CHAPTER 3:
Approaching the Study and its Design

This chapter articulates the research methodology followed in the conduct of the study. The focus is on the adopted research philosophy, the approach, the paradigm, the research design as informed by the paradigm, the population, the sample and sampling procedures used. It also discusses the research instruments used, data generation and triangulation techniques as well as data analysis procedures. The chapter also looks at the trustworthiness of the research process as well as the ethical considerations that guided the study.

Pragmatism as a research philosophy argues that there can be single or multiple realities that are subject to empirical inquiry (Creswell & Clark, 2011). Pragmatist scholars accept that there is an objective reality that exists which is different from human experience. This reality is generated through the quantitative world view but can only be encountered through human experience (Tashakkori & Teddlie, 2008; Morgan, 2014a). In pragmatism, knowledge and reality are based on habits and beliefs which are socially constructed. Reality is normative and can never be determined once and for all, thus a lecturer or a student might have a perception of andragogy and pedagogy which is different from another lecturer or student in the same faculty or university. In short, the pragmatist researcher believes that the nature of reality can never be separated from human experience and needs. Reality and meaning are contextual. The philosophy informed the study in that the worldview of the professoriate and that of the students varied on the impact of pedagogy and andragogy in different contexts.

The study adopted the Mixed Methods Research (MMR) approach or the abductive approach that involves the integration of quantitative (deductive) and qualitative (inductive) data collection and analysis to effectively address the research problem (Plano Clark & Ivankova, 2016). In investigating the impact of pedagogy and andragogy in institutional programmes, the researcher sought to capitalise on the strengths of the two approaches so that the phenomenon would be investigated from two different world views. The researcher sought to tap into the naturalistic approach of qualitative research of human realities rather than the mere realities of objects of quantitative research. Whilst the research could have been done solely through the hypothetical inquiry into numbers of lecturers and students of UZ within the confines of positivism, the writer realised that the impact could not be solely verified by hypothesising and observing phenomena. It also required the determination through the values, beliefs, understandings, reasons and knowledge constructed as the researcher interacted with the participants. In the context of theory building, the writer felt that it was too restrictive to confirm or reject

existing theories but to allow for the study to build theories consistent with how reality is construed by those involved with the phenomenon. This allowed the researcher to look at multiple realities which in the context of positivism would have seemed to be divorced from the study. This is seen from among other things by the models of adult learning that were discussed in the literature review.

The other rationale for adopting the mixed method approach was the quest by the researcher to generate data and theories from the post-positivism subject for confirmation or rejection by positivism. This approach resonates well with the complimentary thesis discourse of mixed methods that sought to extrapolate the strengths of the two combined in a bid to ensure the trustworthiness of the whole process (Greene, 2007). The choice of the approach was also influenced by the dialectical thesis of mixed methods in that the researcher sought to unearth the predispositions, respondents understanding, the beliefs, values with regards pedagogy and andragogy. One other argument of adopting the approach was to be realistic, pragmatic and constructionist and not to remain theoretical in the study of the phenomenon. The researcher also realised that the impact of pedagogy and andragogy could not be determined by merely seeing from outside but required an interpretivist philosophical lens of understanding it from within. This means that meaning and comparative impact was constructed from the different respondents and participants as derived from their day-to-day educational experiences.

In short, due consideration was taken on participants perceptions, assumptions, beliefs, and the nature of truth and reality. The variations in the epistemological and ontological assumptions helped to blend the research to minimise on the aspect of research bias. This blend of epistemological, ontological and methodological assumptions provided the basis for the adoption of the correct research design, data collection methods, data collection instruments and data analysis techniques appealing to both positivism and post-positivism. The complimentary nature of ontological assumptions from both quantitative and qualitative research allowed the researcher to understand pedagogy and andragogy in the context of objectivity, subjectivity and naturalism. The epistemological assumptions generated the academic institutional realities of the phenomenon under study. Yin (2011) argues that phenomenology is a qualitative philosophical lens that seeks to generate knowledge about a phenomenon based on conscious experience of research participants. This complimented the deductive philosophy of quantitative research to generate text and statistical data about the impact of pedagogy and andragogy.

According to Yin (2011), a research design is a grand plan that focuses on the questions to be studied, the nature of data to be collected and how the results should be analysed. It is a grand plan that enhances the overall research's trustworthiness, or its validity and reliability. Research designs may be many at the

researcher's disposal depending on the adopted research approach. These include the core mixed methods designs (convergent, exploratory and explanatory). Walker & Baxter (2019) argue about sequential and non-sequential designs in the mixed methods paradigm being an amplification to the convergent, exploratory and explanatory designs.

Creswell & Plano Clark (2018) argue that the approaches to classifying designs in mixed methods are premised on dominance and sequencing. Sequence relates to the methodological order whether they are implemented sequentially one after the other or simultaneously (Morgan, 2013). Dominance relates to which method is more central to the research and for which emphasis is greater than the other (Creswell & Plano Clark, 2011). In the MMR, Ivankova & Plano Clark (2018) argue that the quantitative strand has been seen to be the most dominating in most researches. Walter & Baxter (2019) feel that combining quantitative and qualitative is tantamount to having the latter providing narrative examples of conclusions already reached by the quantitative strand. This nature of research results in a qualitative—light study which does not address what it is aimed to address (Teddlie & Tashakkori, 2012). However, the dominance of quantitative research is not universal. Creswell & Plano Clark (2011) argue that the qualitative strand can as well dominate the quantitative strand. Zhang & Hanson (2015) in support argue that from the mixed researches conducted in the USA from 2003 to 2014, 86% preferred qualitative dominance. The dominance of the qualitative approach in this study is reflected by the adoption of research questions instead of objectives and hypothesis. The importance of the quali-quanti sequencing ensured that the researcher got an in-depth understanding of the perceptions held by the professoriate and students with regards to the impact of pedagogy versus andragogy using qualitative approach. After obtaining the in-depth understanding, it was then necessary to confirm or reject the views through quantitative strand. Using the criteria developed by Creswell & Plano Clark (2018), Holstein (2014) and Creamer (2018), the mixed method design is premised on sequencing and non-sequencing of methodologies. The designs are explanatory sequential, exploratory sequential for the sequencing approach and the convergent, and fully integrated for non-sequencing approach.

In some cases, when the qualitative strand is then followed by the quantitative strand, the qualitative approach would then act as a pre-study to the quantitative strand (Glaser & Holton, 2007). According to Creswell & Plano Clark (2018), this is called the Exploratory Sequential Design. Generally, the exploratory design provides familiarity of pertinent issues underlying the phenomenon and a well guided picture. It allows for the generation of tentative theories, models and hypotheses and addresses all questions including the why which is not addressed in the descriptive design (Creswell & Plano Clark, 2011). In this vein, the researcher sought to understand pedagogy and andragogy in institutional programmes and come up with

a holistic theory as informed by the Grounded Theory of Glassier & Strauss (1967) cited in Southward (2017). The Exploratory Sequential was necessary to confirm the validity and reliability of the qualitative results by quantitative means (Hesse-Biber, 2016). When employed, the qualitative methods would be used to shape the quantitative methods that follow (Harrison & Reilly, 2011). As an example, if in-depth interviews using the semi structured interview guide are used, it would be unnecessary to use an open-ended questionnaire but rather a close ended questionnaire or a combination of open and close-ended questionnaire. By virtue of the desire to obtain a thick description of the impact of pedagogy and andragogy consistent with the educational effectiveness theory, this design greatly informed this research with the qualitative strand assuming dominance over the quantitative strand.

A case study of UZ was adopted rather than a sweeping statistical survey to narrow down the scope of the study into a researchable entity. This approach is suitable when a theory or model is to be tested as to whether it applies or does not apply in particular contexts so that the findings could be inferred to the general population (Tobi & Kampen, 2017). The researcher therefore wanted to ascertain the applicability and impact of pedagogy and andragogy in institutional programmes. By so doing, the case study brought the researcher to an understanding of the two models as they relate to institutional programmes. It also gave the researcher the leeway to adopt a variety of data collection methods and also to tap from the experience of other researchers. In the context of the University of Southern California Libraries (2016), the case study design allows researchers to examine contemporary issues to provide the basis for the application of models, theories and concepts. This was the thrust of the researcher to examine the two models and relate them to institutional programming.

The descriptive design seeks to answer questions such as who, what, when as well as how associated with the phenomenon under investigation. It seeks to bring to the fore what exists with respect to a phenomenon. The 'who, what, when, and how' are questions that sought to be answered in the process of designing and delivery of the teaching-learning process in both pedagogy and andragogy. This allows the phenomenon to be studied in its natural environment and can be used as a precursor to more quantitative research designs. In this regard, the writer generated data through the case study and descriptive designs that formed the basis for the administration of questionnaires to lecturers and students in a pro-quantitative design.

The researcher also adopted the Phenomenological Design. Phenomenology is a research perspective or a philosophical movement within the qualitative paradigm which emphasises the study of conscious experiences as described by Edmund

Huseerl in the early 20th century (Creswell, 2007; Maree, 2010). It advocates for data collection and analysis premised on qualitative methodologies. However, Leedy & Ormrod (2005) explain phenomenology in the context of a research design which seeks to understand people`s perspectives and perceptions with regards a particular situation or discourse. According to Frost (2010), phenomenology is considered the most effective design when the researcher seeks to gain clear and first-hand information about a particular phenomenon without assumptions.

The researcher adopted this design because it enabled the respondents to reveal and give an insight into complexities of the applicability of pedagogy and andragogy as absolute models in the institutional environment. The experiences of the professoriate and the non-traditional students in the realm of adult learning in institutional programmes generated much data that could not be obtained through quantitative approach or at face value. The phenomenological design enabled the researcher to identify and distinguish participants' rules, norms and the reality associated with the application and impact of pedagogy and andragogy. In this regard, the researcher identified the ideal situation with regards application of the models and juxtaposed it with the realities or the norms or educational cultures that were developed overtime whether to the detriment or to the betterment of educational effectiveness. The Phenomenological design as postulated by Maree (2010) is flexible but this flexibility to a certain extent could be a disadvantage to inexperienced researchers who may then lose focus. This renders Phenomenological researches to criticism with regards to generalizability and credibility because of lack of defined procedures (Frost, 2010). Nutbeam (2006) also notes that Phenomenological design generates data that is difficult to make quantitative predictions. However, in the context of the study, the researcher sought more of first hand and experiential perspectives on andragogy and pedagogy rather than the quantification of participants who concur or disagree to a particular hypothesis. To this end, the researcher adopted more qualitative data collection methods.

In summary, the researcher adopted the integrated research design that combined the exploratory sequential design, case study design, descriptive and phenomenological designs. The use of multi-methodical research strategies is aimed at introducing a variety of ways of perceiving and interpreting a phenomenon under study (Flick, 2009). The use of the four designs helped the researcher to appreciate the impact of assumptions and limitations and how the methodological triangulation could circumvent the limitations. The researcher managed to have a four-dimensional insight and have an illumination of the complexity of the phenomenon under study for analysis. Frost (2010) observes that having more than one design offers the researcher an in-depth dimensional insight of the social world. In this study, the researcher managed to capitalise on the use of the four designs to view the complexity of the application of pedagogy and andragogy as absolute models for

institutional learning. The impact of pedagogy and andragogy in the context of academic success and beyond the institution were extrapolated through the four-dimensional lens. However, Newman (2000) observes that the use of multi-design research strategy or integrated research strategy may be difficulty because of the time required in sample selection. To this end, the researcher may end up losing focus if not carefully planned. To circumvent this, the researcher had to carefully plan the procedures and data generation instruments, analysis and interpretation of all participants` expressions, lived experiences and opinions on the applicability and impact of the two models.

The Grounded Theory developed by Glaser & Strauss (1967) is an approach that seeks to generate new theories from the quantitative and qualitative data gleaned in the research process. It can be used in all the research paradigms, the mixed paradigm included (Walsh, 2015). It is appropriate when a theory must be developed to help others to understand the phenomenon from the lived experiences of others (Corbin & Strauss, 2008). The researcher used The Grounded Theory to develop a model from the experience of the professoriate, the administrators and the students with regards adult learning in institutional settings. Using the Grounded Theory, data that was gathered led to the development of a more holistic model of institutional adult learning. It also could lead to the improvement of the system, school and classroom factors. It also could lead to the improvement of the competences of the professoriate dealing with the non-traditional component of university learning. The combination of quantitative and quantitative research designs and data collection methods resonates well with the concept of grounded theory that emphasises getting more information about a phenomenon so that whatever theory that is developed is in sync with what is there or the reality.

Data was collected through in-depth interviews and through questionnaires. The researcher could not observe the participants' feelings, attitudes, opinions and this necessitated the semi structured interview. The semi-structured interview is more flexible than the structured interview. It allows for unanticipated responses, issues and opinions through the use of open-ended questions (Coughlan, 2009; Mohammad, 2013). It also allows a follow up of issues raised by the interviewee in a spontaneous process. The wording of questions is flexible and provides for multi-lingual conversation and clarification with the respondents (Berg, 2009). Data is generated from questions on an interview guide with a high possibility of a single question generating a number of issues. This data collection method and instrumentation was used by the researcher to generate much of the textual data as it allowed the researcher to explore and tap into the realities of pedagogy and andragogy from the perspectives of the professoriate and the non-traditional students.

Fraser & Killen (2005) cited in Southard (2017) define a questionnaire as a list of pertinent questions meant for statistical inquiry. There are three types of questionnaires which are the close ended (structured), open ended (unstructured) and a combination of open ended and close ended questionnaires (Mohammad, 2013). Close ended questions provide numerical or statistical data while the open-ended questionnaires provide a combination of statistical and text data. Using the Exploratory Design of mixed methods research, the researcher opted for the combined questionnaire to generate more of statistical than qualitative data so that there is a qualitative-quantitative connection in the process of theory generation consistent with the Grounded Theory. In this regard some of the textual data generated by the interviews were confirmed and as well as disapproved by the statistical data in the quali-quanti strand. In the same vein, statistical data on perceptions and opinions on the impact of pedagogy and andragogy were also confirmed or disapproved by the textual data generated through the phenomenological inquiry. One of the reasons why the researcher opted for the combined questionnaire is that it leads to more discovery as compared to the close ended questionnaire. In this vein, Gillham (2014) argues that close ended questionnaires do not lead to much discovery, thus researchers can offset this weakness through a combined questionnaire or triangulating the close ended with in-depth interviews. The researcher in this mixed approach had to employ qualitative phenomenological inquiry in the form of in-depth interviews to offset the weaknesses of the combined questionnaire. One of the reasons why the questionnaire was used as a data collection method in this research resonates well with Fraser and Killen (2005)'s assertion that when respondents are out of sight of the researcher, they become free to express themselves. In this regard, the students expressed their opinions on the level of connoisseurship of the professoriate to the detriment of the impact of pedagogy and andragogy in the teaching-learning process.

According to Kabir (2016), a study population is the total number of items, organisms or people about which information is required. In the context of Mahanya (2016), it is a group of people, items or organisms that have got one or more common characteristics. It is the total and specified aggregation of the elements under study from which the researcher will draw conclusions (Frost, 2010; Shumba *et al.*, 2006). Asiamah *et al.* (2017) posit that whilst most researchers only talk of one type of population, the research populations are the General population, the Target population and the Accessible population. The General population includes all the participants of the research who must possess at least one common characteristic (Banerjee & Chaudhury, 2010; Pernecky, 2016). The General population of this study as derived from the research problem and the topic itself encompassed all the lecturers and students in institutions of higher learning in Zimbabwe from colleges to universities. Therefore, the researcher had the obligation to conduct a comparative analysis on the impact of pedagogy and andragogy in all these institutions.

The Target population is the number of participants who are left in the population after those that may controvert or may dilute the quality of the research have been removed (Bakarada, 2014). As an example, in this research not all the lecturers possessed the experience and expertise to articulate the concept of pedagogy and andragogy. This may be because of their field of study or Faculties to which they belong. Despite professoriate being the common characteristic, some were eliminated on the basis of experience or field of study that might have a bias towards a particular model whether andragogy or pedagogy.

The Accessible population which is the refined population from the target population consists of people who have the relevant attributes for the research and by virtue of their location or commitment are accessible by the researcher (Baškarada, 2014). It is the submission of the writer therefore that Accessible population is the same as what Kabir (2016) referred to as Sampled population or survey population because like the accessible population, the latter is derived from the Target population. Whilst it would have been ideal to visit the professoriate at all the colleges and universities, it was not possible, thus some of these lecturers became inaccessible to remain with the accessible population, those from UZ. The diagram overleaf illustrates the explanation from the General population to the Accessible population.

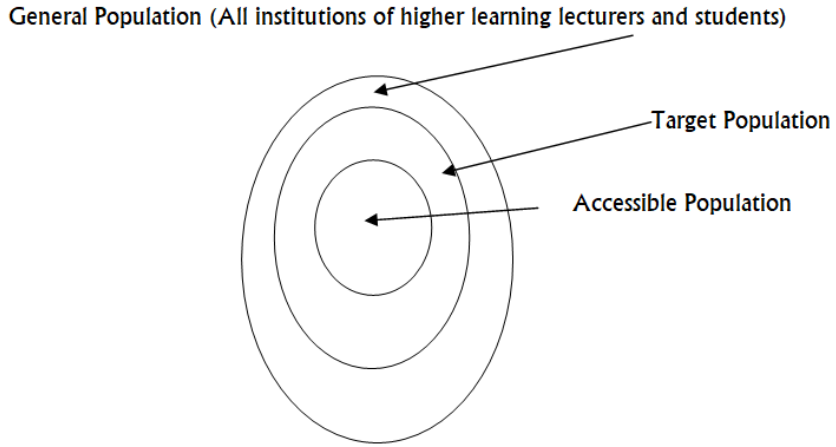

Fig 3.1 General, target and accessible population *(Researcher)*

Whilst the above explanation and diagrammatic representation insinuates that the population from which the sample was driven is the Accessible population, it needs to be indicated that the results from the sample were inferred to the whole

population which in this case encompasses all the institutions of higher learning in Zimbabwe.

A sample is part of the population that represents the characteristics of a population (Kabir, 2016). It is a subject of the population that is representative of the entire population. The important word in the definition is representative. Muchengetwa & Chakuchichi (2010) assert that the lesser the number of participants the easier it becomes to manage. Newman (2000) in Mahanya (2016) argues that if not well sampled, the sample can lead to biased or unrealistic results. The sample size for the quantitative strand was fifteen respondents (**n=80**) while for the qualitative strand was nine participants (**n=10**). With these sample sizes, it is the submission of the researcher that they were representative of the professoriate, the traditional and non-traditional students under study. To this end, the opinions, perceptions and the lived experiences of the impact of pedagogy and andragogy in institutional programmes as well as the suggestions for a holistic model were brought to the fore.

In order to get a sample out of a population, there are sampling techniques or procedures that must be employed. Sampling procedures are the techniques that contribute to validity and reliability of the research. Oliver (2004) and Handwerker (2001) cited in Mahanya (2016) argue that there are two types of sampling techniques which are the probability and non-probability sampling. In probability sampling, there is randomization and all the participants in a population have got an equal chance of being selected (Creswell & Plano Clark, 2011). Palys (2008) posit that the non-probability sampling technique is concerned with looking for individuals who satisfy a certain criterion.—It needs to be acknowledged that in as much as the probability and non-probability sampling techniques apply to quantitative and qualitative research respectively, there are also sampling techniques that are peculiar to the mixed method paradigm. In this regard, Teddlie & Tashakkori (2012) suggested a typology of sampling techniques that is peculiar to the mixed method paradigm in the form of the Basic Sampling, Sequential Sampling, Parallel Sampling, Multi-mixed Method Sampling and Multi-level Sampling.

The Sequential mixed method sampling is when the random probability sampling for quantitative strand is then followed by the purposive sampling for qualitative. It can either be quali-quant or quant-quali consistent with the Exploratory and Explanatory design. Informed by the adopted sequential exploratory design, the study used the exploratory sequential sampling in which the qualitative sample was first drawn through purposive sampling to obtain data rich participants by virtue of experience and appointments in the faculty. These provided a thick description of the phenomenon from their lived educational experiences as administrators, educators and as learners in institutional setting. This was consistent with the adopted Sequential Exploratory design which sought to generate an in-depth understanding

of the impact of pedagogy and andragogy and the generation of a holistic model for confirmation or rejection through quantitative means. It was then followed by the randomisation of the quantitative sample using the following formula:

$$\text{Sample size, } n = N * \frac{\frac{Z^2 * p * (1-p)}{e^2}}{[N - 1 + \frac{Z^2 * p * (1-p)}{e^2}]}$$

Where:

N = Population size; In this case 100 being a constituent of lecturers, Masters and Undergraduate Students from UZ faculty of Education;

Z = Critical value of the normal distribution at the required confidence level (critical value at 95% confidence level is 1.96.);

p = Sample proportion (0.5 because no previous studies were purely qualitative); and

e = Margin of error (5% or 0,05).

Therefore n= 100[3.8416X0.5(0.5)/0.0025

(99) +3.841X 0.5(0.5)/0.0025

n= 100[(384.16)/ (99+384.16)]

n= 38416/483.16

n=79.51

=80

After the purposive sample, the researcher randomized the lecturers and students from the Faculty of Education to gain a statistical perspective and opinion on the impact of both pedagogy and andragogy from their lived experiences as learners, educators and administrators in their respective professions. The students provided their perception of the professoriate and its contribution to the effectiveness or ineffectiveness of the two models. Consistent with the Sequential Exploratory design, the results from the randomized sample were juxtaposed against the phenomenological text results from the qualitative strand. This was done to confirm, reject, and streamline the integrated data as well as developing a holistic theoretical perspective of the connoisseurship of teaching-learning in institutional programmes. Haradhan (2017) observes that validity is the degree to which an instrument, sample or method measures what is supposed to measure while reliability is the degree of consistency of an instrument, sample or method in measuring an attribute in research. Reliability is concerned with the stability of findings, while validity relates to the truthfulness of findings. They increase transparency, and reduce researcher bias (Singh, 2014). An alarm clock that rings at 7:00 each morning, but is set for 6:30 is very reliable and consistent but is not valid because it is not ringing at the time for

which it was set to ring. The two terms are applicable to the positivist paradigm to explain the trustworthiness of the research process. Therefore, positivists argue that reliability and validity are not addressed in post-positivism. Lincoln & Guba (1985) argue that in qualitative research, validity and reliability are addressed through four constructs which are credibility (in preference to internal validity), transferability (in preference to external validity or generalisability), dependability (in preference to reliability) and confirmability (in preference to objectivity).

The dominance of the qualitative strand in the research meant that much of the data was generated through qualitative research instruments in the form of semi-structured interviews. Therefore, the trustworthiness of the research was mainly assessed on the basis of Lincoln & Guba (1985)'s qualitative constructs of credibility, transferability, dependability and confirmability. However, consideration was also made on the quantitative aspects of content validity and utility criterion.

Merriam (1998) argues that the equivalence of internal validity is credibility which is concerned with the congruency of the findings to reality. In the context of Bloomberg & Volpe (2008), credibility of research or procedural validity is concerned with how congruent is the logic of the methods to the research questions and the answers that the researcher is seeking. In this regard, methods and instruments must measure what the research question seeks to get. In the randomised sample of the quantitative strand, the threats to credibility arose because of the researcher failing to have control over the research participants because uncooperative and inexperienced respondents were also issued with questionnaires. This happened even though the respondents had provided informed consent to participate. However, these threats were circumvented by the dominance of the purposive sample over the randomised sample. In this vein, credibility was ensured through inter-paradigmatic triangulation of interviews with the open-close ended questionnaires. This ensured that errors in one approach would be addressed by methods and instruments from another approach. This ensured that the data gathered was consistent with the research questions making it credible or internally valid.

The above relates to methodological triangulation but the researcher also triangulated the participants, drawing data from the lecturers and students and checking particular themes or lines of thinking whether there was coherence or discord. There was also iterative questioning during the semi-structured interviewing to check for consistence in respondents. During data analysis, there was member checking to ensure the credibility of the researcher's recordings. According to Curtin & Fossey (2007), member checking is the process of going back to participants to check if what they would have said is consistent with what the researcher would have recorded.

Transferability or generalizability is the process of coming to broad conclusions from specific instances, thus making inferences of things that were not observed basing on what was observed (Polit & Beck, 2010). One problem associated with grounded theory and the qualitative strand is that it is uncommon and not proper to make inferences to a broader population using a single case. In order to circumvent this, the researcher gave a thick description of the participants and the contexts in which the research took place. The participants were the professoriate, the students both traditional and non-traditional who in all sundry and purpose share more or less similar characteristics across institutions such as being subjected or subjecting students to either pedagogy or andragogy. The research took place in a teaching-learning environment; thus, the results can therefore be transferred to any other teaching learning environment in higher education institutions. Generalisability was also achieved through analysis of the data to check if the responses were typical or atypical of the lived experiences of the respondents. This is because respondents tend to artificialise the phenomenon whenever they realise that they are being recorded. It is also important to highlight at this juncture that the triangulation of purposive and simple random sampling was meant to ensure that the problems of generalizability in qualitative sample would be compensated by the representativeness of the randomised sample.

There is a close link between credibility and dependability in that a demonstration of credibility goes a long way in ensuring dependability (Bloomberg & Volpe, 2008; Lincoln & Guba, 1998). Dependability or external/internal reliability means that if the investigation is to be re-conducted by a different researcher, using the same methodology, research design, data collection instruments and the same participants, the same results will be achieved. Dependability was ensured through employing overlapping data collection methods to cater for shortcomings of others.

The ability of the research process to accurately express the perceptions of the respondents without subjecting the information to bias is called confirmability (Smyth, 2012). In this research, confirmability was achieved through bracketing in the conduct of in-depth interviews. This is to say the researcher detached his feelings, perceptions and biases and his characteristics with respect to pedagogy and andragogy. Confirmability was also achieved through triangulation of the research designs and data collection methods. In this regard, it is the submission of the writer that the procedures followed in the research can be followed by any other researcher in an audit trail and would reach the same conclusions thereby making the research credible.

Content validity looks at whether the instrument used in quantitative research was able to capture all the details that it was designed to cover. The researcher used the

close-open ended questionnaire which had the limitation of gaining a thick description of the phenomenon as derived from the lived experiences of the professoriate and the students. In short, whilst opinions and perceptions could be obtained through this instrument, detailed explanations of the phenomenon could not be obtained. In order to counter this drawback, the in-depth interviews were used in a process of methodological and instrumental triangulation in which the non-verbal cues and the expressions helped a lot in bringing to the fore the participants concern over the implementation of pedagogy and andragogy.

Lynch (1996) cited in Mohammad (2013) asserts that utility is the degree of usefulness of the research findings to the managers, administrators and other stakeholders. It seeks to ascertain whether the research is useful or works as intended. The criterion seeks to derive from the research evaluation whether the information produced aids or improves the effectiveness of programmes or systems. In the context of this research, the contextual applicability of pedagogy and andragogy in institutional programmes as well as the proposed holistic model of learning are some of the information that asserts the usefulness of the research to educators, administrators and students.

Ethics is a branch of philosophy that guides people on acceptable and unacceptable behaviour (Shah, 2011; Akaranga & Ongonga, 2013). Research ethics seek researchers to protect the research participants and abide by the norms and values of the research community (Fouka & Mantzorou, 2011). The two dominant philosophical approaches to research ethics are teleology and deontology (Blumberg *et al.*, 2005). The teleological view holds that unethical conduct can be justified by the benefits that the research brings. In this regard, this view argues that a researcher can unethically conduct research as long as the benefits outweigh the effect. The implication is that the benefits of the research findings could be weighed against the costs of acting unethically and if the costs are low then it becomes justified to act unethically. (Frankena, 2001). The deontological philosophy which is completely opposite states that no amount of research benefit can justify unethical behaviour. The researcher was therefore guided by the deontological construct.

Fouka & Mantzorou (2011) posit that informed consent is when a person knowingly and intelligently and voluntarily provides his consent to participate in research without any form of manipulation. This can only happen when the purpose of the research, associated risks, benefits and assurance of confidentiality and privacy of respondents/participants have been explained to the individuals (Akaranga & Mukau, 2016). In this research, the respondents/participants were advised of the purpose of the research and assurance was given as to their confidentiality and anonymity. The majority of the respondents were students whose contribution to the research attacked the persons and professional conduct of the professoriate. In

this regard, respondents were named alphabetically so that their verbatim contributions would not be attributed to them.

Beneficence relates to the aspect of research being beneficial while non-maleficence focuses on avoiding harm. In this research, the researcher avoided questions that would have caused emotional harm such as denigrating the models thereby affecting the esteem and confidence of those that strongly subscribe to them. In this regard, the researcher used the concept of bracketing so that he was not emotionally attached to the questions.

Confidentiality is when the identity of individuals is withheld so that it is not linked to the information that they would have provided (Polit & Hungler, 1999). It means that information that individuals would have divulged is not made public or made available to others. Anonymity of a person or institution is made possible by making it difficult to link provided data to either a person or an institution. In this research anonymity and confidentiality were guaranteed through ensuring that the names of the participants were not used to identify the data. A promise and assurance of anonymity and confidentiality was given to all the respondents/participants prior to the soliciting of data. Participants were identified alphabetically rather than by their names.

The researcher explained to the participants the value of their participation in the research project without jeopardizing their confidentiality and privacy. Therefore, the participants consented out of their own volition without cohesion. In the case that the participants felt they wanted to withdraw from the research process, they were allowed without any negative consequences there of (Holloway & Wheeler, 1996).

Privacy means that the participants could exhibit any behaviour or thoughts without interference or without these being used to demean or discredit them later. In this research, privacy was guaranteed through ensuring that sentiments about the pedagogical or andragogical practice whether bad or good remained confined to the researcher and the participants. The behaviours exhibited by the participants during the research also remained solely the knowledge of the researcher and the participants.

According to Akaranga & Mukau (2016), academics must be open minded and should share their information and ideas freely without fear or intimidation. This ethic guided the researcher to disclose the purpose, benefits of the research and promised to avail the research findings to UZ and the participants upon marking and correction of the thesis by the relevant authorities.

The faking of data, inventing data or results or having a predetermined finding is research fabrication. The omission or deliberate manipulation of instruments to fine tune the results according to the researcher's pre-meditated finding is falsification or research fraud which does not add value to the body of knowledge and does not address the intended purpose of the research (Kour, 2014). This defies the ontological and epistemological assumptions underlying scientific or empirical research. To this end, the researcher tried to uphold his academic credibility by venturing into the unknown without any pre-conceived findings and obtained thick descriptions of the phenomenon from diverse methodological and paradigmatic lens. The researcher worked to achieve credibility of the research through triangulation of designs, sampling techniques and methods.

The qualitative strand dominated the nature of data collected. However, a significant amount of quantitative data was collected from the 80 respondents. The data was presented in form of percentages, tables, and diagrams. The research questions both in the interview guide and the open-close ended questionnaire formed the basis for the generation of universal themes for both qualitative and quantitative data. The six steps Thematic Analysis (TA) allowed for the researcher to adopt an inductive or deductive approach to data analysis (Niece, 2011; Hallodorson, 2009; Ibrahim, 2012). By having themes around the 5 research questions, the research followed the deductive approach. However, the qualitative dominance led to the emergence of new themes making the inductive approach to TA dominant throughout the analysis. There is no distinction between data analysis and its interpretation but an overlap of the two in TA. This is supported by Cohen *et al.* (2011, p. 537) who argue that the distinction of data in qualitative analysis is seen through, "the merging of analysis and interpretation and often by the merging of data collection with data analysis." Just like in the Grounded Theory, data analysis starts during data collection, thus new data would find their grounding on already analysed data (Braun & Clark, 2006). This resonates well with the adopted exploratory-sequential design in which quantitative data had its grounding on already analysed qualitative data. It needs mention that the TA is applicable to qualitative analysis and in the context of this inter-paradigmatic research, it was used to complement mixed analysis focussing mainly on the qualitative strand.

Mixed analysis refers to the analysis of data generated through quali-quanti in mixed research (Combs, 2011). Onweugbuzie & Combs (2010) suggest 13 steps and decisions that a mixed paradigmatic researcher should address before, during and after the analysis. This does not necessarily mean that all the steps would apply in every mixed method but are a guideline implying that they can fully or partly apply (Teddlie & Tashakkori, 2011; Onwuegbuzie, 2008).

Criterion 1: The purpose or rationale for conducting mixed analysis.

Criterion 2: The philosophy underpinning the mixed analysis.
Criterion 3: The data types to be analysed.
Criterion 4: The data analysis types to be used.
Criterion 5: The sequence of the mixed analysis.
Criterion 6: The interaction level of qualitative and quantitative analysis.
Criterion 7: The analytical components priority.
Criterion 8: The analytical phases number.
Criterion 9: The nexus or link to other design components.
Criterion 10: The research process phase when all analysis decisions are made.
Criterion 11: The nature of generalisation.
Criterion 12: Orientation of the analysis.
Criterion 13: The cross-over nature of the analysis.

A two-level embedded mixed research design was utilized in the study, which was designed to make a comparative analysis on the impact of pedagogy versus andragogy in institutional learning. The study represented a complete exploratory sequential design. This design, incorporated dialectical, pragmatist and complementary stance assumptions (i.e., Criterion 2, philosophical underpinning). It involved inter-paradigmatic sequential exploratory, case study, phenomenological and a descriptive investigation and comparative analysis of the impact of pedagogy versus andragogy at the various stages including the data analysis stages. The qualitative analysis dominated the quantitative analysis (i.e., Criterion 7, priority of analytical components). The first phase of the analysis generated qualitative data which was scrutinised and categorised into themes according to the qualitative research questions on the interview guide. The second phase generated quantitative data which was then juxtaposed against the phase one data. It is important to note that data from quantitative strand was generated from questions almost similar to those in the qualitative strand, thus similar questions from both qualitative and quantitative strands generating textual and statistical data fell under the same themes. This provided the basis for juxtaposition to obtain convergent and divergent perceptions (i.e., Criterion 3, number of data types). The qualitative data analysis in phase one informed the analysis in phase two bringing about a sequential interactive analysis (i.e., Criterion 6, level of interaction).

In the second phase of analysis which is the quantitative analysis, a lower priority emerged and at face value would imply a confirmatory role or rejection role of quantitative data to already obtained conclusions from the qualitative analysis (i.e., Criterion 7, priority of analytical components). The interview generated data informed the analysis of quantitative data (Criterion 6, level of interaction). The second phase of analysis though being termed the quantitative analysis became embedded because it then looked at qualitatively analysed data against the quantitative raw data. The quantitative data was then analysed on the basis of

already obtained results in the respective themes. (i.e., Criterion 4, number of data analysis types). From the foregoing as informed by the research design and data analysis design, the analysis was sequential from qualitative to quantitative respectively (i.e., Criterion 5, sequence of mixed analysis).

The mixed analysis framework was Exploratory-Sequential design-based and followed the quali-quanti strand in a two phased and not parallel analysis (i.e., Criteria 8, number of analytical phases; Criterion 9, link to other design components). The rationale for conducting the mixed analysis according to Greene *et al.* (2007) cited in Combs (2011) was that of triangulation, complementarity, expansion and development (i.e., Criterion 1, purpose for conducting the mixed analysis). Mixed analysis decisions occurred sequentially from the qualitative then merged with the quantitative analysis decisions. The decisions were therefore *posteriori* that is inductively from representative participants or cases, making naturalistic generalisations from the lived experiences of the professoriate and the students. (i.e., Criterion 10, phases of research process where analysis decisions are made).

Phase 1 involved data generated from key participants or data rich cases, it then yielded a case-oriented analysis (i.e., Criterion 12, analysis orientation) that led to internal generalizations (i.e., Criterion 11, type of generalisation). The second phase was process-experience oriented because it combined the variable oriented and case-oriented approaches (i.e., Criterion 12, analysis orientation) that led to internal and external generalizations implying a quali-quanti meta inference (i.e., Criterion 11, type of generalizations).

The chapter has focused on the research philosophy, the adopted approach as informed by the philosophy and the four research designs as well as grounded theory. It also looked at the data collection methods in the form of interviews and questionnaires, the types of population from which the sample was drawn as well as the sampling techniques and the sample. The qualitative data was generated from a purposive sample of 10 participants drawn from the professoriate (n=10). The quantitative data was generated from a sample of 80 respondents drawn from randomized sample of the professoriate and students (n=80). The randomized sample sought to address the issues of generasability or transferability. However, for both paradigms, the issues of trustworthiness (validity and reliability) were addressed in this chapter. The chapter also highlighted the research ethics that the researcher followed to ensure the success of the study. Justification for the presentation and analysis of the data collected was made considering the methodology, research designs, sampling procedures and data collection methods and instruments used. The next chapter looks at data presentation, analysis and interpretation.