves dividing your population into homogeneous subgroups and then taking a simple random sample in each subgroup. The sample is selected in such a way as to ensure that certain subgroups in the population are represented in the sample in proportion to their number in the population. This method is appropriate when the researcher is interested in issues related to gender, race or age disparities in the population.

For example, if one is planning to study factors influencing female enrolment in tourism and hospitality, and knows that gender is going to be an important factor because female students are most taking this course, the researcher therefore needs to stratify the sample by the gender strata, making sure that the female students are over sampled (draw more of random number of female students) as opposed to male students (which the researcher would under sample). For example, the department has 500 students consisting of 400 female and 100 male students, and the researcher's intent on sampling 10% of the total, and that the researcher proceeds as usual drawing 9% females at random and 1% male at random. If he/she had used the student list of names, regardless of gender, chances are that the researcher may not obtain 1% female students at random because they are fewer in total number. The advantages of this method are that you will be able to represent

not only the overall population, but also key subgroups of the population. Especially small minority groups. Stratified random sampling will generally have more statistical precision than simple random sampling. Disadvantages of stratified simple random sampling is that if not carefully stratified, bias can occur resulting in some groups of the population being unrepresented.

c) Systematic random sampling

Suppose a researcher had a large list of people, places or things to select from, such as 100,000 people or more. The appropriate method to use is to select every 10th, 20th, or 30th person from such a list. This decision to use every 10th, 20th or 30th person is called the sampling interval, and as it is done systematically, and the entire list is used. The researcher is said to be systematically random sampling.

ADVANTAGES

- Large populations can be analysed.
- Every member of the populations has all equal chance of inclusion.
- Bias is minimised.

DISADVANTAGES

- The response may be low since the respondents 'availability is unpredictable
- The selection of the first sample member may result in a bias in the entire sample.
- The list used may not be in a systematic order.

d) Cluster random sampling

If a population is dispersed across a wide geographic region one may must use cluster random sampling. This method allows for the division of the study population into clusters (usually counties, regions, provinces or other boundaries) and random sampling of everyone in those clusters. The units within the sampled clusters should be measured.

For instance, a survey of all secondary schools in Kenya will require the researcher to visit all the provinces. If one uses the simple random sampling method, he/she will must cover the entire country geographically. Instead, one could simply do a cluster sampling of two districts per province that would then be visited for the survey. The advantage of this method is that it needs a detailed sampling frame for selected clusters only rather than for the entire target area. There are savings in travel costs and time as well. However, there is a risk of missing important subgroups and not having a complete representation of the target population.

Probability sampling is any method of sampling that utilizes some form of random selection. To have a random selection method, a researcher must set up some process or procedure that assures that the different units in the selected population have equal probabilities of being chosen. Some forms of random selection include picking a name out of a hat. These days, you can use a computer and generate random numbers as the basis for random selection. Random sampling is still regarded as one of the best statistical methods as it is free from bias.

DISADVANTAGES

1. There is a risk of missing on important subgroups.
2. Lack of complete representation of the target population.

NON-PROBABILITY SAMPLING

In this method, the researcher is interested in the representativeness of the concepts in their varying forms. This method of sampling aims to be theoretically representative of the study population by maximizing the scope or range of variation of the study. This method is mainly applied to find out how a small group, or a representative group, is doing for purposes of illustration or explanation. Various methods have also been established to accomplish no probabilistic sampling.

a) Quota sampling

This sampling technique begins by dividing the population into relevant strata such as age, gender or geographical region. The total sample is

allocated among the strata in direct proponent to their estimated or actual size in the population. Once the researcher identifies the people to be studied, they must resort to haphazard or accident effort is usually made to contact people who are difficult to reach within the quota. The problem with this method is that bias intrudes on the sampling frame. This is because researchers allowed to self-select respondents are subject to bias such as interviewing their friends in excessive proportions or concentrating all areas where there are large numbers of potential respondents.

b) Convenience sampling

This method is based all using people who are a captive audience, people the researcher meets haphazardly or accidentally. Respondents are people who just happen to be walking by, or show a special interest in your research. The use of volunteers is an example of convenience sampling.

c) Purposive sampling

In this sample method, the researcher purposely targets a group of people believed to be reliable for the sturdy. For example, to study the effects of abortion on learning, the researcher may make efforts to contact students who previously had terminated their pregnancies. The researcher never knows if the sample is representative of the population. The power of purposive sampling lies in selecting information rich cases for in-depth analysis related to the central issues being studied. Purposive sampling can be used with both quantitative and qualitative studies. Purposive sampling can be carried out in addition to probability sampling. For example, after completing your baseline study based on a random sample, you may. Recognise that certain sections of the project area are quite different from other areas due to variations in landscape, geography, culture etc. You may then purposively select those areas to get representative information about how the variations have influenced the behaviour of the people. Purposive sampling is particularly relevant when you are concerned with exploring the universe and understanding the audience. This means, using your common sense and the best judgment in choosing

the right habitations and meeting the right number of the correct people for the purpose of your study. Types of purposive sampling include the following:

• **Extreme case sampling:** It focuses on cases that are rich in information because they are unusual or special in some way, for instance, the only community in a region that prohibits wife inheritance.

• Maximum variation sampling: Aims at capturing the central themes that cut across participant variations, for instance, persons of different age, gender, religion and marital status in an area pro testing against child marriage.

• **Homogeneous sampling:** Picks up a small sample with similar characteristics to describe some particular subgroup in depth, for example, charcoal burners, touts, bar maids, and so on.

• **Typical case sampling:** Uses one or more typical cases (individuals, families, and households) to provide a local profile. The typical cases are carefully selected with the cooperation of the local people/ extension workers,

• **Critical case sampling:** Looks for critical cases that can make a point quite dramatically, for instance, farmers who have set up an unusually high yield record of a crop in arid lands.

• **Snowball or chain sampling:** Begins by asking people, 'who knows a lot about the subject.' By asking several people, you can identify specific kinds of cases, for example critical, typical, and extreme and so on. Snowball sampling begins with a few people or cases and then gradually increases the sample size as new contacts are mentioned by the people you started out with.

Purposive sampling is adequate under the following situations:

• When studying past events and only a fraction of relevant material is available or accessible.

• While studying sensitive issues such as abortion, prostitution or crime, certain individuals or groups of individuals may refuse to cooperate. The researcher may use a nonprobability method.

• If the population contains few relevant cases.

• If the population is unknown or not readily identifiable.

TARGET POPULATION (SELECTION OF RESPONDENTS)

The people a researcher selects as respondents in the study are vital in achieving the set objectives. Selection of respondents will largely depend on the following:

- Information needed.
- Data techniques to be used.
- The available funding may prespecify the sample size.

For reliable conclusions to be drawn from the research, samples for quantitative research must be representative of the target group. Other things being equal, a larger sample of respondents is better than a smaller one. In general, the larger the sample, the more representative it is likely to be, and the more generalizable the results of the study are likely to be. Minimum acceptable sizes depend on the type of research.

Generally, a researcher would need 30 subjects in each group for correlational and descriptive research but may be able to get by with 15 subjects per group in experimental or quasi experimental designs. In general, selection of respondents will depend on the nature of the analysis to be performed, the desired precision of the estimates one wishes to achieve, the kind and number of comparisons that will be made, the number of variables that must be examined simultaneously and how heterogeneously a universe is sampled. Population is a set of all the elements of interest in a study. Efforts should be made by a researcher to ensure that informants, particularly key informants, possess special knowledge related to the study. Efforts should be made to ensure the participants are active participants in the culture or organisation under study, that they are involved in the events under study and have adequate time. They should be willing to talk to the researcher.

BIAS AND ERROR IN SAMPLING

There are various challenges faced by researchers during sampling. Some of these challenges include the following:

SAMPLING ERROR - Sampling error comprises of the differences between the sample and the population that are due solely to the

particular units that happen to have been selected. For example, suppose that a sample of 100 university students is measured and all are found to be taller than 1.8 meters. It is very clear even without any statistical proof this would be a highly unrepresentative sample leading to invalid conclusions. This is a very unlikely occurrence because naturally such rare cases are widely distributed among the population. Though it can occur. Luckily, this is an obvious error and can be detected very easily. The more dangerous error is the less obvious sampling error against which nature offers very little protection. An example would be a sample in which the average height is overstated by only one inch or two rather than one foot which is more obvious. It is the unobvious error that is of much concern.

There are two basic causes for sampling error: chance and sampling bias.

a) Chance- This is the error that occurs due to bad luck. This may result in untypical choices. Unusual units in a population do exist and there is always a possibility that an abnormally large number of them will be chosen. The main protection against this kind of error is to use a large enough sample.

b) Sampling bias- Sampling bias is a tendency to favour the selection of units that have particular characteristics. Sampling bias is usually the result of a poor sampling plan. The most notable is the bias of non-response when for some reason some units have no chance of appearing in the sample. Take a hypothetical case where a survey is conducted to find out the level of stress that graduate students are going through. A mail questionnaire is sent to 100 randomly selected graduate students. Only 52 students respond. The results show that students are not under stress, yet the actual case is that stress levels may be high except among those who are answering the questionnaire. Bias can be very costly and must be guarded against as much as possible. A means of selecting the units of analysis must be to avoid the more obvious forms of bias.

NON-SAMPLING ERROR (MEASUREMENT ERROR) - The other main cause of unrepresentative samples is non-sampling error. Non sampling error may either be produced by participants in the statistical study or may be an innocent by product of the sampling plans and procedures. Non sampling error is an error that results solely from the way the observations are made. The simplest example of non-sampling error is inaccurate measurements due to malfunctioning instruments or poor procedures. For example, consider the observation of human weights. If persons are asked to state their own weights themselves, no two answers will be of equal reliability. The people will have weighed themselves on different scales. An individual's weight fluctuates, so that the time of weighing will affect the answer. The scale reading will also vary with the person's state of undress. Responses therefore will not be of comparable validity unless all persons are weighed under the same circumstances. Biased observations due to inaccurate measurement can be innocent but very devastating.

In surveys of personal characteristics, unintended errors may result from the way the response is elicited, the social desirability of the persons surveyed, the purpose of the study and the personal biases of the interviewer or survey writer. In all the sampling procedures the major weaknesses include failure to identify the accessible and target population and using a sample that is too small to permit statistical analysis.

CHALLENGES FACED IN POPULATION SAMPLING

In population identification, researchers are sometimes faced with various challenges. These include the following:

• Scope: A very wide scope, for example a study of the whole country may hinder effective sampling of the population. A narrow scope, for example a study on one school affects the validity and reliability of the findings.

• Lack of representation.

• Bias in sampling: some researchers select a population that is convenient for them in terms of accessibility.

• Poor accessibility to the population: Some population samples are difficult to access.

RESPONDENTS

In research, the term 'respondents' refer to those who will reply to or respond to the research instruments. The term respondent can be interchangeably used with participants but for clarity respondents are for quantitative studies and participants are for qualitative studies. The selection of respondents is crucial to the overall usefulness of the information produced. This is because respondents help in the clarification of issues under the study. This contributes to the achievement of set objectives. The selection of respondents will largely depend on the information needed and the date techniques to be used. The researcher should ensure that informants, particularly key informants, possess special knowledge related to the study area.

QUALITIES OF EFFECTIVE RESPONDENT SELECTION

The following should be adhered to by researchers in the selection of respondents:

• Respondents should be individuals who possess some knowledge about the topic being studied.

• They should be willing to share the information they have in relation to the topic with the researcher.

• They should be active participants in the culture or organisation under study.

• They must be willing to give their time to the study.

• A large sample of respondents is better than a small one. In general, the larger the sample, the more representative it is likely to be, and the more generalizable the results of the study are likely to be.

CHALLENGES FACED IN RESPONDENT SELECTION

The selection of reliable informants has various challenges. These include the following:

• Unwillingness of respondents to share all they know on the issue with the researcher.

• Language barrier: the interview or questionnaire may have been written in English yet the respondent can effectively express him/herself in Shona or, say, Ndebele.
• Hostility towards the researcher: some respondents may personalise the questions asked particularly during interviews and become hostile towards the researcher.
• Time limitations.

In general, selection of respondents will depend on the nature of the analysis to be performed, the desired precision of the estimates one wishes to achieve, the kind and number of comparisons that will be made, the number of variables that must be examined simultaneously and how heterogeneously a universe is sampled.

RESEARCH INSTRUMENTS

Research instruments include the following: questionnaires, interview schedules, observation guide and focus group discussions guide.

In formulating research instruments, the researcher should ensure the following:

a) The objectives of the study are clear. This will assist the researcher to anticipate the type of information needed.

b) The population sample. The researcher should be aware that some types of instruments are unsuitable to some groups of people due to factors such as the literacy level, profession and culture. A researcher should determine the literacy level of the study population in advance. For the illiterate, interview and focus group discussions should be used. The type of language that will be used (either English or Kiswahili) will depend on the literacy level of respondents.

c) Geographical distribution. The span of the study dictates the type of instrument to be used. A countrywide study may require the use of postal questionnaires and telephone interviews.

d) A researcher should be careful about the questions he/she asks. According to Orodho and Kombo (2002), a researcher should do the following:

3. Begin with a few interesting but nonthreatening questions.
4. Avoid vague questions, for instance, ‘What do you like?’
5. Keep the language simple.

6. Limit each question to a single idea. Ensure each item included has a specific purpose.
7. Only include questions that are directly relevant to the study.
8. Have a logical sequence.
9. Do not put the key questions at the end of the questionnaire. It is best to have them in the middle.
10. Avoid emotionally charged words.
11. Avoid leading questions, for example, 'Do you think students riot because they are unfairly treated?'
12. Avoid acronyms and abbreviations.
13. Consider the order of questions related to each topic.
14. A researcher should vary closed and open-ended questions. Closed questions give the respondent a set of choices or options. Open-ended questions are free response type questions. They allow the respondent to answer in their own words.

e) Check the consistency of answers. It may be beneficial to ask the same question again using different wording. This ensures validity.

QUESTIONNAIRES

This is a research instrument that gathers data over a large sample. Questionnaires have various advantages including the following:

- Information can be collected from a large sample and diverse regions.
- Confidentiality is upheld.
- Saves on time.
- Since they are presented in paper format there is no opportunity for interviewer bias.

However, they have their disadvantages in that:

- Response rates can be quite low.
- There is no direct contact so the researcher cannot deal with any misunderstanding.
- There is no opportunity to ask for further information related to answers given (probing).
- No clear reason can be given for incomplete responses.

To ensure the effectiveness of questionnaires a pretest should be carried out. Pilot the questionnaire with a small representative sample. This will enable the researcher to find out if:

- The questions are measuring what they are supposed to measure.
- The wording is clear.
- If all questions are interpreted in the same way by respondents.
- What response is provoked.
- If there is any research bias.

STEPS IN FORMULATING A QUESTIONNAIRE

The following are essential in the formulation of a questionnaire:

a) Reflection- Before formulating a questionnaire it is important for the researcher to reflect on the aim and objectives of the study. The researcher should reflect on the type of response expected.

b) Formulation of questions- The researcher should write down questions related to each stated objective. While constructing the questions the researcher should begin with a few interesting but non-threatening questions. The researcher should only include questions that are relevant to his/her study. The researcher should keep the key questions in the middle.

c) Pilot - After constructing the questionnaire, the researcher should try it out on a small sample of the population. While piloting the researcher should address the following questions:

- Are the questions measuring what they are supposed to measure? The researcher should analyse each answer and see if it is supplying the appropriate information.
- Is the wording clear? The researcher should analyse the responses to find out if there was any confusion in the way questions were interpreted by all the respondents.
- Do the questions provoke a response? If some questions have been omitted, the researcher should find out why.
- Is there researcher bias? The researcher will analyse whether the questions asked were skewed towards certain issues more than others.

d) Evaluation- After piloting and making the necessary amendments, the researcher should carry out an evaluation of the revised questions. This includes finding out if the questions are clear and specific, where the key questions are placed and if the balance of questions is correct.

QUALITIES OF AN EFFECTIVE QUESTIONNAIRE

An effective questionnaire has the following qualities:

- Instructions are clearly given. There are a few words of explanation in each new section.
- The questions are focused and are limited to a single idea. Sentences are short and precise.
- Each item included has a specific purpose, and contributes to the study.
- There are no leading questions.
- There is a balance of questions per topic.

ADVANTAGES

Questionnaires have the following advantages

- Can cover a wide area.
- No bias on the side of the researcher and the respondents.

DISADVANTAGES

Questionnaires have the following disadvantage:

- The response rate can be quite low. Since the researcher is not in direct contact with the respondents, they may not feel the obligation to complete the questionnaire as soon as possible. This postponement in completion can result in the questionnaire not being answered at all.
- There are no direct contacts between the researcher and respondent. The researcher cannot therefore deal with or clarify any misunderstanding.
- There is no opportunity for the researcher to ask for further information, or probe deeper into answers given by the respondent.

- In case some questions are not answered, the researcher cannot get an explanation from the respondent as to why some questions are incomplete.
- The researcher is not able to predict if respondents have answered all the questions until after the collection of the instrument.
- The researcher has no control over the order in which questions.
- By using both the open and closed ended approach, the researcher gets a complete and detailed understanding of the issue under research.

STRUCTURED INTERVIEW GUIDE

These involve subjecting every informant in a sample to the same stimuli, for instance, asking each informant similar questions, as in the case of a survey.

ADVANTAGES

Structured interviews have the following advantages:

- The reliability of the information gathered is high. This is because each informant is subjected to similar questions with the others.
- It gives in-depth information about particular cases of interest to the researcher. This is because the researcher seeks information on specific issues.
- It is systematic. Researchers intensively investigate a particular issue before moving to the next.
- It is time saving since the respondents simply answer what has been asked by the researcher.
- The researcher gets a complete and detailed understanding of the issue from the respondent.
- It is comprehensive and systematic since questions are formulated before the interview.
- The data collected is quantifiable.

DISADVANTAGES

Structured interviews portray the following disadvantages:

a) The rigidity displayed by the researcher can affect the responses given. The respondent may feel as if he/ she is under investigation and is being probed. This may affect the response. Some of the respondents may become hostile.
b) It is too formal. Since the researcher does the questioning and the respondent simply answers, the respondent may be too cautious in the answer given. The respondent may give answers he/she thinks are acceptable or will impress the researcher.
c) The researcher may miss out on some important points that are not included in the questions formulated.

FOCUS GROUP DISCUSSION GUIDE

This is a special type of group in terms of its purpose, size, composition and procedures. A focus group is usually composed of 6-8 individuals who share certain characteristics that are relevant for the study. The discussion is carefully planned and designed to obtain information on the participants' beliefs and perceptions on a defined area of interest. Special predetermined criteria are used in selecting focus group participants. This includes the following:

a) The topics to be discussed are decided beforehand.
b) There is a predetermined list of open-ended questions.
c) Focus relies on discussion among participants about the topics presented.

This method requires thorough planning and training of group moderators. Focus groups should usually be composed of homogeneous members of the target population, for instance, similar in age, education level, gender, profession. Focus group discussions can produce much information quickly and are good for identifying and exploring beliefs, ideas or opinions in a community. However, the researcher has less control over the flow of the discussion and results are hard to analyse. Focus group discussions are used to assess needs, develop intervention, test new ideas or programmes or improve existing programmes.

OBSERVATION GUIDE

This is a tool that provides information about actual behaviour. Direct observation is useful because some behaviour involves habitual routines of which people are hardly aware. Direct observation allows the researcher to put behaviour in context and thereby understand it better. Observation can be made of actual behaviour patterns. Forms of observation include the following:

a) Participant observation

The investigator becomes an active functioning member of the culture under study. An investigator participates in any activity appropriate to the status which is assumed. This participation helps reduce reactivity. Respondents become more comfortable with the researcher. It gives a researcher an intuitive understanding of what is happening in a culture. However, it can be time consuming.

b) Unstructured observation

The observer takes the position of an onlooker. Data are collected in the form of descriptive accounts. Unstructured observations are helpful in understanding behaviour patterns in their physical and social con text.

c) Structured observation

The observer is an onlooker. The focus is on a small number of specific behaviour patterns, and only those appearing on a predefined observation list are recorded. This requires the researcher to be clear on the behaviour being observed.

STANDARDISED TESTS

Standardised tests of one sort or another are used in most educational research studies. A researcher will frequently use standardised tests to measure one or more of the variables in a study. It is important that one gets as much information as possible about the tests to be used in the study. In some cases, no suitable instrument exists to measure the variables of the study. In that case, the researcher will must design their own instrument. One can look at the instruments (such as questionnaire forms) that have been used in similar studies and modify these for use in his/her own study. There are many different types of

tests that one might consider for use in their study. Some of the most used types of tests for educational research are:

- Achievement tests.
- Personality tests.
- Aptitude tests, including tests of academic aptitude (intelligence tests).

CHARACTERISTICS OF STANDARDISED TESTS

Validity - The validity of a test is a measure of how well a test measures what it is supposed to measure. The examiner's manual or technical manual for most tests will have information on the validity of the test.

Reliability - Reliability is a measure of how consistent the results from a test are. If you administer a test to a subject twice, do you get the same score on the second administration as you did on the first? The reliability of the test is the answer to this question.

VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENTS

No two interviewers are alike, and the same person may provide different answers to different interviewers. The way a question is formulated can also result in inaccurate responses. Individuals tend to provide false answers to questions. For example, some people want to feel younger or older for reasons known to them. If a researcher asks such a person their age in years, it is easier for the individual just to lie by overstating their age by one or more years than it is if the researcher asked which year they were born since it will require a bit of quick arithmetic to give a false date. A date of birth will definitely be more accurate.

The respondent effect. Respondents might also give incorrect answers to impress the interviewer. This type of error is the most difficult to prevent because it results from outright deceit on the part of the respondent. For example, in asking farmers how much maize they harvested, the farmers may lie by saying a figure which is the recommended expected yield that is say 100 bags per hectare. The responses may therefore appear uniform. The researcher should be

suspicious and can compare this with the responses of the farmers' spouses. To decide which answer is most accurate, whenever possible the researcher should in a tactful way verify with an older son or daughter. It is important to acknowledge that certain psychological factors induce incorrect responses and great care must be taken to design a study that minimises this effect.

DATA COLLECTION PROCEDURE

A researcher will require a research permit (permission) before embarking on the study. The researcher will then administer research instruments to the respondents.

Data collection must be accurate. Where tests are used, they must be scored correctly, and observations must be made systematically. In some cases, data may be coded, for example males coded as 1 and females coded as 2. An electronic spread sheet i.e., MS Excel is an excellent place for the researcher to keep the data for the study. This includes both raw data and coded data. In most cases you will also be able to perform the desired statistical calculations from within the spread sheet. The MS Excel spread sheet programme or, for example, has an Analysis Tool Pack that will allow one to calculate such statistics as chi-square, correlation coefficient, t-test, z-test, and analysis of variance. The major ways of collecting data include administering a standardised instrument, administering a self-developed instrument and recording of naturally available data.

EXAMPLES OF RESEARCH METHODOLOGY STRUCTURE

Example 1: **Kanokanga, (2019): Development of a destination image recovery model for enhancing the performance of the tourism sector in Zimbabwe**

4.1 Introduction

This chapter described the research methodology-a systematic way of solving the research problem. Methodology refers to the theory of how research is conducted, including the theoretical and philosophical assumptions upon which the research is based and the implications these have for the method or methods adopted (Saunders, Lewis, & Thornhill, 2016). It is the science of studying how research is to be conducted (Bryman, 2015). It is crucial that the researcher chooses and justifies the most suitable methodology for the study (Zikmund & Babin, 2016). Some methodologies are applicable to certain types of research while others are not. In view of this, it is important for the researcher to always carefully select a methodology that best resolves the problem at hand. In this chapter, the research philosophy, research approach, research design, the target population, sample size, sampling techniques, research instruments, data collection and data analysis procedures were presented together with the justification for their adoption.

4.2 Research Philosophy
4.3 Research Approach
4.4 Research Design
4.5 Population
4.6 Sampling Procedure
4.7 Sample Size
4.8 Data collection instruments
Questionnaires
Interview guide
4.9 Validity and Reliability
4.10 Validity and reliability of the questionnaire
4.11 Selection and training of research assistants
4.12 Credibility of the interviews
4.13 Data analysis and presentation
Analysis of Quantitative Data
Analysis of Qualitative data
4.14 Ethical Considerations
4.15 Chapter Summary

Example 2: **Basera (2021): Factors contributing to the late adoption of quality management systems in the hotel sector in Zimbabwe.**

5.1. Introduction

The previous chapter explored relevant literature on business excellence. The business excellence models evaluation criteria and key commonalities were

highlighted in relation to enhancing QMS adoption. This chapter focuses on describing the research methodology, justification of the methods that were employed to gather and analyse data for the study. The chapter begins by explaining the research; philosophy, design, strategies, population, sampling, data collection techniques and procedures that were followed. The chapter then explains how the data was presented and analysed. Finally, the chapter explains in detail how the study upheld the aspect of trustworthiness, while adhering to ethical considerations.

5.2. Research philosophies and paradigms
5.2.1. Epistemology
5.2.2. Ontology
5.2.3. Axiology
5.3. Research Design
5.4. Research approaches
5.5. Research strategies
5.5.1 Multiple Case study design
5.6. Time horizon and scope of the study
5.7. Population and sampling technique
5.7.1. Population
5.7.2. Sampling technique
5.8. Data collection techniques and procedures
5.8.1. In-depth qualitative interviews
5.8.2. Focus group discussions
5.9. The researcher as a research instrument
5.11. Trustworthiness
5.11.1. Credibility
5.11.2. Transferability
5.11.3 Dependability
5.11.4. Conformability
5.11.5. Triangulation
5.12. Ethical considerations
5.12.1. Anonymity and confidentiality
5.12.2. Voluntary participation
5.12.3. Informed consent
5.12.4. Deception
3.12.5. Human rights
5.12.6. Accuracy
5.13. Chapter summary