Cape Peninsula University of Technology

Towards a framework for the implementation of an e-learning policy at an African university: An Actor-Network Theory Perspective.

BY

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Declaration

I, Caroline Gail Nyengeterai Magunje, declare that the contents of this thesis represent my own unaided work and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore,it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed  **Date 14 October 2022**

Abstract

Information Communication Technologies (ICTs) have had a significant impact on teaching and learning in the 21st century leading to their widespread use in education. This has transformed the appearance of curriculum delivery by creating new learning environments and emerging learners. E-learning through blended and online learning can be complementary or offer alternatives to traditional learning encouraging flexible curriculum delivery. E-learning breaks down restrictions to access to education, allowing any person to enrol for a university program from anywhere in the world if they have the enabling technological resources and digital literacy skills. Like most countries in Sub-Saharan Africa, Zimbabwe has had an increased number of students seeking tertiary education who could benefit from a technology-enhanced flexible curriculum delivery. However, the integration of technology for flexible curriculum delivery in a multidisciplinary setting is complex and challenging more so for higher education institutions in developing contexts that face unconducive contextual and environmental challenges. Despite these challenges, university management in these contexts are developing policies and interventions that allow institutions to meet the challenges of embedding technology in teaching and learning. To highlight the challenges, the required interventions, and strategies needed for the successful integration of technology for flexible curriculum delivery the study traced the implementation process of an e-learning policy at a higher education institution in Zimbabwe. The study sought to answer the following question:

How do the actions of various actors in a university network affect the implementation of an e-learning policy for successful integration of technology for flexible curriculum delivery?

The study used Actor-network theory (ANT) as a lens to get a better understanding of the phenomenon and adopted a critical paradigm that allows the exploration of issues and differences leading to novel and stimulating viewpoints. The research design of the study was a single case study of a university in Zimbabwe which enabled an in-depth analysis of the study through the use of semi-structured interviews and document analysis as qualitative data collection instruments. The findings show that the successful integration of technology for higher education institutions to support flexible curriculum delivery in developing contexts is a result of the actions of various actors at a university who are part of the implementation process. Through the development of an ANT-inspired Framework for Technology Integration (AFTI) that can be adopted by HEIs in developing contexts, the overall conclusion of the study is that the embedding of innovation in HEIs in developing contexts is not solely dependent on the implementation of a policy. The integration process is a trajectory that involves deliberate, purposeful, contextualised, fluid, interconnected strategies and interventions and the adoption of radical flexibility. This refers to the expansion of traditional flexibility to include multi-modal, societal relevant ways of embracing technology-enhanced curriculum delivery that leads to quality, equitable, and inclusive curriculum delivery.

The limitation of the study is that it involved a single case study and therefore focused on one context creating generalisation challenges and yet the phenomena might be experienced differently in other contexts. Therefore, comparative case studies in future studies might provide a different perspective on the research study. Furthermore, the study recommends empirical investigations of the AFTI in different developing contexts to evaluate its effectiveness.

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Dedication

For my late parents David L.S and Elsa V. Zinhumwe.

Abbreviations and Acronyms

ANT	Actor-Network Theory
AAU	Association of African Universities
AU	Africa University
AFTI	ANT inspired Framework for Technology Integration
CDA	Critical Discourse Analysis
DVC	Deputy Vice-Chancellor
ERT	Emergency Remote Teaching and Learning
HEI	Higher Education Institution
ICTs	Information Communication Technologies
IT	Information Technology
SSA	Sub-Saharan Africa
VC	Vice Chancellor
ZIMCHE	Zimbabwe Council for Higher Education

List of Figures

List of Tables

Appendices

Research Output

Magunje, C. and Chigona A. (2021) E-Learning Policy and Technology-Enhanced Flexible Curriculum Delivery in Developing Contexts: A Critical Discourse Analysis. Critical Studies in Teaching and Learning,9 (2) 84-104

Table of Contents

Chapter 1

Introduction of the Research Study

1.0 Introduction

Information Communication Technologies (ICTs) have highly impacted teaching and learning in the 21st century, providing higher education institutions (HEIs) with novel ways of curriculum delivery. Due to the increased internet-enabled interconnectedness of the century, stakeholders such as educators and policymakers globally are emphasising that higher education learning outcomes should include critical thinking, effective citizenry, problem-solving skills, interdependent relations within a diverse community, and high-level decision-making skills (Magolda, 2007). The commitment to impart these skills to all students, demands that educators effectively align technologies with content and pedagogy and develop the ability to creatively use technologies to meet specific learning needs that ensure positive learning outcomes for students (Robinson & Kay, 2010). This has therefore necessitated the extensive spread of ICTs in education which has changed the appearance of teaching and learning, paving the way for new learning settings and emerging new learners (Duan et al., 2010).

E-learning is defined in this study as the integration of technology in teaching and learning which can be an alternative to traditional learning or complementary to it. It can further be divided into blended and online learning. Blended learning is e-learning that brings together traditional ways of learning and teaching with the affordances of technology which allows self-paced, individualised, and collaborative learning (Duarte, 2016). Online learning, on the other hand, is learning that is facilitated purely through online modes, and as such represents an advanced mode of learning that increases access to education for learners, with improved flexibility for the student and the ability to promote diverse methods of interactions (Conrad, 2002; Oblinger et al., 2005). Online learning is traditionally linked to distance education, although this has changed since COVID-19. It is also increasingly used for residential learning. Both blended and online learning are technology enhanced modes of curriculum delivery which promotes flexibility in curriculum delivery. Technology enhanced curriculum delivery can be beneficial to both HEIs and students as they break down walls in terms of time and distance for learning and can be accessed by any person who is willing to enrol in a program from anywhere in the world if they have internet data, devices, and digital literacy skills (Duan *et al.*, 2010).

Improving access is a major concern across the world and the use of online and blended learning can support the increased demand for higher education in developed and developing contexts. Sub-Saharan Africa (SSA), the focus of this study, has had an increased number of students seeking tertiary education, in addition to an increase in the number of adult working learners (Kandiero, 2015; Ogunlela and Ogunleya, 2015). Blended and online learning can accommodate increased enrolments, improve the quality of pedagogy, and reduce costs of curriculum delivery for HEIs in developing contexts

(Dagada and Chigona, 2013; Thurab-Nkosi, 2018). The integration of technology in curriculum delivery, however, entails its inclusion as an enhancement tool in learning in a multidisciplinary setting, and the challenges associated with the process are complex even in a developed context (NCES, 2009). Studies on the adoption and use of ICTs in HEI report an appreciable level of resistance to e-learning at various levels but mostly among lecturers (Chigona and Dagada, 2015; Khalil, 2013; Aljaber, 2018). In addition to the resistance, the unconducive contextual and environmental setting such as scanty electricity and poor internet infrastructure of a HEI, limit the extent to which ICTs is embraced for many educators in developing countries (Ng'ambi, 2013; McNeal, 2015). Some countries in SSA such as Cameroon, Kenya, Zambia, and Zimbabwe have put more emphasis on ICT policies instead of E-learning policies, a trend that is mostly replicated at the institutional level in developing contexts (Njenga, 2011; Konayuma, 2012; Sakala, 2019). ICT policies generally do not foreground the use of ICTs in pedagogy but emphasise infrastructural issues such as the required internet bandwidth and how accessible the technologies are in a university context negatively affecting the effective use of technologies in teaching and learning (Mostert & Quinn, 2009). Thus, the absence of an e-learning policy creates challenges for universities as they cannot benefit from the knowledge of several stakeholders in the university who are essential to e-learning adoption, leading to inefficiency in efforts and investments and the provision of effective support strategies (Rajaram & Peters, 2010; Chikuni, 2016).

Studies have shown a poor uptake of e-learning in large parts of SSA, despite the immense importance of educational change brought about by the introduction of ICTs in curriculum delivery (Nihuka, 2013; Chitanana, 2014; Becker et al., 2017). The onus to increase the adoption of technology for flexible curriculum delivery, therefore, lies with university management. University management has to take up the role of providing the required guidance in technology enhanced curriculum delivery through the formulation and implementation of e-learning policies and strategic plans (Rossiter, 2007, Czeniewicz & Brown, 2009). However, for e-learning to be successful, educators must be at the centre of the change, with their full acceptance of technology-enhanced curriculum delivery. The need to introduce educational technologies to teaching staff in universities to meet the 21st-century demands of flexible learning cannot be over-emphasized especially in a developing context (van de Heyde & Siebrits, 2019).

1.1 Background of the Study

Zimbabwe is one of many SSA countries that can benefit from technology-enhanced flexible curriculum delivery since the nation has been faced with an intensified need for university programs from mature working students and other traditional students who choose to learn through flexible learning modes. The need for most skilled workers to find better employment prospects in other countries has left a huge gap of skilled manpower in the country (Nyanga et al., 2012; Kandiero, 2015; Dzinamarira & Musuka, 2021). The necessity to fill the gap has led to a high demand for university programs. HEIs in Zimbabwe set up satellite campuses in major cities and towns and increased their enrolment through traditional

flexible modes such as weekend programs and block sessions as they responded to the high demand for higher education qualifications and more skilled labour in the country (Kandiero, 2015). Traditional flexible modes of curriculum delivery (commonly referred to as non-conventional programs in the Zimbabwean context) take the form of a distance education mode of delivery that forces students to have intensive face-to-face sessions during weekends or scheduled block sessions. The block sessions are usually during school holidays for primary and secondary teachers seeking higher qualifications when university conventional programs are on recess. Thereafter students are released to work on assignments (paper-based) which they have to submit to lecturers on campus before they sit for examinations. This mode of delivery is usually associated with poor pedagogy where students are forced to sit for long hours of notes taking and risk information overload with very minimum interactive and collaborative activities that lead to 21st-century skills (Barkely & Bianco, 2010).Technology-enhanced flexible curriculum delivery is, therefore, a viable option for these students as it removes time and space restrictions whilst providing quality pedagogy if effectively applied.

This study originated from the experience of the researcher as an educational technologist at two different HEIs in Zimbabwe. One of these two institutions had successfully integrated technology for curriculum delivery, whilst the other university, like most HEIs in Zimbabwe was struggling to introduce technology as an innovative mode of delivery. The researcher, therefore, sought to explore the trajectory of the successful institution to provide an understanding of how institutions in complex socio-economically challenged contexts such as Zimbabwe can effectively integrate technology for flexible curriculum delivery. At the same time the researcher sought to critically assess what 'success' would mean in a country such as Zimbabwe.

The case study used in this study is a pan-African, residential institution in Zimbabwe that offers alternative modes of delivery for some programs through online and blended learning in addition to offering emergency remote teaching and learning (ERT) with considerable success during the peak of the COVID-19 pandemic (Africa University Prospectus, 2021). The Zimbabwe Council for Higher Education (ZIMCHE),[1] which is a quality assurance body for all higher education qualifications in Zimbabwe approved the offering of technology enhanced programs at the institution. Africa University (AU) was the first institution to receive this approval in Zimbabwe in a predominantly traditional modes of flexible learning context. AU trajectory in e-learning adoption and implementation can provide useful insights and guidelines for HEIs in Zimbabwe and other complex socio-economic environments, especially because the forced COVID-19 lockdown proved challenging for most universities in the country as they were poorly capacitated to continue teaching and learning through technology during the period (Universityworldnews.com, 2020).

[1] zimche.ac.zw

The university under study is associated with the United Methodist Church (UMC) whose major goal has been the training of quality leadership in Africa. Distance education has always been a prospect of the institution as a way to reach out to many potential students and thereby contribute to the educational and professional goals of African countries, especially in the training of the new leadership of the continent (Africa University Prospectus, 2021). Similar to most universities in the country, AU had offered traditional flexible modes programs which mainly catered to the Zimbabwean community since 2009. By incorporating e-learning the university embraced the opportunity to expedite its mandate, as ICTs removed barriers such as distance among actors allowing universities to reach out to students from all corners of the world (Nwuke, 2003). In 2014, the university had a change of management, with both the Vice Chancellor and Deputy Vice Chancellor coming in from pro-active online universities in the United States of America (USA). That same year, the new management began to advocate for technology-enhanced curriculum delivery and by 2016 the university had formulated, introduced, and begun the implementation of an E-learning Policy and an E-learning Strategic Plan to govern the integration of technology for flexible curriculum delivery. This study, therefore, strives to highlight the trajectory of the institution in its integration of technology for curriculum delivery in the hope that the resulting framework developed to guide the integration of technology would be beneficial to other HEIs in Zimbabwe and those in similar developing contexts who plan to adopt technology as a medium of flexible curriculum delivery.

However, what is lacking is a critical engagement with the term flexibility. While it is often defined narrowly, as the provision of education without time and place constraints, this study argues for a broader understanding of flexibility as Veletsianos (2020) put forward which is a type of education that is responsive to learners' and societal needs. HEIs seeking to offer the flexibility of their programs should therefore be able to fulfil social missions by dispelling the perception that the practices of the university are divorced from societal needs (Veletsianos and Houlden, 2020). Thus, to show that they are adapting to a changing society and the needs of today's citizenry, HEIs must develop practices that are more student-centred and sensitive to student needs, by offering educational opportunities to individuals who cannot afford the luxury of being able to move due to various restrictions that include time and place (Veletsianos and Houlden, 2020).

The increased need for university programs which has resulted in a proliferation of both state and private institutions in Zimbabwe can be solved by technology enhanced flexible programs. The universities in the country however operate under very difficult socio-economic environment and therefore face intricate challenges in embracing technology for teaching and learning. That being the case a university considering offering technology-enhanced curriculum delivery in such a context should go beyond the idea of flexibility as educational provision independent of time and space and access to consider

technology-enhanced curriculum delivery that is 'deeply flexible, and flexible across social, cultural, and material differences' (Velestianos and Houlden, 2020:85).

1.2 Rationale and Aims of the Study

As technology has become pervasive in the information society, university management must congruently develop policies that will allow institutions to meet the challenges of embedding technology in teaching and learning (Roumell & Salajan, 2016). HEIs provide an exclusive opportunity on the inconsistencies brought by the perception of the network society since the effort of bringing together the different faculties and departments within a university for the effective introduction and implementation of e-learning requires an understanding of all relevant stakeholders as they cannot be separated (Lewis et al., 2005).

This study explores the trajectory of an institution in the developing contexts as it integrated technology for flexible curriculum delivery and how its interventions influenced the macro and micro factors surrounding its environment, and how these various factors and other activities have an effect on the integration of technology for flexible curriculum delivery. In addition, the study shows how a policy is traditionally situated in the background of the institution and its influence on the working of an HEI, highlighting how technology integration for curriculum delivery in HEIs is a social and organisational phenomenon (Nnazor, 2009). Thus, policies act as anchors that necessitate action among different stakeholders in a university context. The introduction of technology for curriculum delivery in a university is a complex and complicated process that requires institution to take into consideration their unique context. It is, therefore, important to study relations between actors within a university network by exploring attempts to build a network in the integration of technology for flexible curriculum delivery as stability is paramount for the sustenance of the novel mode of curriculum delivery (Schreiber, 2019). To ensure the provision of a framework under which teaching staff must operate, institutions must implement clear e-learning policies, strategies, and interventions (Graham et al 2013; Duarte & Craven, 2016).

The study, therefore, sought to achieve the following aims:

1. To illuminate the processes and actions of various entities (both human and non-human) in a university that affects and are affected by the introduction of technology for flexible curriculum delivery in a university context.
2. To explore how the implementation of an e-learning policy influences the integration of technology for flexible curriculum delivery in a higher education network in a developing context.

Actor-network theory (ANT) is the theoretical framework that is used in this study as it allows the unpacking of the introduction of technology in social situations revealing how both human actors, such as management, educators, and students, and non-human actors, such as technology or COVID-19, impact and are impacted by social elements in a given context over time (Mähring et al., 2004). This

study, therefore, employs ANT to highlight the actions of various actors in a university network in the process of integrating technology for flexible curriculum delivery.

1.3 Problem Statement

ICTs can transform teaching and learning in HEIs if the technology is properly implemented and supported in the institution. ICTs in education can also enhance the flexibility of curriculum delivery through blended and online programs, however, most HEIs in developing contexts face a number of hindrances that include poor infrastructure, unconducive socio-economic context, resistance to technology, and other conflicting aspects. This study traced the implementation process of an e-learning policy at a HEI in Zimbabwe amidst the challenges associated with developing context. Through the tracing of the trajectory of the institution, and the strategies and interventions adopted in the university to integrate technology in curriculum delivery, the study seeks to develop a framework that can be adapted by other HEIs in the country or in other developing contexts that want to offer technology-enhanced flexible curriculum delivery.

1.4 Research Questions and Objectives

The study will answer the following research question:

How do the actions of various actors in a university network affect the implementation of an e-learning policy for successful integration of technology for flexible curriculum delivery?

1.4.1 Secondary Research Questions

The research question is sub-divided into the following secondary questions that will guide the study:

1. What are the roles of actors (human and non-human) in the integration of technology for flexible curriculum delivery in the university network?
2. How do various actors in the university network support or hinder the integration of technology in curriculum delivery as power is negotiated in the university context?
3. How do key/focal actors in the university network mitigate against resistance by various entities in the integration of technology for curriculum delivery?
4. What guidelines can be put in place to ensure the successful integration of technology in curriculum delivery in a university network?

1.5 Research Objective

The objective of the study is:

To highlight the roles and actions of various e-learning actors in a university network and how their actions affect the implementation of an e-learning policy in the integration of technology for flexible curriculum delivery.

1.5.1 Research Sub-objectives

1. To identify the various actors (human and non-human) in a university network and highlight their roles in the integration of technology in curriculum delivery.
2. To explore how various actors in the university network support or hinder the integration of technology in curriculum delivery as power is negotiated in the university context.
3. To expound on how key/focal actors in a university network mitigate against resistance by various entities in the integration of technology for curriculum delivery.
4. To highlight important guidelines that must be put in place in a university network to ensure the integration of technology in curriculum delivery.

1.6 Contribution of the Study

This study provides universities in Zimbabwe and other developing contexts with knowledge, practices, and information that can direct the integration of technology for flexible curriculum delivery in the face of hindrances that include poor infrastructure, unconducive socio-economic context, resistance to technology, and other conflicting aspects. The study led to the development of a framework that can be a blueprint for HEIs seeking to integrate technology for flexible curriculum delivery in Zimbabwe and other institutions in developing contexts. The study highlights the importance of contextualised interventions in the integration of technology for flexible curriculum delivery for HEIs in developing context. Bozalek et al. (2013) reiterated that HEIs must deliberately develop organisational structures and a plan of action that allows the infusion and use of emerging technologies into university life, to harness their potential in curriculum delivery.

1.7 Limitations of the study

This research study was limited to one single case study focusing on integration of technology for flexible curriculum delivery at a Zimbabwean university. Therefore, it might be difficult to generalise the findings to another context, as the phenomena might be experienced differently in other contexts. Using two or more case studies in the Zimbabwean context or from southern Africa might have provided a different perspective of the research study. However, due to limited resources and time required to carry out the study, only a single case study was possible. Furthermore, the data collection process of the study was carried out during the COVID-19 pandemic which posed challenges, that necessitated a single case study.

1.8 Outline of the Study

The study is presented in 9 chapters:

Chapter 1: Introduction and Background of the study

This chapter presents the overall placement of the study with a focus on the background of the study the research context, the rationale and aims of the research study, the guiding questions, the objectives of the research study as well as the contribution of the study.

Chapter 2: Literature review

The chapter reviews related literature on emerging technologies in curriculum delivery in HEIs, especially in the developing context. The chapter then explores the role of management and lecturers in flexible curriculum delivery bringing to the fore the importance of policies and professional development in e-learning.

Chapter 3: Theoretical underpinnings

The chapter outlines ANT as a theoretical framework and CDA as the analytical framework for the policy documents, highlighting how the study is grounded on the theories.

Chapter 4: Research design

The chapter presents the research design and methodology employed for the research study. The chapter further gives details on the site selection, the basis of participants' selection, and the instruments used for data collection. Data collection procedures are justified by drawing on methodology literature to justify the methods used.

Chapter 5: Document analysis

The chapter presents the findings of the e-learning policy documents of the institution under study as analysed through Critical Discuss Analysis.

Chapter 6: Findings and Discussions: Problematisation Stage

The chapter presents the findings and discussion of the data derived from interviews about the first stage of the ANT translational process: The problematisation stage.

Chapter 7: Findings and Discussions: Interessment Stage

The chapter presents the findings and discussion of the data derived from interviews about the second ANT translational process: The interessment stage.

Chapter 8: Findings and Discussions: Enrolment and Mobilisation Stage

The chapter presents the findings and discussion of the data derived from interviews about the last two ANT translational processes: The Enrolment and Mobilisation Stages

Chapter 9: Conclusion

The chapter presents the final comments, recommendations, and contribution of the study to the integration of technology for flexible curriculum delivery in developing contexts and the overall summary of the study.

Chapter 2
Literature Review

2.0 Introduction

This chapter highlights the growing field of technology enhanced flexible curriculum delivery in HEIs. It delves into the challenges and issues of ICT infrastructure in HEIs in sub-Saharan Africa in the face of e-learning. The chapter also reviews the important role of the lecturer in e-learning as well as the role of university management in the integration of technology for curriculum delivery. The chapter then takes a detailed look at e-learning policies and how they enhance the adoption of technology through creating synergies among university stakeholders. Finally, the chapter looks at e-learning professional development in HEIs and TPACK as a model that can be adopted to ensure the effective marriage of content, pedagogy, and technology as well as the need for technology support, highlighting the Learning Management System (LMS) as an essential tool in e-learning.

2.1 Technology enhanced flexible curriculum delivery.

Globally, most HEIs have always tried to provide alternative forms of education that remove time and space barriers using non-traditional delivery systems, which is now becoming an important concept in mainstream education (Gunawardena & McIsaac, 2004). According to Saykılı (2018) in the 21st century, these non-traditional approaches and curriculum delivery methods as alternatives to conventional campus-based education have become a popular mainstream form of education. Gunawardena & McIsaac (2004) argue that the nature and scope of earlier distance education models have been transformed by new concepts in the form of blended learning, networked learning, flexible learning, and connected learning spaces. According to Okaz (2015) blended learning can be summarised as the combination of face-to-face instruction with an online delivery mode for the promotion of more meaningful and motivating learning for the purpose of building a platform of open interactive conversation as well as a community of inquiry. Thus, the mode of delivery brings together traditional face-to-face learning and technology-enhanced learning so as to improve the quality of pedagogy. According to Gourlay and Rodríguez-Illera (2021), networked learning is fortified by trusting associations, which are driven by a sense of shared challenge and empowered by technologies which lead to knowledge creation and knowledgeable action through collaborative, cooperative, and collective inquiry strategies. In this case whilst technologies are the enabling actors, it is the creation of relationships amongst the community or learners in the learning process that leads to the creation and action of knowledge which all points to high-quality interactions and learning. Ito et al. (2006) summarise connected learning spaces as a process that entails the effective use of technology to widen access to learning that is socially rooted and driven by interest. Veletsianos & Houlden (2020) described flexible learning as being deliberately responsive to the needs of the learner and society which is

provided in various formats, through multiple modes of delivery, in different places and timeframes. Consequently, technology in the 21st century has increasingly been used to improve the quality of pedagogy and remove the limitations of flexible learning thereby enhancing the role of technology as a medium of delivery and transforming distance education.

Naveed et al. (2020) point to an increased replacement of traditional or conventional education by technology-enhanced curriculum delivery which provides increased flexibility and freedom from time, space, physical presence, and demanding teaching-learning, especially in developing contexts. Thus, there has been an increased demand for reduced face-to-face instruction resulting in less need for brick-and-mortar and the monetary outlay of classroom space for HEIs (Crawford & Jenkins, 2017). Due to this shift towards e-learning in the digital age, most HEIs now offer online courses and motivate academic staff to integrate technology into courses as people aspire to be able to learn and work anywhere, with continuous access to learning materials and to each other (Dagada & Chigona, 2013; Becker et al., 2017). Most global regions, SSA included have had to deal with heightened demand for university programs (Kariwo, 2007; Kandiero, 2015; Ogunlela and Ogunleya, 2015).

Myers et al. (2014) reported on the intensified demand by employers for appropriately trained employees, which has led to an increased number of both traditional-aged college students as well as adults seeking additional education or job re-skilling. Eltahir (2019) confirmed that in addition to a large number of high school graduates in SSA, the increasing need for technological skills required for employment in the 21st century has heightened the need for places in HEIs for adult learners. As a result, several residential HEIs in SSA especially in West African universities are embracing the dual mode of delivery of programs in order to harness the opportunities for this increasing demand for university qualifications and to supplement their earnings in the face of declining public funds dedicated to education (Ogunleya & Ogunleya, 2014). In the Zimbabwean context, the dual mode of curriculum delivery is not explicit although most residential universities in the country offer alternative modes of delivery in the form of block release, parallel programs, and weekend programs. These traditional flexible programs have been described by Magunje & Chigona (2021) as follows:

- Evening classes/ parallel programs are face-to-face sessions that mirror campus residential programs but are run in the evenings
- Block release programs- students in these programs visit the campus for an intensive face to face week or two (usually when residential campus students are on a break), after which they are released to work on assignments (paper based)
- Weekend programs characterised by rigorous face to face sessions which are held during weekends, and usually take the whole day and sometimes run into late evening.

However, instead of sticking to such traditional modes of delivery, globally most HEIs are modifying their practices to fully exploit the affordances of changing technologies through the development of

online and blended courses and programs to increase access for students, minimise classroom time and stay up to date with emerging technologies in education (Ng'ambi et al., 2016; Thurab-Nkhosi, 2013). Online courses provide a market without borders for universities and colleges with no need for campus infrastructure, whilst blended learning increases students' flexibility to learn when, where, and how they choose, with the educators providing guidance in the learning experiences (Crawford and Jenkin, 2017; Sadeghi, 2019).

Naveed et al. (2020) pointed out that most adults with employment, domestic, social, and financial commitments cannot put their lives on hold to pursue fulltime study, therefore modes of delivery that require attendance in fixed locations and at fixed times are not an option for them. In order to be able to balance a professional career, life demands and still gain new knowledge and skills through university programs, the agility and use of technology become indispensable (Duarte & Craven, 2016). Through blended and online learning adult students with other life commitments can further their studies or acquire new qualifications without sacrificing or abandoning their responsibilities.

In the Zimbabwean context, residential HEIs that run traditional modes of flexible curriculum delivery, as an alternative mode of delivery, tend to set up off-campus centres where they rent teaching and office space and where lecturers have to travel to and seek accommodation for the duration of the face-to-face session. Eltahir (2019) asserts that such traditional modes of curriculum delivery methods are costly and lack the scalability to meet the continuously growing demand for higher education qualifications. Alkrarang & Ghinea (2013) highlighted how e-learning reduces the overall cost of instruction specifically for costs such as lecturer's travel and subsistence costs, and the rental of classroom space whilst increasing access and improving the quality of education. E-learning offers convenience and flexibility to the students, increasing retention and at the same time preserving the environmental from overuse of paper.

The issue of equal access to education is a critical need, especially for people in remote and underserved communities. In Zimbabwe, adult learners from such communities enrol in block release and weekend programs in which they are forced to travel and find lodgings in areas around campus during their learning sessions. Through e-learning, these students could gain useful skills remotely at a lesser cost than fulltime study, at one's own pace, whilst obtaining a university qualification from anywhere in the world without consistently meeting an educator in the classroom (Snejana & Veselina, 2018). Parker (2005) assert that in developing countries the objective of e-learning is to provide education to many poor students. Thus, by being deliberately cognisant of what infrastructures and connectivity and technological devices are available in their context, HEIs in countries like Zimbabwe can provide flexible learning that is relevant to the needs of the society and learners. HEIs can provide the most suitable technology to enhance flexibility. A wide gap between students from poor backgrounds and those financially advantaged communities also exist in developed countries such as United States of America (USA) (Williams, 2016). Dziuban et al. (2018) extol how technology enhanced flexible curriculum delivery can widen access as a result providing a solution to some of the challenges faced

by students from poor communities leading to improved educational equality. Online technologies, therefore, have the potential to increase access to students from poor communities and adult students through the provision of a multitude of educational resources and experiences, to those who may have restrictions to on-campus-only higher education, if strategic interventions such as community internet centres are effectively utilised (Dziuban et al., 2018).

Heydenrych (2003) noted as early as 2003 how, many African universities had enthusiastically embraced distance education as a delivery method as they contend with accommodating the explosive demand for campus based full-time studies. According to Dagada & Chigona (2013) the growing population in Africa is one of the main motivations for the development and deployment of technology enhanced flexible curriculum delivery to ensure the provision of quality accessible educational opportunities. Czerniewicz et al. (2006) earlier purported how ICTs were set to play a crucial role as an effective response by HEIs to the challenges brought about by shifting universal, home-grown, and technology related forces. Makokha & Mutisya (2016) summarised the advantages of technology enhanced flexible delivery for Africa as follows:

- It enables participants to fit in the global economy and to keep abreast with developed countries allowing opportunities for human development and bridging the digital divide.
- It increases educational opportunities through access to quality open educational resources enabling equitable access to information which assist in the nurturing for information exchange and sharing.
- Improves teaching methods whilst reducing pressure on resources as the gap between learner and facilitator is reduced through investing in innovative teaching by the lecturer and the individualised dynamic learning of students.
- Bridges the gap between rural and urban areas providing anyone who is willing to study whilst working with flexibility as learning can take place anywhere where there is internet connectivity. Participation, collaboration, and information sharing is enabled for students and lecturers to engage in online teamwork through technology enhanced collaboration tools.
- Generates fast and cheap circulation channels of academic reference materials and knowledge with no physical boundaries.
- Allows individualised learning for each student enabling one to learn at own pace and speed thereby allowing personal control and ownership of the learning process.

However, the professed benefits of technology enhanced flexible curriculum delivery can only be realised if e-learning is successfully implemented into the education system (Naveeda et al., 2020). According to the (AAU Report, 2020) HEIs in Africa must set up a series of digital innovations and initiatives that go beyond online learning, including a digitised curriculum delivery process and the sustenance of learning and monitoring systems. Eltahir (2019) acknowledged that the high demand for

quality education and the vast costs of investment and infrastructure associated with on-campus higher education, requires developing countries to adopt technology enhanced curriculum delivery as a solution because of the widespread of ICTs. HEIs in developing contexts must therefore set up practices and systems with the potential for widespread e-learning with the capacity to reach underprivileged locations, endorsement, and examinations that are dynamic, with efficient electronic communications as well as the confidentiality of data transparency (AAU Report, 2020).

2.2 ICTs and E-learning in HEIs in sub-Saharan Africa

United Nations Development Program (UNDP) classifies countries with a low Human Development Index as developing nations (Al-Azawei et al., 2016). Unfortunately, SSA falls under this category. According to the World Bank (2018) severe inequalities exist in Zimbabwe with a national average poverty headcount rate of a paltry USD 1.90 per day. ZIMSTATS (2016) confirmed that the results of the 2000 and 2008 economic and political crisis led to a severe drop of the country's GDP. Thus, similar to most underdeveloped countries, lack of resources such as electricity, essential devices like computers to access e-learning, lack of and the high cost of internet, and other infrastructural challenges have hindered the implementation of ICT projects in Zimbabwe (Kasse & Balunywa, 2013; Sakala, 2019; Eltahir, 2019). The South African Institute of International Affairs (SAIIA) highlighted how Africa as a continent trails behind world averages, in the number of internet users.[2] Venter, Rensburg & Davis, (2012) highlighted how the internet user penetration in Africa is by far the lowest in comparison to any other region in the world, with the cost of high-speed access to the internet being excessively high because it can only be accessed through private providers using satellites.

AAU (2020) reported that the advancement of ICTs in SSA over the past 20 years elevated the anticipation for a higher technology level which would encourage a cost-effective technique of resolving the challenges of access to education. However, the challenges presented by the inefficient use of ICT infrastructure decelerated the process. Ponelis & Holmner (2015) also reported on how the World Bank had noted the increased penetration of ICTs across the African continent in the period between 2000 and 2010 as the focus shifted towards the uptake and impact of ICTs to change societies and economies. ITU (2015) observed a noteworthy growth in the accessibility of ICTs in developing countries. According to Kabanda (2014) most Southern Africa Development Community (SADC) countries, Zimbabwe included, experienced substantial increase in mobile cellular subscriptions and internet penetration as the ICT development index steadily grew in the region between the period 2000 to 2012. Despite these improvements, ICTs are being introduced at varied paces in most African countries and the education sector is lagging as a result of issues such as the lack of basic infrastructure, lack of effective policies, and corruption (Eltahir, 2019).

[2] https://saiia.org.za/research/africas-ict-infrastructure-its-present-and-prospects

Efficient and effective e-learning systems have been attributed to huge investments in ICTs infrastructure (Naveed et al., 2020). Starr-Glass (2011) however highlighted that issues such as lack of funding to purchase technology infrastructure among other things contribute to the challenges that developing contexts face in the integration of technology in curriculum delivery. Aung & Khaing (2015) assert that the establishment and provision of ICT tools and network infrastructure are the biggest challenges affecting the meeting of e-learning preconditions. Universities should therefore, set up technological infrastructure that include adequate bandwidth, learning management systems, and web conferencing systems to provide efficient and effective e-learning (Porter et al., 2014).

In Zimbabwe, the use of the multi-currency system in the economy over the years enabled the affordability of ICT infrastructure for various organisations including HEIs, that gave them an advantage to acquire resources from neighbouring South Africa using foreign currency. According to Munyanyi (2021) HEIs in Zimbabwe have invested heavily in ICTs and their infrastructure relative to budget allocations. The use of multi-currency has also enabled the acquisition of smartphones and other digital devices by people from diverse walks of life (potential online students in the country). The researcher as a lecturer of a digital literacy course in one of the block release programs at the university under study noticed very good smartphones amongst learners and how most of them could easily acquire laptops from South Africa when they understood their importance. Of significance in the Zimbabwean context is the use of low-cost smartphones and tablets from the Chinese market which has led to improved connectivity of people in the country. According to the 2021 Zimbabwean statistics, in January 2021 there were 5.01 million internet users in the country, an increased use of internet users by two hundred and three thousand in the country between 2020 and 2021. The statistics show an internet penetration of 33.4%, whilst the mobile connection in the country in January 2021 was 98.5% of the entire population.[3] Thus, although these figures are reflective of the developing context, there is room for the provision of technology for flexible curriculum delivery in the country if the e-learning project is developed from a student-oriented approach by a HEI.

Chiome (2013) highlighted the growing figures and stories of great achievement in technology adoption in other parts of the world. However, Zimbabwe remains under-researched in terms of technology integration as many organisations in agriculture, health, and education are apprehensive about technology adoption. This might be attributed to a lack of clarity and direction on how these technologies should be implemented in their respective fields. Similarly, Nihuka (2013) observed that in the SSA context the full potential of technology enhanced flexible curriculum delivery has not been fully exploited in HEIs. Despite the immense importance of educational change brought about by the use of technology in teaching and learning and the internet in education and the impact of the explosion of this transformation in practice, large parts of SSA lag behind in e-learning (Becker et al., 2017).

[3] https://datareportal.com/reports/digital-2021-zimbabwe

The use of ICTs in HEIs has the potential to influence curriculum delivery and this has become apparent as the technologies augment and alter the way in which educators teach and students learn (Wallace, 2003). However, the advantages that can be accrued from technology enhanced curriculum delivery can only be realised when the technologies are effectively exploited and e-learning technologies are properly adopted into the curriculum delivery process (Dagada and Chigona, 2013; Tanye, 2017). Alkharang and Ghinea (2013) argued that developed countries adopted technologies for curriculum delivery way before developing countries did, as a result execution and application models set up in these first-world contexts have been set as global benchmarks. However, different contexts and regions may face diverse factors and hindrances to the adoption of e-learning to those identified in developed regions with varying degrees of force or significance (ibid). Kanwal & Rehman (2017) argued that the success of e-learning systems is dependent on the social, contextual, and cultural aspects and varies from one country to another. The one size fits all concept, therefore, does not work in the implementation of technology for curriculum delivery, since different contexts and regions in the world must deal with different challenges and dynamics, in particular developing countries in SSA.

The decision by some HEIs to adopt e-learning is sometimes made by management simply because of the global discourse of the mode of delivery, rather than as a response to the needs of a particular context (Husain, 2013). Technology-enhanced flexible curriculum delivery has been viewed as a way to reduce curriculum delivery costs in SSA (Alkharang and Ghinea, 2013). It can be argued that in some cases e-learning can be a way to transfer the cost of curriculum delivery from the university to the students. This is particularly relevant to the institution understudy which had to rent off-campus centres in traditional flexible curriculum models. HEIs can therefore advocate for e-learning to gain a competitive advantage or to offer alternative modes of delivery or as an add-on to campus-based programs (ibid). Thus, HEIs can adopt technology enhanced flexible curriculum delivery under the guise of widening access to education as a public good with the motivation to increase income and reduce cost. Gray et al. (2018) confirmed how flexible education can also be for monetary value as a way to increase the university funds through neoliberalist tendencies to exploit market opportunities - which is market essentialism in education - a phenomenon that adapts to local qualities in varied geopolitical, fiscal, and cultural settings.

The neo-liberalism discourse involves the marketisation of higher education, a foregrounding of business practices into education, following cost effectiveness arguments rather than those framed by social justice, and introducing efficiency standards with students referred to as consumers/clients (Czerniewicz et al., 2021). In the Zimbabwean context this would mean providing online learning only to those who can afford it without making deliberate efforts to offer radical flexibility that cater to wider societal needs. Aung and Khaing (2015) warn that implementing e-learning projects is not an easy process despite the widely recognised rewards. Selwyn, (2011) highlighted the importance of context in educational technologies, as the 'outcomes' and 'effects' of technologies in education are profoundly

shaped by the characteristics of the educational contexts and environment where these technologies would have been applied.

2.3 Lecturers and technology enhanced curriculum delivery

The ubiquity of technology and digital tools does not guarantee success in their integration into curriculum delivery, if these technologies are not integrated meaningfully into the learning process, they can be unproductive (Becker et al. 2017). If HEIs adopt ICTs for curriculum delivery without clear goals and cautious planning and backing, they run the risk of ineffectively using scarce resources leading to unsatisfied users and the creation of poor learning outcomes (Wallace, 2003). White (2007) highlights an important factor, which is the need to recognise the contradictory demand on faculty time in research rigorous environments, and how this produces a very difficult atmosphere to generate the motivation to endure new e-learning initiatives. Aljaber (2018) acknowledged how in most HEIs a number of factors led to the increased reluctance to the adoption of this method of curriculum delivery which includes suspicion surrounding the use of ICT in terms of quality and feasibility in teaching and learning which is further heightened by cultural and social factors. Given that there are several factors which include external and internal, institutional, cultural, and personal on which institutional adoption of innovation is dependent, HEIs are, therefore continually challenged to create technology-enhanced curriculum delivery opportunities in unconducive environments inundated with paradigms that are still heavily dependent on traditional practices (Becker, et al., 2013; Gachago & Sykes, 2017).

One of the main challenges of the integration of technology for curriculum delivery in HEIs is the fact that they must contend with a lukewarm reception by stakeholders and sometimes outright rejection (Ogunlela and Ogunleye, 2015). According to Chigona & Dagada (2015) there are several threats to the integration of technology for curriculum delivery in HEIs due to cultural factors, which include faculty resistance to innovation and change and negative attitude towards technology. According to (Sukumaran, 2019) for e-learning to be successful lecturers must accept it. Its success depends greatly on the reception of lecturers, and their willingness to accept change in teaching and learning.

According to (Singh & Hardaker, 2017: 18)

> "Adoption refers to the stage in which a technology is selected for use by an individual or group of individuals; it covers that period when an individual engages in activities that lead to the adoption or rejection of an innovation."

Adoption is therefore a result of an innate decision by an individual lecturer, Moerschell (2009) observed that the culture in academia is a serious issue of resistance to technology: it "epitomises this behaviour," and is a necessary systemic component of implementing technological change. However, in cases where educators have failed to acclimatise quickly to e-learning transformation, HEIs have faced hindrances to (Sukumaran, 2019). Nihuka (2013) observed that most stakeholders in universities

in developing contexts are not well acquainted regarding the ability of technologies in curriculum delivery. Salmon, (2005) emphasises that without intense comprehension of the reasons behind, and the impact of e-learning in terms of quality and any resultant benefits, educators are logically reluctant to change their approaches in curriculum delivery. Most academic staff who lack experience in e-learning primarily view it as technical 'solutions' rather than pedagogical innovation. Chingona et al.(2010) argued that effective integration of ICTs within the curriculum can only take place when there is a deliberate shift from traditional methods of teaching. Therefore, an educator's approach to pedagogy impacts the integration of technology into the teaching and learning process. If a lecturer believes and holds on to traditional methods of teaching, chances to change the pedagogy to embrace ICTs in curriculum delivery become slim.

According to Salmon (2005), numerous instructors regard e-learning as impersonal, restrictive, and inadequately adaptive to the needs of a wide diversity of students. This is an acceptable argument design, engaging online activities is a very complex task that demands specific skills and a lot of practice. Ali. & Magalhaes (2008) on the other hand observed that there are presumptions by academic staff that e-learning creates more problems than benefits, because of their lack of knowledge on the use and application of technology, which leads to resistance. However, lecturers are not totally averse to the use of technology. Fresen (2007) highlights how they use technology among other things, for research, academic writing, and communication, with a few using the technology for curriculum delivery. Yet, successful technology integration in teaching depends on the insights, experiences, openness to experiment of an individual educator. As educators are unlikely to use something they disapprove of, acceptance of technology depends on how much of these new innovations and practices are entrenched in the general organisational culture (Ali and Magalhaes, 2008).

Of note, however, is how the majority of educators in educational institutions in developing countries do not have the basic skills required to use e-learning tools as there is a dearth of training and professional development to integrate technology for curriculum delivery (UNESCO STATISTICS, 2015). Ng'ambi et al. (2016) highlight the following as some of the hindrances in technology integration for curriculum delivery in HEIs in developing contexts:

- shortage of satisfactory training of HE educators in the proper use of technology to advance learning outcomes;
- organisational barricades which restrict wider uptake of such technologies;
- a growing demand for more operative practices to support individualised learning; and
- the need for a "culture shift" among instructors to accept participatory approach to curriculum delivery and research.

Thurab-Nkhosi (2018) advocated for the transformation of culture in curriculum delivery for lecturers to learn new e-learning knowledge and skills. As far as the use of technology and pedagogy are

concerned, their marriage in curriculum delivery will not only require proficiency in the use of ICTs but also an engagement with novel pedagogical paradigms and methodologies. Hence it is the acceptance by educators and their willingness to adapt to change of culture that determine the success of e-learning (Sukumaran, 2019). Thus, to overcome the issues of faculty resistance to using technology, organisational change is required, including educating academic staff on the use of educational technology concentrating on context-sensitive innovative pedagogies instead of the technologies themselves (Johnson et al., 2009; Khalil, 2013). As affirmed by Dron (2022) education is always enacted through technology, and teachers cannot avoid learning to use and adapt it to their specific contexts and needs because whether it is a white board or a projector an educator will always need a form of technology as a delivery tool.

HEI leaders are, therefore, under pressure to be alert and read the signs of the times to ensure that they position themselves to employ positive influence on their institutions through deliberate decision-making as far as the role of educational technologies in curriculum delivery is concerned (Pina et al., 2018; MacKeogh & Fox, 2008). MacKeogh and Fox (2008) however argued that whilst the adoption of technology for wider practice in a university context requires the political support of university management, innovation can only be adopted if academic staff as subject matter experts choose to change their practice in accordance with the right of academic freedom. Thus, to promote buy-in and ensure the effective and efficient integration of e-learning pedagogical knowledge and skills, Aung and Khaing (2015) advocated for robust training of educators enhanced by professional development, mentorship, networking, and support.

2.4 The role of management in technology enhanced curriculum delivery

The 21st century has demanded more from HEI leadership than what is normally expected of them. Zhang et al. (2020) claimed that the digital age calls for all levels of university management to reconceptualise education. As a result, university management has to identify and establish priorities for the incorporation of technology in curriculum delivery in close partnership with the relevant members of the university to create an understanding of the potential of e-learning to ensure less resistance and challenges in the university context (Nihuka, 2013). HEIs should involve all stakeholders including students, and academic and relevant non-academic staff in the choice of all technological investment as the adoption of strategies in order to ensure buy-in and also to assess e-learning readiness (AAU, 2020). Chikuni (2016) endorsed the need for conversations between management and staff within a university context that leads to a co-construction of a strong vision for technology enhanced curriculum delivery in an institution. According to Altunisik (2012) HEI management has to express the planned direction and plans of the university so as to align the people within the university with the vision of the institution. He argues that effective management of technology enhanced curriculum delivery entails being able to move large numbers of staff in the same positive direction. MacKeogh

and Fox (2008) highlighted the need for all university systems to interact to ensure the removal of obstacles and inhibitors for e-learning to flourish. Thus, in e-learning, management should work on changing the context and assisting in the development of such an environment through the sharing of knowledge and skills (Altunisk, 2012).

Smith and Cockburn (2020) assert that the decision of an institution to be innovative and adopt technology enhanced curriculum delivery should be based on the value of the mode of delivery in strengthening the mission and objectives of the institution rather than being driven by a bland view of the market. E-learning is a force for change and change management is inevitable in e-learning adoption as the mode of delivery demands change from both people and the institution on any scale (Parlakkilic, 2013). Stoltenkamp & Kasuto (2011) concur that the introduction of technology-enhanced curriculum delivery leads to substantial transformation and reorganisation in the university context.

A literature review analysis on e-learning implementation by Cardona-Román & Sánchez-Torres, (2016) showed that technology enhanced flexible curriculum delivery implementation needs a series of essential activities and organisational changes. These need to be suitable for the operation of an online education system that goes beyond the teaching and learning process on the technological platform. Crew & Crew (2018) therefore suggest that HEIs have to build a flexible and responsive institutional mindset in order to develop a culture that embraces change within a university context. Thus, management has to be deliberate and strategic in e-learning change management since the transformation of the educators and students' perception towards e-learning and compelling them towards the mode of delivery is very crucial (Aung and Khaing, 2015).

Altunisik (2012) argues that the implementation of successful e-learning programs in HEIs is dependent on a clear and insistent leadership style. Nihuka (2013) reiterated the importance of the supportive role of management in the fruitful incorporation of e-learning technologies in universities as management can provide the required conditions needed for successful technology-enhanced flexible curriculum delivery. These include policy, incentives, and resources, adding that the commitment of management is the most critical factor for effective implementation of e-learning. King & Boyatt, (2015) reported on the need for clear leadership, shared vision, conducive culture, and quality support to ensure extensive adoption of an innovation, like technology-enhanced curriculum delivery within a university. Sukumaran (2019) however contends that there were gaps in practicing e-learning implementation, reporting how a HEI in Malaysia realised that the adoption part of e-learning was not a flat and agreeable process even with a clear vision and mission for the implementation of processes. De Freitas & Oliver, (2005) therefore advocated for effective e-learning implementation through top-down approaches of management which emphasise policy and strategy development prompted by upper management and then proliferated through the organisation. Laurillard (2007) however, argued that a top-down

management structure is hostile to efficacious innovation because management lacks the required knowledge of the pedagogical practice.

Kong et al. (2017) highlighted a bottom-up approach that entails the spread of technological innovation in an educational setting from the ground, where the innovation is led by the frontline educator groups with no influence from management. Beath (1991) in Gachago et al (2017: 2) describe these frontline educators as e-learning champions who are "individuals who emerge to take creative ideas (which they may or may not have generated) and bring them to life as they make decisive contributions to the innovation process by actively and enthusiastically promoting the innovation, building support, overcoming resistance, and ensuring that the innovation is implemented". Gramp (2013) highlights the role of e-learning champions in persuading their colleagues toward e-learning as they can demonstrate the usefulness and ease, of the use of technology in curriculum delivery. As advocated by Kong et al. (2017) a more conducive approach would be the decentralized top-down model, which is driven by e-learning champions from the ground and coordinated by management from the top.

Schneckenberg (2009) highlighted a crucial factor that unlike hierarchical structures common in other workspaces universities often have a high degree of autonomy across faculties. The nature of the organisation of HEIs, therefore, creates challenges for faculties to follow the vision of top management without genuine opportunities for discussion and negotiations leading to dispersed perspectives for uniform e-learning implementation across the institution (McPherson & Nunes, 2008). Thus, although there is a need for top management to be central in implementing e-learning projects they should be strategic in aligning their plans and ensure that suitable levels of staffing and support are put in place. This is to ensure that the viability of e-learning is guaranteed (Mbengo, 2014). Support of other members in the institution such as the human resources, finance, and technology divisions determines the success of e-learning in HEIs (Lin & Chen, 2012). Thus, to embed technology within the university management has to ensure all actors appreciate the innovation and its position in the university context, by developing policies that will allow the institutions to meet the challenges of embedding technology in teaching and learning (Roumell & Salajan, 2016). Chikuni (2016) advocated for strong institutional leadership for the development of e-learning policies to create a common vision for e-learning within a university context.

As concluded by Nichols (2008) responsibility of positioning the institutional components of education rests with management as they must coordinate all departments towards the integration of technology in curriculum delivery.

Nichols (2008) summarised the success of e-learning as attributed to the factors below:

i. **Hubs of power were important –** HEIs that had e-learning endorsed in centres of real power were more effective in the integration of technology for curriculum delivery, essentially the centres of power which made monetary decisions.

ii. **Strategic 'ownership' and reception for e-learning was a success factor** -All success stories showed ownership of e-learning at the highest levels of the HEI, which is within management as this allowed for harmonised decisions in relation to technology and policy and ensured the provision of required resources to facilitate the change.

iii. **An institution's 'readiness' for e-learning determined the success of change interventions**- HEIs characterised by open communication and a concentration on innovative curriculum delivery philosophy were more likely to swiftly and successfully diffuse e-learning.

iv. **Position of policy and procedures with e-learning activity** - HEIs that already had systems and policies aligned with e-learning in place, or those that had them under official development proved to be more successful in the integration of technology in curriculum delivery

v. **Professional development was a critical strategic activity** – HEIs that had made professional development a major focus, had successfully diffused e-learning as these had dealt with misconstructions about e-learning held by managers and academics.

vi. **Dynamics of transformation were dependant on the size of the university–** HEIs of smaller sizes were more able to adopt e-learning swiftly and without the level of bureaucracy required by larger universities, smaller universities are more able to centralise course production services and impose particular e-learning approaches.

University management have to therefore endeavour to create synergies within the institution as well as provide or enable systems and a culture that promote the successful integration of technology for flexible curriculum delivery.

2.5 E-learning policy and the integration of technology in curriculum delivery

According to Makokha & Mutisya (2016) the e-learning policy has to head the outlined manipulation of online pedagogical approaches in HEIs to ensure that technology is embraced properly and effectively. However, most countries in Africa do not have clearly defined national policies on e-learning, which is a hindrance to the adoption and use of technology-enhanced curriculum delivery on the continent (ibid). In most African countries, Zimbabwe included, national governments do not take the lead in university policies as other countries do globally (Czerniewicz & Brown, 2009). Tanye (2017) noted how the lack of national policy to drive e-learning can result in lethargy in the implementation process in HEIs with reduced dedication for advocacy by university leadership and the consuming of valuable resources.

One of the strategies that HEIs around the globe have used to fully integrate technology in curriculum delivery is through the introduction and implementation of institutional e-learning policies. Policies in education are of paramount importance as they convey to academics and other stakeholders, why a university has highlighted certain educational standards and practices (Alford, 2005). According to Czerniewicz and Brown (2009) academic staff regards themselves clearly inhibited in the integration

of technology for curriculum delivery by the absence of institutional support and vision. Thus, without an e-learning policy HEIs face challenges in harnessing the affluence of knowledge of several stakeholders influential in the implementation of e-learning in a university context (Rajaram, A. & Peters, 2010). HEIs in Zimbabwe have emphasised the overall role of ICTs in the university and all institutions in the country have an ICT policy (Sakala, 2019). This can be ascribed to the fact that many countries in Africa have favourable national ICT policies in place (Njenga, 2011). This shows an emphasis on internet bandwidth, technology accessibility, and the availability of computers instead of the way technology is used to promote teaching and learning leading to poor incorporation of ICTs in curriculum delivery where technology ends up being a mere transmission tool in education (Mostert & Quinn, 2009). However, e-learning requires a deeper exploration and understanding for successful implementation in a university context as the focus is not on the technology but on the pedagogy. Nihuka (2013) emphasized the need for a defined institutional policy and strategic plan which would provide a framework for the advancement and implementation of e-learning projects. Gatimu (2008)) highlighted the following as the importance of policy in HEIs:

- Policies regulate resources allocation.
- Policies are effective for the establishment of standards and procedures.
- Policies produce reporting system that creates institutional liability for action.

Thus, without a policy, a university lacks a favourable permissible framework for the support of technology use in curriculum delivery and research which can be regarded as a challenge and a deterrent in e-learning (Njenga, 2011). Chikuni (2016) summarised the purpose of e-learning policy from literature as follows:

- HEIs can trace organised and directed strategies in executing the process of integrating technology in curriculum delivery.
- A shared vision on the use and advancement of e-learning is created in the institution.
- The justification of e-learning as well as the goals and a vision for how curriculum delivery systems with the introduction of ICT is clearly laid down and the benefits to the various stakeholders of the institution.
- It provides collaborative pedagogy in addition to profitable technological solutions to overcome massification and socio-economic burdens facing HEIs.
- Lack of an e-learning policy in a university face the risk of unnecessary replication of efforts and an ungainly replication of funds allocation, subsequently making the creation of university support strategy and mechanisms not sustainable.

Conole (2010) emphasised the importance of linking e-learning policy with practice admonishing the tendency of trivialising the meaningfulness and effectiveness of this connection. Chikuni (2016) noted that there exists a clear signal that practitioners, educators, and policymakers are disconnected on the

position and role of technology in curriculum delivery. Conole (2010) highlighted the following factors that show the need for HEIs to put in place strategies and approaches to ensure the connection of the various stakeholders in the institution which are:

- The significance of proving the value-addition of technologies;
- The necessity to appreciate and consider the prevailing practice and culture;
- The intricacy of the connection between models for transformation and the effect on practice; and
- Acknowledgement that technologies will continue to transform and to have new effects and hence agility needs to be a foundation of any policy perspective.

Conole (2010) concludes that for the effective exploitation of technologies in curriculum delivery, HEIs must harness their potential through institutional policies, strategies, and actual practice. Kozma (2003) pointed out the fact that whilst policies are articulated in the university context, academics are not fully aware of the specifics and goals of the policies, hence policies may be implemented yet practice at the classroom level remains unchanged. A study by Sharpe et al. (2006) demonstrated the importance of research development in deciding on implementation strategies and policies. HEIs developing new policies and strategies for e-learning implementation can therefore learn and derive knowledge from studies on e-learning that show the challenges and success drivers for e-learning (ibid).

Czeniewicz and Brown (2009) differentiated between structured and unstructured e-learning policies within HEIs. Their definition of policy extends to the distribution of goals, values, and resources within an HEI. Their argument is that deliberation of institutional level e-learning policies needs an inspection of systems, amenities, and structures, which exist to realise the purposes articulated in the policy documents (ibid). The following diagram describes how Czeniewicz and Brown (2009) view structured and unstructured policy within a HEI highlighting that for an institution to be regarded as ‘‘Structured”, e-learning policy had to be present at all three levels, which are senior level commitment, centralised support unit, and an institutional learning management system.

	Structured E-learning Policy	**Unstructured E-learning Policy**
Senior Level Formal Support	Policy Document	No policy document
E-learning Structures	Centralised Support Unit	No official support unit (possible fragmentary or ad hoc support)
University wide system	University supported online learning management system (LMS)	No (or ad hoc) LMS

Table 2.1: Institutional e-learning types (Czeniewicz and Brown (2009) as presented by Chikuni, 2016)

Becker et al (2017) emphasised the need for institutional structures as this enables universities to identify successful models that can enhance the exchange of new ideas and reward innovative teaching with student success. Wallace (2003) warned HEIs against the introduction of technology-enhanced learning without proper planning as this might lead to the frustration of users and poor learning outcomes. It means therefore that e-learning policies enable universities to follow well-planned strategies in implementing technology-enhanced curriculum delivery (Sesemane, 2008). Whilst various scholars have identified the important link between policy and practice (Borgman, 2009; Culp et al., 2005; Attwell, 2009; Guri-Rosenblit, 2005) the challenging part is making the connection meaningful and effective (Conole, 2010).

2.5.1 Committees as Policy Makers

HEIs are complex and are characterised by a variety of activities necessitating institutional procedures that allow committees to expedite the decision-making process (Ogbogu, 2013). This entails a committee representing a certain entity or aspect of a university that can be tasked to formulate a policy for that particular area. In the case of an e-learning policy, an e-learning Committee is in charge of drafting the policy. In the Zimbabwean context, committees have the capacity and responsibility for the core decision-making process subject to the approval of the Senate (Ogbogu, 2013). According to Shapiro (1987) the use of committees in HEIs is a system and avenue that allows staff to take part in the decision-making process as they share responsibility with university governance bodies. Bowen and Shapiro (2016) assert that using committees in administrative decisions provides a solid foundation for the institution as the university benefit from the proficiency and knowledge of faculty and other staff members.

Ogbogu (2013) however argued that despite the assumption that committees lead to meaningful decisions that enable transformation in a university context there are signs that committees might not be the appropriate approach for progression and decision making in a HEI. Farris (2018) also reports on the inefficiency of committees in most HEIs. Adegbite (2004) confirms that committees sometimes become watchdogs for management or guardians of the status quo instead of remaining true members who offer the required tactical, supportive, and critical stewardship for their institutions in the decision-making process. Farris (2018) therefore asserts that university management should be astute and thorough so they can scrutinise the performance of university committees as well as create conducive environments for the committees to work effectively for the advancement of the institution.

2.6 Educational Technology Support and Professional Development in HEIs

ICTs are often viewed as the answer to the various curriculum delivery challenges in HEIs. Integrating technology for curriculum delivery however signifies an almost impossible obstacle for educators, yet they are the principal pedagogical decision-makers in curriculum delivery (Graham & Robison, 2009). The absence of pedagogical skills and technical capability required to set up and uphold e-learning

departments affect staff development in developing contexts (Kasse & Balunywa, 2013). Cross & Adam (2007) highlighted how a huge number of lecturers find themselves in a position of academic flux characterised by a sense of volatility, indecision, overload, and in some cases hopelessness as a result of the changes introduced by ICTs in curriculum delivery. Bali & Caines (2018) highlighted that the lack of prior online teaching experience leads to the transfer of traditional approaches to the online classroom perpetuating proven ineffective face-to-face classroom approaches. According to Elatihir (2019) training lecturers in pedagogical and technological knowledge should be a huge part of continuous professional development. This could contribute to e-learning adoption, especially for those educators who resist the mode of delivery due to a lack of knowledge in the area. Thus professional development is critical to increase the knowledge of lecturers on the intricate interaction between technology, pedagogy, and the cognitive content in their fields (Rienties et al., 2013). As a result of this observation, units responsible for staff development in HEIs are tasked with contributing to the professional development of academic staff through interventions that are meant to equip them with the required skills to integrate technology in curriculum delivery (ibid). According to Brouwer et al. (2013), it is important that the professional development activities be closely linked with the university's policy on e-learning as this provides several benefits which include:

1. the integration of technology in curriculum delivery which will be communicated from different points within the institution;
2. lecturers will be motivated and will find it easier to make time for the training even when it is not compulsory; and
3. alignment with the university e-learning policy allows for the necessary technical and financial support for the module.

When stakeholders and institutional management share the same view on technology-enhanced curriculum delivery, momentum intensifies, and awareness of training is most likely to change the perspective of lecturers. Mostert & Quinn (2009) therefore call upon e-learning support units responsible for academic development in a HEI to develop practical strategies in the form of professional development courses that promote effective practice in technology enhanced curriculum delivery, since they operate in university contexts which are not normally receptive to change. Equipping lecturers with e-learning knowledge is therefore a complex task that does not only mean imparting computer technical skills but essential pedagogical knowledge. According to Voogt and Knezek (2008 :33)

> "Utilising the potential of IT in educational practice often implies that the role of the teacher has to change. Faculty not only has to learn IT basic knowledge and skills but more importantly, has to learn appropriate pedagogical skills to be able to integrate IT in a sound way into educational practice."

Although pressure might generate the need for change, it is the support that facilitates such changes (Toohey,1999). In the education sector, staff development has always been utilised as a tool to effect transformation and it is used at both the compulsory and post-compulsory stages (Wilson, 2012). Esterhuizen et al. (2013) therefore highlighted the importance of academic professional development in ICT integration to guarantee smooth adoption, and to ensure educators' needed experience with the technology. Successful lecturer development interventions go beyond mechanical and technical aspects of technology integration in curriculum delivery to emphasise appropriate pedagogy, the addressing of personal teaching beliefs, the provision of collaboration and interaction for online students, and contextualising the content according to the needs of the academic staff (ibid).

Bali & Caines (2018) however observed how academic staff development for e-learning tends to follow a 'one-size-fits-all' workshop approach with restrictive time and space and very little flexibility leading to unequal participation of lecturers. To be effective staff development therefore ought to be flexible and accommodative. As argued by Pallitt, Gachago, & Bali (2021) staff development for lecturers is complex as it entails demonstrating meaningful and transferable pedagogy to them whilst challenging their teaching and learning practices and pushing them out of their comfort zones. The global advanced shift from a technology-oriented planning towards a pedagogy-oriented one of staff development for educators demands the needed transformation of mindsets and the required change in practice for student-centred learning in e-learning settings (Kong et al., 2017). Thus, through contextualised continuous staff development interventions that take lecturers through repeatable multiple embedded cycles of exploration, re-design, and reflection with feedback from colleagues and students, lecturers can gain the required pedagogical knowledge and skills to become effective online facilitators (Gachago et al., 2017).

2.6.1 Technological, pedagogical, and content knowledge (TPACK)

It is important to note that in most instances' lecturers are employed for their expertise in a subject or area and most of them rarely think of pedagogy as they tend to teach the way they were taught (Bali & Caines, 2018). According to Koehler and Mishra (2009) the teaching practice is a complex phenomenon and lecturers often operate in a highly dynamic setting where they have to continuously develop their own understanding. As new technologies are introduced, the technology itself might be obscure and unstable as well, compounding the challenges for lecturers who may make efforts to integrate technology in their teaching. It has, therefore, been proven that the introduction of ICTs in the curriculum delivery process does not guarantee technology integration since technology on its own does not lead to transformation (Koehler & Mishra, 2005). According to Rienties et al (2013) in response to this imbalance universities should provide suitable capacity building and support for educators to equip them with the required skills and knowledge and awareness of the complex connection between technology, pedagogy, and content knowledge in their disciplines. Adopting technology for curriculum delivery is a complex process that goes beyond adding an ICT tool to a course. In fact, technology

should transform the way lecturers teach and what they teach, thus, converting from face-to-face to blended or online mode of curriculum delivery is therefore not an obvious enrichment process (Brouwer et al., 2013). Unfortunately, professional development is often overlooked in HEIs, yet its importance can never be over emphasised (Elliott, 2018). However, failure to provide adequate opportunities for professional development by HEIs leads to a huge number of lecturers failing to fully embrace technology enhanced curriculum delivery, instead they will just transfer conventional teaching methods to the online platform (Thurab-Nkosi, 2018). Academic developers should therefore adopt effective ways of equipping lecturers with the necessary skills and knowledge for technology enhanced curriculum delivery. Technology, Pedagogy and Content Knowledge framework (TPACK) by Kohler & Mishra (2005) allows for a comprehensive understanding of the relationship between content, technology, and pedagogy.

According to Glowartz and O'Brien (2017:135)

> "The TPACK framework outlines a complex interaction between three areas of knowledge: content, pedagogy and technology which produces the category of flexible knowledge required to integrate technology into teaching. Only the interplay between these three domains can generate the type of flexible knowledge which is needed to successfully incorporate technology into teaching."

The interaction of the 3 components and the interplay between them accounts for wide disparities in the extent and quality of technology-enhanced curriculum delivery integration (Eisterhuizen et al., 2013). According to Koehler et al. (2013) traditional teaching technologies, such as a pencil, provide stable characteristics such as 'specificity, firmness, and transparency' of their purpose, in wide contrast to e-learning technologies which tend to be utilised in a variety of ways which make them unstable and opaque, as the mechanism of the technology is not clear to users. Thus, as a result digital technology, present challenges from a teaching perspective (Glowatz & O'Brien, 2017). Koehler & Mishra (2005) observed that while there might be several ways of integrating technology into curriculum delivery, the three central elements of content, pedagogy and technology are central to its achievement. By capturing the lecturer's knowledge of technology, the framework provides an understanding of how the domains of content and pedagogy knowledge interact with technology knowledge. Fig 4 shows the TPACK framework.

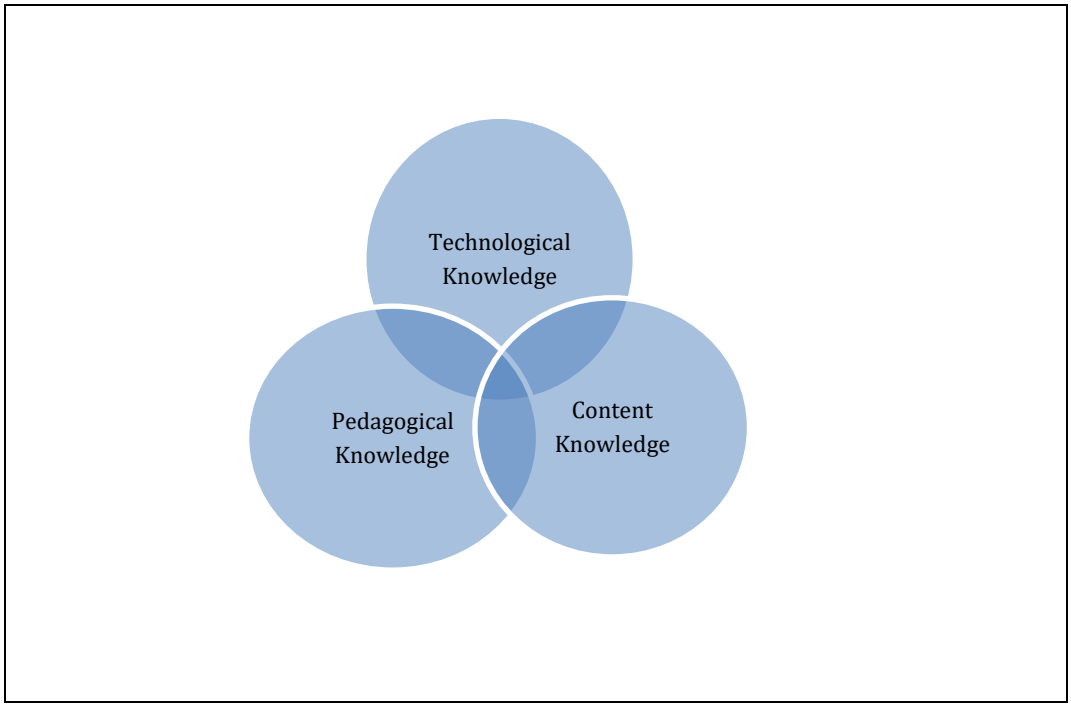


Fig 4.1 The TPACK Framework and its knowledge components (Koehler and Mishra, 2005)

As noted by Brouwer (2013) the TPACK framework from Mishra and Koehler (2005) revolutionised the understanding of the quality of teaching using technology and the role of the teacher in e-learning. Koehler and Mishra (2005) perceive the technological knowledge of the educator as important, but not detached and unconnected from the teaching contexts. The emphasis is not on what technology can do but essentially on what technology can do for them as educators. On the framework:

- Content Knowledge refers to the subject matter/discipline being taught.
- Pedagogical Knowledge *"provides insight into the lecturer's knowledge about the methods or practices of teaching and learning, including educational values, rationales and intents, including awareness of how students learn, are assessed, how content knowledge is best communicated"* (Glowartz and O'Brien, 2017:137).
- Technological knowledge encompasses all ICTs used in curriculum delivery, according to (Koehler & Mishra, 2009:74) it is never an 'end state' in terms of how to master a technology as technology is continuously evolving and advancing as the individual interacts with it.

The framework then considers the various relationships between the individual components, **Technological Pedagogical knowledge (TPK)** - which shows how technology and content knowledge are intricately linked as technology transformations are often connected with new identification of the world. According to Glowartz & O'Brien (2017) this connection determines how an understanding of learning and teaching can change when a particular technology is used in a certain way in the delivery process. It determines how the quality of the learning environment relates to the course and the ability to develop suitable pedagogical approaches and designs to promote student learning.

Pedagogical Content Knowledge (PCK) - this refers to the lecturer's expert knowledge of the subject matter, construed and offered to students according to the lecturer's understanding of the student's needs, the curriculum, and required assessment. It, therefore, demands the skill to prove the associations between the diverse disciplines (Glowartz & O'Brien, 2017).

Technological Content Knowledge (TCK) – the relationship describes how the lecturer's knowledge of a discipline is changed by the application of technology (Koehler & Mishra, 2005). To ensure the advancement of appropriate technological tools for curriculum delivery there is need to appreciate the effect of technology on practices and knowledge of a specific subject. Educators, therefore, require an understanding of exact technological tools which are accessible and suitable to address the needs of subject-matter knowledge acquisition in their field and how technology might transform the content of their discipline or the other way round (Glowartz and O'Brien, 2017).

Technology, Pedagogy and Content Knowledge (TPACK) - this is the knowledge that emerges from the dynamic interplay between pedagogy, technology, and content knowledge. It is an exceptional type of knowledge, which forms the basis for effective teaching with technology (Glowartz & O'Brien, 2017). Koehler and Mishra (2005) argue that the conception and negotiating the association between the three components of knowledge forms the basis of effective technology integration in teaching.

The need for educators to be equipped with 21st-century pedagogical methodologies is of paramount importance, as it is imperative that they appreciate and understand the interaction between ICT and pedagogy to enable them to attain 21st-century skills in their students (Voogt et al., 2013). Although TPACK alone cannot guarantee the integration of technology in curriculum delivery, it does determine faculty outlook towards educational change (Esterhuizen et al., 2013). According to (Kohler & Mishra, 2009) the learning-by-design methodology which is the basis for effective e-learning, demands for lecturers to circumnavigate the intricate interface between tools, authentic learning tasks, students, and learning contexts, which is enabled by TPACK.

Academic developers in technology enhanced curriculum delivery in HEIS should therefore develop ways of conceptualising technology, design learning, and develop models such as TPACK. This is because the old approaches of training on technology enhanced flexible curriculum delivery, which mostly involved workshops and face-to-face courses, are ill-suited to yield the profound comprehension required for lecturers to become well-knowledgeable users of technology in curriculum delivery (Kohler and Mishra, 2009; Eisterhuizen et al., 2013).

2.6.2 Technology in e-learning

The availability and accessibility of technology are essential in e-learning. ICT infrastructure in HEIs normally comprises computers, the internet, and internet-related services as these are essential to the learning and administration activities of universities. The status of an institution is measured according

to the level of capacity and sophistication at which it can provide these services (Egoeze et al., 2014). Flexible delivery modes such as e-learning, distance or virtual classes/laboratories and implementation of electronic content delivery system are crucial in meeting demands for higher education and training. They can only be implemented based on the appropriateness of the established in technology infrastructure and policy frameworks in the university (Nchunge et al., 2013). Although there are broad types of innovations in ICT to support effective and quality curriculum delivery, it is important to note the considerable technology lag in HEIs as a number of universities in developing contexts still use nearly outdated systems which do not allow them to effectively exploit the educational potential of ICTs (ibid). Universities, therefore, need to enhance and upgrade their technical designs to accommodate new digital content more so with the fast changes taking place in technology in the 21st century (Nchunge et al, 2013).

Thus, the initial stage of an e-learning project at a university is the acquisition of ICT infrastructure to enable the provision of exceptional e-learning platforms to students (Hussain, 2013). To increase the accessibility of learning materials through e-learning, universities need good internet bandwidth and connectivity. According to Chitanana (2012) a robust campus network with good internet connectivity is no longer a university luxury, but a basic need as internet connectivity has progressively become a strategic resource for HEIs for their effective participation in the global knowledge society.

According to Porter (2014) universities seeking to adopt e-learning should provide the essential technological infrastructure. This position is supported by Arabasz & Baker (2003) who points out that, for technology enhanced curriculum delivery, basic e-learning requirement which includes adequate internet bandwidth, learning management systems (LMS), and adequate computing equipment comprise sufficient technical infrastructure on which to deliver e-learning courses. Technical assistance and support are crucial in e-learning as lecturers will continuously need help as they create, edit, and distribute materials for their online courses whilst students will need help in accessing learning materials, engaging with course content, and contributing to the virtual classroom (Thurab-Nkosi, 2018).

2.6.2.1 Learning Management Systems (LMS)

Learning management systems (LMS) as online technologies have been designed to fit the online learning environment (Bates 2001). Berking & Gallagher (2015: 13) defined LMS as follows,

> "As a set of software platforms, delivered to users by instructors through internet and by the use of various hardware means, having as purpose the delivery in the shortest time possible a high level of knowledge into a domain assuring at the same time a full management of the entire educational cycle, including data and information."

LMS is a crucial technology in e-learning which allows for "anytime, anywhere" access to learning content and administration (ibid). According to Conde et al. (2013) the LMS is the most representative tool for online and blended learning modes of delivery.

HEIs have to consider the effectiveness of available learning management systems when they are making decisions with regard to virtual learning systems, taking into cognisant issues such as whether it is open to the public and its strengths and flaws of the system (Pecheanu et al., 2011). In developing, contexts like Zimbabwe open-source software are a welcome relief given the financial constraints that HEIs normally operate under. Cavus & Zabadi (2014) highlighted the importance of open source in education as it is the source code of a software that is readily available to the public for extension and adjustment contingent on the user's needs.

According to Berking & Gallagher (2015) an LMS promotes the automation and centralisation of functions that may be derived from adopting almost any enterprise system, identifying the following benefits:

- Reduction of costs as a result of minimised training redundancy, operational faults and interruptions.
- Capitalising on competence through the integration of learning material delivery, reducing difficulty and costs of auditing; and
- Maximising on available resources by taking into consideration established policies and procedures and exploiting existing training material and links to other educational resources and computer-based courseware.

Thus, LMSs are suitable for online learning because they are domain-independent, offer improved administration competences, cohesive authoring tools, and support the design and publication of reusable learning resources (Ssekakubo et al., 2011). Bates (2015) argued that although LMSs are not perfect they have evolved and provided a useful framework for organising online instruction over the last 20 years. In addition, if the system is properly supported, lecturers and most importantly students can find it relatively easy to use.

According to Mtebe (2015) the majority of HEIs in sub-Saharan Africa have installed LMS and the adoption of the software in the region has been on the rise in recent years. However, the underutilisation of installed systems has been recognised as a main factor underlying the 'productivity paradox' surrounding lacklustre returns from HEIs investments in ICTs Sichel (1997) in Venter (2012). According to Ssekakubo et al. (2011) although massive benefits have been gained and LMS has been successful in developed countries, the execution of the systems in developing countries has failed either partly or fully, with incomplete utilisation which is considered below the satisfactory level. Mtebe (2015) noted that HEIs in the sub-Saharan context are different from universities in other regions of the

world, thus HEIS on the continent face different challenges from those faced in developed countries. Hence the adoption and implementation of LMS's do not guarantee that institutions will draw similar benefits.

Chitanana's (2014) study on e-learning and LMS adoption in Zimbabwe showed that none of the universities in the country offered training and continuing professional development for technology enhanced curriculum delivery. The study showed that underutilisation of LMS's in the country is a result of:

- lack of awareness and preparedness of e-learning by lecturers;
- lack of unity of purpose among stakeholders in a university network during the introduction and implementation of e-learning programmes; and
- lack of training as evidenced by the lecturers' expression for the need for professional development.

Ssekakubo et al (2011), study of 5 HEIs in Africa on the adoption and use of LMS showed that the underlying problems for underutilisation of the platform included of the lack of awareness with LMS platform, inadequate knowledge and ability of the platform, unsatisfactory support system, and poor promotion strategy. Thus, the provision of technology does not lead to the integration of technology. A study by Tshabalala et al. (2014) showed the need for e-learning policy for the provision of guiding principles for implementing technology enhanced flexible curriculum delivery, the establishment of a central unit to coordinate all e-learning efforts and provision of professional development for academic staff as well as the provision of continuous technological and pedagogical support. There is therefore "*a pressing need for HEIs in Africa to understand what determines the effective implementation of the technology innovations they are interested in adopting"* (Kandiri, 2014: 8)

2.7 COVID-19 and Emergency Remote Teaching and Learning

The global outbreak of the COVID-19 pandemic was initially spotted in Wuhan China in December 2019, and it spread worldwide affecting almost all countries from early 2020 (Pokhrel & Chhetri, 2021). To reduce the spread of the pandemic and flatten the curve and control transmission most counties globally went into lockdown resulting in the closure of education systems (Sintema, 2020). Daniel, (2020) observed how COVID-19 has been the biggest hindrance the education systems have ever faced as most governments directed institutions to stop traditional face-to-face learning forcing most HEIs to switch to online teaching. Khlaif et al. (2021) confirmed that the closure of both HEIs and schools in most countries due to the pandemic negatively affected the education system worldwide. In times of crisis that have caused the closure of schools and universities for a period of time, many countries adapt online learning (Czerniewicz et al., 2019). Schlesselman (2020) highlighted how technology became a medium of delivery for universities during the pandemic, arguing however that what was provided was not online learning but emergence remote teaching and learning (ERT). Teachers, students, and parents

experienced a lot of pressure as they were caught unaware of the unexpected and sudden shift to ERT which imposed the use of new technologies that in most cases both students and educators were unfamiliar with (Khlaif et al., 2020). Shin and Hickey reported on how in extremely short periods of time educators were forced to make a rapid transformation from traditional face-to-face learning to remote online learning. Brooks et al. (2020) observed the high level of unpreparedness or under-preparedness of many lecturers to move or generate quality online learning experiences for students during the pandemic. According to Schlesselman (2020) the pandemic has highlighted the heightened need for e-learning professional development in HEIs.

As a context already inundated with many challenges the pandemic posed a huge threat to SSA. The Internation Association of Universities (2020) highlighted how the pandemic threatened the higher education sector in developing countries in Africa with severe consequences as most HEIs are still in the process of transforming and improving their systems. According to Muftahu (2020) for most lecturers and students in SSA the adoption of technology to facilitate remote learning was uncomfortable as they were unfamiliar with the mode of teaching and learning. Most students in the developing context faced challenges that included poor or scant electricity supply, a lack of appropriate technological devices, poor or no internet connection, lack of digital literacy skills, an unconducive learning environment, and rejection of remote learning because they are used to conventional face to face learning (Dube, 2020: Muftahu, 2020). Khalif et al (2020) however highlighted how some developing countries sought ways to support poor students during the pandemic by providing alternative ways such as the provision of open computer centres for poor students while maintaining the required social distance. In contexts like Zimbabwe, Tarisayi & Munyaradzi (2021) reports on the use of low-end technologies to support students in teaching and learning. Nonetheless, Khalif et al (2020) assert that the need for flexible online learning for educational systems in developing countries has never been more urgent. Pham & Ho (2020) emphasised the need to settle into the new normal in HEIs which entails flexible updated and reformed modes of curriculum delivery, as the combination of traditional modes of learning and technology ensures that no one is left behind.

2. 8 Chapter Summary

This chapter highlighted the growing field of technology-enhanced curriculum delivery in HEIs. It also explored ICTs in HEIs in sub-Saharan Africa and the challenges of adopting these modes of delivery in the region. The role of academic staff and university management in the integration of technology was also explored. The chapter further highlighted the importance of e-learning policies in HEIs and how they enhance the adoption of technology by bringing together all university stakeholders towards one vision. The chapter then looked at e-learning professional development in HEIs and models that can be adopted to ensure the effective marriage of content, pedagogy, and technology as well as the need for technology support, highlighting the LMS as an essential tool in technology enhanced flexible

curriculum delivery. COVID-19 is also explored in the chapter as it had an impact on the phenomenon under study.

The next chapter, Chapter 3 covers the theoretical framework of the study. The chapter explicates ANT as the theory informing the study and CDA as the analytical theory used for document analysis in the study.

CHAPTER 3

Theoretical Framework

3.0 Introduction

The introduction of technology as innovation into HEIs is a complex process for institutions in developing contexts as highlighted by the literature review in Chapter 2 of this study. It is therefore important to use a theoretical framework that can fully engage with the processes, procedures and negotiations that leads to the effective integration of technology for curriculum delivery at HEI (or shows where this integration fails). According to Varpio & Ellaway (2021) a theory is a set of logically related propositions that express the relation(s) among various diverse ideas and propositions. It can be described as an abstract description of the associations between concepts that assist in understanding the world. ANT is a theory that sheds light on the activities of various actors in a university network in the implementation of an e-learning policy for the integration of technology for flexible curriculum delivery. ANT provides an exceptional way of understanding the complexity of integrating technology in teaching and learning in developing contexts, because of the 'symmetrical analyses' principle which allows human and non-human elements in the university network to be treated equally (Fox and Fox, 2017). Thus, ANT permitted a deeper comprehension of the university network in the integration for curriculum delivery as it enabled the exploration of entities, highlighting the importance of connections between actors, and how they act and subdue each other as they sought equilibrium for the successful integration of technology in curriculum delivery.

Critical Discourse Analysis (CDA) is the analytical theory that enhances the study as it allows for a deeper analysis of e-learning policy documents of the phenomenon under study. Pacheco-Vega (2018) describes an analytical framework as a model that helps explain how a certain type of analysis will be conducted. In this study a theoretical framework is therefore a combination of different theories and theoretical constructs that help explain a phenomenon, enabling the researcher to 'define any concepts and theories that provide the grounding of the research, through logical connections to the concepts of the study that is being carried out' (Varpio et al., 2020:990).

This chapter, therefore, expounds on ANT and CDA and their main premises before foregrounding the concepts from ANT and CDA that make up the conceptual framework so as to provide a deeper understanding of the phenomenon under study. The use of ANT and CDA in the study is essential since critical theories give one the power to view technology as something that is not isolated from people, but rather to view all actors such as management, lecturers, technology, and COVID-19 in universities as crucial actors in influencing educational technologies in a context (Chikuni, 2016).

3.1 Actor-network theory (ANT)

ANT was used in this study as a way to explore the introduction of technology for flexible curriculum delivery at a HEI since it addresses the role of technology in a context and the ways by which technology affects and is affected by social elements in a particular context overtime (Mähring et al., 2004). According to Fenwick (2006) ANT is mainly associated with its forerunners in science and technology studies in the 1980's such as Michael Callon (1980), Bruno Latour (1987), and John Law (1987). The theory has brought about the essential sequence of analytical methodologies and considerations that can bring into question certain dominant assumptions about knowledge, subjectivity, and the real and the social when introducing innovation in a social context such as the integration of technology for flexible curriculum delivery in a university (ibid). What ANT does provide is an approach that can be crucial in assisting researchers to appreciate the density and flexibility of reality Cressman (2009). The theory allows for the unveiling of hidden conceptions that are normally neglected by research methodologies that assume a more direct and causal approach to the study of the employment of technology in various social settings (ibid).

Most importantly possibly, ANT adds a focus on not only human actors, but recognises the importance of non-human actors as well, such as technology, infrastructure, buildings, and their entanglement with human actors. Law (1999) and Fox & Fox (2017) for example state that ANT unravels the processes by which human and non-human actors are enrolled into a system around an idea through the principle of 'symmetrical analyses' which gives equal value to non-human elements of a network as the social and human elements, meaning the elements are treated the same in an analysis

Fenwick & Edwards (2010:3) emphasize the importance of these symmetrical analyses of both human and non-human actors:

> "The objective is to understand precisely how these things come together – and manage to hold together, however temporarily – to form associations that produce agency and other effects: for example, ideas, identities, rules, routines, policies, instruments and reforms."

According to Knight & Harrison (2003) technology is often overlooked or downgraded to a role as a tool of tyranny, dominion, and control when it is being introduced in a social context. In ANT's symmetrical analysis, technology is given the same value as humans. However, through symmetrical analysis, ANT does not seek to weaken the status of humans but instead highlights the role of what Latour (1999) called the 'missing masses' in stabilizing the heterogeneous actor–networks that make up organisations and society (ibid). Thus, in the case of a university in its quest to integrate technology for flexible curriculum delivery, ANT enables the comprehension of how diverse elements such as technology, lecturers, management, and policies among other things come together to ensure effective e-learning.

3.1.1 Actors and Agency in ANT

Cresswell et al. (2010) defines an actor within ANT as the cause of action irrespective of its status as a human or non-human, which is a deep-seated concept that argues that non-living, material things (such as technology) can also have agency. According to McLean & Hassard (2004) the contention around ANT is derived from its advocacy for a socio-philosophical methodology in which human and non-human, social, material and technical factors are analytically given the same equal value in a context. ANT, therefore, discards the separation of human and non-human, social and material/technical elements as it attempts to understand complex social situations (ibid). Thus, the theory views an actor as everything that performs, participates in, and influences the world and the world affects him/her/it back (Latour, 1999).

The actor-network approach undertakes that every actor is active, no actor is passive, and all have some degree of agency, but this will depend on the extent to which an actor influence or resist the influence of other entities (Callon, 1987). In the digital age, the computer as a "non-human" actor holds so much agency that "failure" in the role allocated to it in an organisation might be more disastrous than human failure (Somerville, 1999). Thus, the agency is given to an actor only if they act in combination with other actors and in assemblages that give the actor the possibility to act because the assumption is that reality is actively performed by various actors in a particular context (Cresswell et al., 2010). So, there is no agency unless it is a relationship to others. Therefore, it is assumed that agency is not to be limited to individuals, objects, or social determinants, but is evolving due to the interactions of network components (ibid). According to the MA Narratives (2020) agency is not limited to humans or non-humans in any context but is enacted in groups or networks constituted and acted upon by these actors. To highlight the change in the perception of agency, ANT uses the term *actant* which essentially means "that which has agency – which should be seen as the ability to (profoundly) change a situation – and it can be anything: a human being, a scallop, a certain know-how, a given technology or a bacteria" (MA Narratives:1). The network is where these varied physical and intangible entities (concepts, theories, methods, know-how) come together to form a seemingly comprehensible whole, allowing each specific member to benefit (ibid). Fenwick & Edward (2010:67) surmised that,

> "ANT examines the associations of human and non-human entities in the performance of the social, the economic, the natural, and the educational, the objective being to understand precisely how these things come together and manage to hold together however temporarily to form associations that produce agency and other effects, for example, ideas, identities, rules, routines, policies, instruments, and reforms."

Agency emerges, therefore, from a combination of actants composed of humans and non-human entities that act, where the act and actant cannot be disengaged, and irreducible to people or to machines (McMaster & Wastell, 2005). The attribution of agency to non-humans, including animals, materials,

ideas, and concepts by ANT further enhances its uniqueness, as it recognises the ability of any entity (or actant) to make itself crucial to its associations with others and, by extension, to the prolongation of the network (Dwiartama & Rosin, 2014). Thus, ANT emphasises that agency is apparent only in the relation of actors to each other. Within this framing, material objects such as ICT and related infrastructure exercise agency just like humans (ibid).

3.1.2 Building the network

According to Fenwick & Edward (2011) the theory, therefore, traces how diverse human and non-human entities become combined, to associate and exercise force, and to persevere or fail. Actor-network theory assists in conceptualising how diverse realities are experienced and enacted by different actors, resulting in a more nuanced representation of the dynamic relationships between different actors without neglecting their inter-relatedness (Cresswell et al., 2010). The flexibility of ANT entails that it allows that reality is unpredictable and that multiple realities can coexist, with reality being actively performed in different contexts and by diverse actors (ibid).

Callon (1986) in Mahring et al (2004), describes how ANT offers a rich approach for understanding the formation of networks of affiliated interests. The theory outlines how actors form associations and enrol other actors and use non-human actors (documents, artefacts, technologies) to strengthen such alliances and to secure their interests - thus creating actor networks made up of human as well as non-human artefacts. According to Cressman (2009) ANT involves the exploration of micro places where science and technology come into existence such as in labs, institutions, and government departments. Here ANT is set out to "follow actors", which is an unclear dictate as there are several actors within any given network, including those who may appear and vanish long before a detectable network is finalised. He further highlighted the role of *network builders* as they are the primary actors to follow in a network and through whose eyes to interpret the process of network construction (Cressman, 2009). The network builder brings in a new idea, and ANT enables the comprehension of how the network was developed as an approach to considering how actors (both human and non-human) are enrolled into a network around this idea (Law, 1999). Everything is therefore an actor network:

> *"*Reducing neither to an actor alone nor to a network… An actor-network is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of (Callon, 1987: 93).

Thus, ANT allows for the exploration of numerous representations that encompass any one object such as questions about the politics that constrain, obscure, or enable certain enactments to be most easily performed and recognised (Fenwick &Edwards, 2010). Miettinen (1999) noted that ANT can bind together forces and make them companionable and equal, for which reason they must receive equal treatment using similar concepts, wherein lies the strength and success of ANT. As a result, actors are network effects that take the traits of the entities which they include (Law, 1999).

According to Latour (1987) the uniqueness of ANT is that it begins from complex, incomparable, unrelated localities which then at a greater price sometimes end in conditionally comparable links rather than starting from common social or natural laws and taking local possibilities and so many queer discriminations that should be eliminated or protected (Latour, 1987). Through the enrolling of both social and material actors, the centre of power and how it is exerted is determined as the connection of some actors might become more durable and more influential and larger than others in a network (Cressman, 2009). Harmon (2007) highlighted that among the entities none is characteristically strong or weak, but strength arises when an entity succeeds in gathering as many allies as conceivable. Weakness arises when an entity is secluded or breaks off from alliances, as connections can include forces of nature and inflexible rational judgments no less than in militias and banks. Thus, in principle, all forces are equal (ibid). Cressman (2009) supports that in a network, magnitude, power, and influence are an effect that is completed by other actors, not an eternal condition:

> *"*Power is always an illusion people get when they are obeyed…. people who are 'obeyed' discover what their power is really made of when they start to lose it. They realise, but too late that it was made of the wills of all other "(Latour, 1986: 268).

Therefore, in ANT the identity of both human and non-human actors is defined and understood within a network through their interaction with other actors. The network, therefore, is like a signal to semiotics, which suggests that symbols have meanings only in relation to other symbols. Thus power (or lack thereof) and connectivity are entwined, the voice of one is the voice of the other, and therefore no network or actor is more powerful than the other - rather some associations might be stronger than others (Cressman, 2009). The network builder is therefore as powerful as his ability to enrol and bring heterogenous actors together to form a network.

As a result, Cressman (2009) highlights certain concepts within ANT, explaining how they can be used as tools to expose the intricacies of the socio-technical world, in this case the Africa University network. Walsham (1997) emphasises the role of ANT as a theory and methodological approach combined, as it offers theoretical concepts as ways of viewing elements in the real world, as these are the elements that need to be traced in practical work. Walsham (1997) identified these key concepts of ANT which will be used in the study as shown in Table 1:

Concept	Description
Actor (or actant)	Human and non-human actors for example technical artefacts
Actor-network	Assorted network of affiliated interests such as people, organisations, and standards
Enrolment and translation	The creation of a body of allies by transforming actors' interests to be affiliated with the actor-network
Delegates and inscription	Actors who express certain opinions which are inscribed in them such as rigid structural discourse
Irreversibility	The level of impossibility to manoeuvres, which is a no turning back point
Black box	A rigid network element, normally associated with irreversibility

Table 3.1: ANT key concepts according to Walsham (1997).

Thus, in studying the incorporation of technology for flexible curriculum delivery in a university network, the researcher investigates and documents network elements, both human and non-human, processes of translation and inscription, the creation of black boxes, and the degree of stability and irreversibility of networks and their elements (Walsham, 1997). O'Connor (2014) argue that with ANT there is no all-encompassing context in which actors can be framed or entrenched, meaning there are no organisational levels of management, although ANT does not refute the presence of such societal structures, its standpoint is that society is made up of associations between actors as defined by their context.

There is, however, a need to fully explore these key concepts as they feed directly into the various aspects of the current study:

- **actor or actant -** in ANT, an actor or actant is a semiotic definition, depicting something that acts or to which activity is granted by others. It infers no superior inspiration of human individual actors, nor of humans in general. An actant can literally be anything provided it is approved to be the source of an action, thus actors are viewed as flows, circulating objects, undergoing trials, and their stability and continuity have to be obtained by other actions and other trials not just conceived as entities (Latour, 1999). Thus, a computer is an actant until we ascribe a role to it for example typing a document, then it becomes an actor.
- **black box**: In ANT a black box is a group of entities that work together so seamlessly that they seem like one entity for example a textbook or a lecture room. A black box can also develop as a result of a group of actors coming together and affecting each other through actions and translations (Parnourgias, 2007), in this case, actors become part of the black box when they have a common interest and goals. Opening the black box allows for an exploration of the ways in which diverse social aspects and technical elements are connected and come together as a durable whole or black box (Cressman, 2009). However, there will always be competing ideas and ingenuities that seek to open black boxes that have been punctualised within larger actor-networks thus all black boxes are leaky (Callon and Latour (1981) in Cressman, 2009). Through black boxing, actors are able to reach out to multiple audiences, as the actors alter

themselves into an **obligatory point of passage (OPP)**. OPP, therefore, refers to a point that channels all interests into one direction, and creates a 'black box', and translation processes that routinely run-in unison without case-by-case (Bernsten and Seim, 2009). An example is a policy that guides e-learning policy at a university clearly showing the expectations and roles of faculties, departments, and various actors in the university network, thereby channelling the interest of all actors in one direction.

- **delegation:** according to Latour (1991) the concept of delegation describes the shared relationship between the social and the technical, thus, in delegation the social and the technical co-constitute each other whereby reading the social from the technical is the same as reading the technical from the social. Latour (1988) describes a delegation process where the closing of a door is delegated to an automatic groom. In e-learning delegation between the social and the technical may occur when the use of a tool within an LMS can mark a student's multiple-choice assignment instead of the lecturer. Technology is therefore used to delegate or translate a major effort into a minor effort. Thus, technologies have delegated the work of humans, in turn, technologies delegate behavior back into the social (Cressman, 2009). According to Dear & Flusty (2000: 38),

  "Delegation, then, may be understood in semiotics of materiality as a way of talking about the immutable mobile. Delegation is sending something out which will hold its shape – so that the centre does not have to do the dirty work itself, which is, to be sure, not simply a moral but also a practical matter."

- **Inscription:** it is the result of the translation of one's interest into material form (Callon, 1991). Any component of heterogeneous network of skills, practices, artefacts, institutional arrangements, texts, and contracts establishing a social order may be the material of inscription (Monteiro & Hanseth, 1996). Latour (1987, 1991) raises interesting aspects of the notion of inscriptions:
  i. what is inscribed: what expected use is intended? who inscribes them?
  ii. how are they inscribed: what is the material of the inscriptions?
  iii. how powerful are the inscriptions: how much force does it take to fight an inscription?

According to Nonaka (2005) the process of superposition reinforces the strength of the inscription. Where the process of the inscription seems to be increasing there should be numerous layers of inscription in one system. ANT entities, therefore, acquire qualities and take their form as they interact with other entities, thus, networks are formed by negotiations and enrolment of participants.

- **Irreversibility**: According to Callon (1987) the concept defines how translations between actor networks are strengthened, and how they can fight attacks from competing translations. He argues that the state of irreversibility depends on:
    i. the level to which it is impossible to return to a point where that translation was only one among many and
    ii. the degree to which it forms and governs successive translations.

3.1.3 Translation in ANT

Translation involves opening up a black box to initiate change or shaking up a network to create a new configuration. According to Macanze (2010) translation process is used to capture the dynamics of actors in enrolling others into networks during the implementation phase of a policy. Translation is the term used by Latour (1987) to describe how human and non-human entities come together and interlink, transforming one another leading to connections. He argues that at each of these connections, entities act upon each other as they transform one another to become part of a synchronised network of actions. As construed by Law (1999) translation is the process of making two heterogenous things equivalent. It is through translation that the identity of actors and the leeway of connections and the possibility of negotiations are deliberated upon and demarcated in the event of multiple entities and meanings built into technology (Callon, 1990; Callon, 2017). The interpretation given by the idea or technology builders for their own interests and those of the actant they seek to enrol in order to transform their claim, as a matter of fact, is, therefore, translation (Latour, 1987).

Callon (1986:19) described translation as:

> "Not a network connecting entities which are already there, but a network which configures ontologies. The agents, their dimensions, and what they are and do, all depend on the morphology of the relations in which they are involved…. The number of connections that an actor has with different networks determines what the actor is, wants, and can do".

Thus, as explained by Cypher (2017) translation is a form of alliance, not necessarily about explaining pre-existing social relations or human intentions as the cause of such agency. Instead, translation makes it clear that an actor's practical aptitude, individuality, and ability can act in scheming ways, not as an entirely 'natural' condition but instead this arises from the collaborations and exchange of practice. Inscriptions and translations go hand in hand thus it can be construed that high-quality transformation/translations will lead to high-quality inscriptions (Mouritsen & Rolland, 1996). According to Law (1999), ANT is deliberately contradictory, with tension lying between the 'centred' actor and the 'decentred' network on the opposite side. Since actors have their own interest, tension arises, which then plays a crucial part in attaining stability in the chaos.[4] In order to align interests,

[4]https://actornetwork.wordpress.com/2009/08/21/ant-and-translations/

stability and social order are frequently negotiated as a social process within a context (Monteiro & Hanseth, 1996) . In this study, the translation process of ANT enables the tracing of an e-learning policy implementation within a university network. Translation will be used to trace the e-learning policy implementation process since it:

> "is a form of collaboration that is not about explaining pre-existing social relations or human intentions as the cause of such agency, rather, translation makes explicit that an actor's functional competency, identity, and ability to act in calculating ways are not an entirely 'natural' condition, but instead emerge from the collaborations and exchanges in practice" (Cypher, 2017:4).

In this study four moments of translation which are: problematisation, interessment, enrolment, and mobilisation are used (Callon,1991; Latour, 1999). Table 2 below shows definitions of these concepts. ANT is useful in identifying actors within the Africa University context that act and are acted upon from problematisation to mobilisation as the actors interact and negotiate within the network. Harmon, (2007) noted the significance of ANT's contribution to education as it explores entities, highlighting that the importance is not just in the results of connections between actors, but the fact that in the process entities are acting and subduing other actors, with all actors being delicate and powerful, but all under equilibrium as a result of exchanges, as each of the actors can only be strengthened by combining allies, through translation. Thus, ANT traces actors'-imposed experiences, and values on others (Callon, 2017).

Concept	Definition
Problematisation	The initial stage of translation moment in which an actor or actors detect the problem and conceptualise a solution. At this stage, the individualities and interests of other actors are clarified in support of the interest
Interessment	The next moment of translation is when the lead/focal actor(s) begin building the network and seeking alliances by advocating and convincing other actors that their solution is the most suitable
Obligatory Point of Passage (OPP)	The OPP is the only negotiation route that requires all the actors to pass through it to satisfy the interests ascribed to them by the network builder. With the OPP, the knowledge of the lead/focal actor becomes crucial as an answer to the problem
Enrolment	The third moment of translation is a positive result of the success of the first two stages leading to a network of alliances, the network of alliances is stabilised when other actor (s) accepts the interests as laid down by the lead actor (s)
Mobilisation	The final moment of translation is the amalgamation of the stabilisation of the network of alliances, as the proposed solution is accepted by most actors, the spokesperson's legitimacy is established

Table 3. 2: ANT Moments of Translation (Callon, 1986)

Latour (1996) noted how the notion of the network enables us to think of a highly connected universal entity. This network however remains endlessly local, as we simply follow how a certain element becomes strategic through the number of connections it commands instead of opposing the individual level to the mass, or agency to structure, and how its importance is affected when losing its connections. Through translation, entities, human and non-human actors come together and link, transforming one other to form connections; at each of these links, one entity has worked upon another to translate or change it to become part of a network of coordinated things and actions (Latour, 1987). In this study, ANT is valuable in identifying actors within the Africa University context that act and are acted upon as they interact and negotiate within the network. The theory is relevant for the study because it is not primarily concerned with mapping interactions between individuals but to map the way in which actors define, distribute roles, mobilise, and invent others to play these roles (Law & Callon, 2016).

3.2 Critical Discourse Analysis

Using ANT allows for a detailed and nuanced description of how resolutions from disagreements are reached and how ideas prosper or fail as they transition from being an idea to the actual, through the provision of considerable accounts of the processes that make it possible (Evarts, 2011). Therefore, the theory follows the trajectory of entities as they negotiate connections when they come together through tactics such as coaxing, power, and confrontation (Fenwick & Edwards, 2010). Fenwick and Edwards (2010) noted the pervasiveness of power relations and their continuing effects in educational settings.

However, what it cannot do is provide a document analysis framework. This is why, for this study, CDA as a theoretical and analytical framework acts as a mediator between text and institution, communication and structure, and discourse and society (Brown, 2011). Thus, the tools become a diagnostic of crossing points that allow connection between linguistics and the sociological which do not represent a "self-contained edifice of theories" (Weiss & Wodak, 2003). Zou & Trueba (1998) highlighted the role of critical social theory as being concerned with issues of control and impartiality and the ways that the economy, matters of race, class, gender, philosophies, discourse, education, belief, and cultural dynamics interrelate to construct a social system. In the case of the integration of technology for flexible curriculum delivery, it is, for example, the point where local actors are not able to shape ICTs to their interests and appropriate their functionality and as such even well-planned projects go awry (Brown, 2019). Rogers (2011) describes CDA as a theoretical and methodological approach highlighting how researchers interested by the connection between language and society use the theory to designate, construe and clarify these connections. According to Bladergroen et al. (2012:110)

> "CDA is used as a tool to address questions on the relationships between language and society. It is an analytical tool used to obtain the thoughts and perceptions of real people within real

situations. It is used to determine what certain texts may refer to, or not, to understand the speaker more subjectively, and to evaluate how the speaker is perceived by others".

According to Kwaramba (1997) language has a dialectical relationship with social structure and is understood as a creation of, and a resource in shaping social relationships. As diverse social groups seek to produce and reproduce power through language, pursuing to either dominate or liberate themselves. The critical analysis of language in texts provides an effective methodology for studying the ideological processes and relations of power and control, (ibid). In using CDA one must be deliberate in the choice of conceptual tools in relation to the applicability to resolve noted problems in a context (Brown, 2019).

3.2.1 CDA and Policy Analysis

Although numerous techniques have been used by policy analysts to analyse institutional policies in various fields, a number of scholars have used CDA for the analysis of policy in a field described by (Fairclough, 2013) as critical policy studies (Chikuni & Chigona, 2015). As emphasised in Chapter 2 of this study, policies play a crucial role in influencing practice in education. Alfond (2005) highlights the importance of policies in conveying to academics and other stakeholders the reason behind certain educational principles and practices in an institution. Chikuni and Chigona (2015) noted the rigorous process of deliberation, consultation and compromise that goes into e-learning policy development through the involvement of various stakeholders with different interests and priorities. This results in some discourses becoming dominant whilst others are backgrounded in the text, with varying implications for curriculum delivery. Therefore, to uncover just how discourses are replicated and permeated through policy documents, rigorous analysis of the narrative, grammar and language used is imperative (ibid). CDA can therefore expose the political agenda, the supremacy behind the text, the inclusion of certain voices against the segregation of others and the way(s) in which values are articulated and understood in an official document (Kiersey, 2011). According to Chikuni and Chigona (2015) texts have the potential to start wars or to initiate change in education. To ensure effective analysis of policy, Fairclough (1995) developed a three-level model of CDA analysis as shown in Diagram 1 below which include:

a) language text, spoken or written
b) discourse practice (text production and text interpretation)
c) Socio-cultural practice

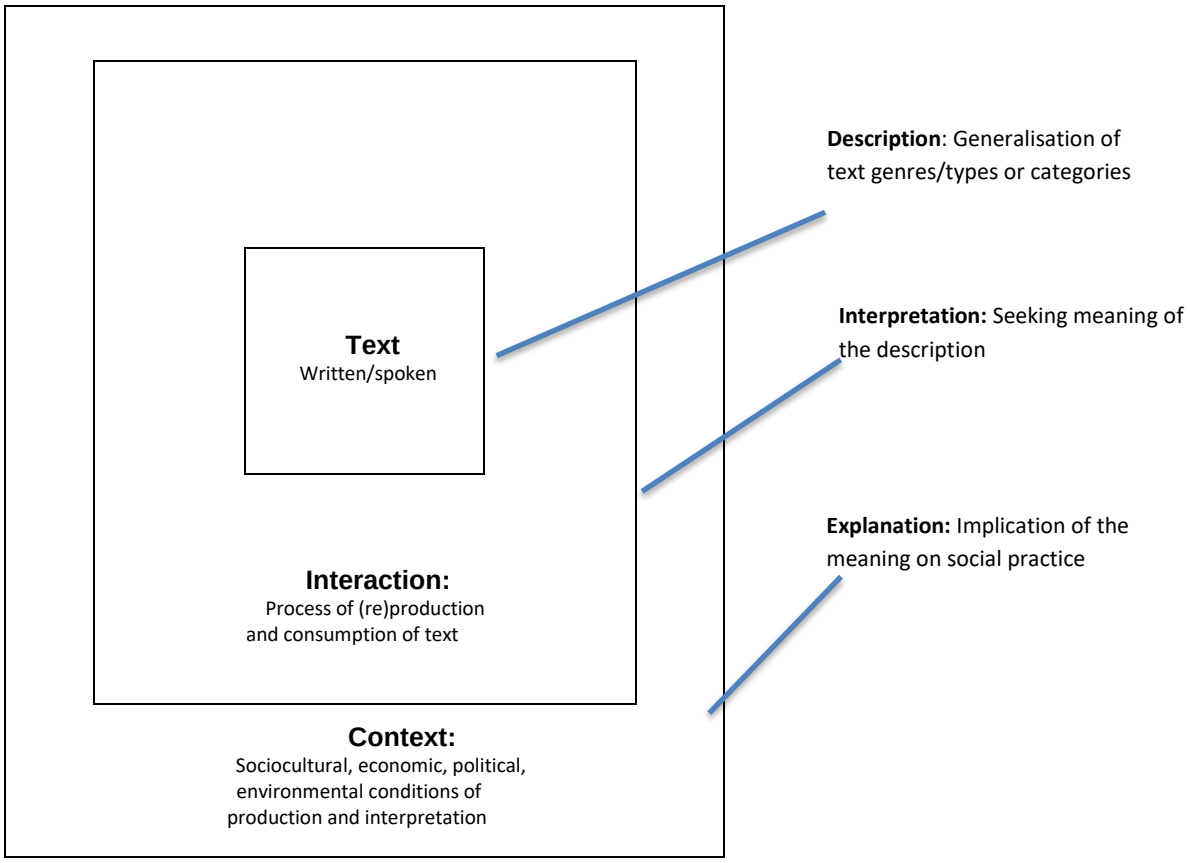


Fig 3.1 Fairclough's three dimensions of discourse analysis (Fairclough, 1995)

Thus, based on the CDA model, the analysis of the e-learning policy documents at Africa University in this study consist of the three inter-related processes of analysis which are:

a) Text (description)

The way in which language works is highlighted by giving attention to the text, as text is used to construct identities and social relations, and thus the method has special relevance to policy analysis as the text broadly refers to the content of the policy itself (Bell & Stevenson, 2006; Pinto, 2011). Therefore, the first dimension of Fairclough's framework requires the analysis of the 'texture of the text', which refers to the form and organisation of the text at all levels, including the grammatical and lexical, as well as the constructions of argumentation used (Fairclough 1995). The text producer's values, ideological beliefs, and interests regarding the position taken can be revealed by the close analysis of the text as its construction by people is a result of deliberate wording mostly as a matter of choice upon reflection, however, it may happen unconsciously (Chikuni & Chigona, 2015). Thus, the wording of the text in a policy does not happen by chance, but for the policymaker who creates the policy, the wording is intentional (ibid). The analysis, therefore, seeks to bring to the fore text genres which Thomson (2005) described as follows:

- Confidence- the sense of something disclosed between people;

- Factual information – presented as a fact, not to be disputed, objective;
- Humour – funny, carefree, missing seriousness; and
- Persuasion – urging or trying to coerce.

b) Discourse practice (interpretation)

The interpretive level is the second level of analysis, and its role is to interpret the "relationship between the (productive and interpretative) discursive processes and the text" (Fairclough, 1995: 97). Therefore, CDA identifies the discursive (or semiotic, or linguistic) charisma of policy, policy making, and policy analysis. It treats policy making as discursive spaces where discourse and language play a crucial role in shaping policy options enabling one to understand discursive practices, and how the processes of producing the text or policies are ideologically shaped by relations of power as well as struggles over power (Fairclough, 2012; Jorgensen & Phillips, 2002). Phillips, Sewell & Jaynes (2008: 4) observed that:

> Engaging in discursive practices such as creating and disseminating texts is a highly political act: a struggle for power in and around organisations that seeks to determine the nature of concept and subject positions and to control how the resulting objects are treated and understood.

Thus, as concluded by Kiersey (2011) discourse is deliberately hegemonic, as it aims to instruct consensual understandings of things, which then become accepted as norms with regard to how such things (e.g. e-learning) are talked or written about in the public domain. Discourse, therefore, endeavours to embed itself as the status quo, by becoming the standard through the groups of classes and linguistic functions it ensconces within texts, to characterize the way information, in this case, e-learning is communicated within the university (ibid).

c) Social-cultural Practice

The third level is the socio-cultural practice level of the critical discourse analysis of the text which involves analysis of the social circumstances under which the text is formed, disseminated, consumed, and understood (Kiersay, 2011). Fairclough (1995) describes the three aspects of the socio-cultural context which are communicative event, economic, political (power and ideology), and cultural on which social practice analysis pertains. Thus, this level of analysis is the context level, which gives an explanatory analysis of the social norms, relations of power, and ideology within which the text exists. The analysis focuses on the dominant discourses and conceptual understandings that prevail within the existing policy discourses. Chikuni (2016) avers that e-learning does not occur in a vacuum, but as a form of social practice in a university as it is linked to contextual and historical use of ICTs for curriculum delivery in an institution. The social actors who produce e-learning policies do not entirely rely on their individual experiences and approaches, but they primarily depend on collective frames of insights called social representations (ibid).

The two theories ANT and CDA are brought together to form an analytical framework in Chapter 4 that was instrumental during the data analysis and interpretation phase of the study.

3.5 Analytical framework

To show how the two theories, ANT and CDA are used in the study, the researcher developed an analytical framework that brings the theories together. According to Chataigner (2017) an analytical framework assists the researcher in structuring her thoughts to ensure systematic logical thinking. The framework therefore acts as an anchor for the data interpretation phase from Chapter 5 to Chapter 8 of the study. The analytical framework is derived from the actors identified in literature that include lecturers, management, policy, and technology as being instrumental to the integration of technology for curriculum delivery as well from the ANT translational phases that provided the lens to unpack the phenomenon understudy. The analytical framework therefore highlights ANT's translation process, beginning with the problematisation phase, when management proposed e-learning as a solution to the problems in the university context, up to the mobilisation stage where blended and online learning programs become permanent alternative modes of curriculum delivery in the university context. The double arrows show how actors both human and non-human act and are also acted upon in the translation phases, whilst issues of power and negotiations in the AU context play out in the interessment and enrolment stages due to the interaction of actors within the university context.

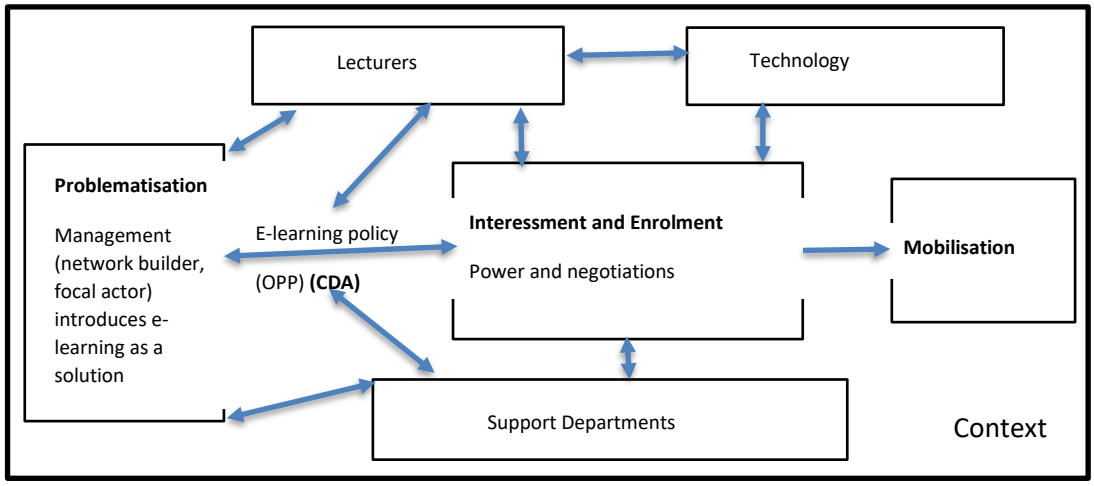


Fig 3.2 Analytical Framework

As asserted by Pacheco-Vega (2018) analytical frameworks are instrumental since the elements of the framework assist in deconstructing sets of concepts of the phenomena understudy. In this study the analytical framework allowed the researcher to unpack the roles and interactions of actors (both human and non-human) in the trajectory of the university towards the integration of technology for flexible curriculum delivery.

3.5 Chapter Summary

The Chapter showed an in-depth exploration of ANT, highlighting the importance of using this theory in the study which is the symmetrical analysis of human and non-human actors in the integration of technology for flexible curriculum delivery in a HEI. Chapter 2 highlighted the various actors in a university network that must be brought together for effective technology enhanced flexible curriculum delivery. This chapter, therefore, demonstrates how ANT can be instrumental in understanding how a stable network is maintained through the translation of interests that bind all actors, allowing one to follow the way actors attempt to enforce worlds upon one another and to describe the dynamics and internal structures of the actors' worlds (Rhodes, 2009). The Chapter then moves on to CDA, highlighting its role as an analytical tool for the policy documents used in the study. Fairclough's 3 levels Dimensions of Discourse Analysis is explained foregrounding the way it is used for the analysis of the e-learning policy documents at the university. The analytical framework of the study which shows the link of the two theories used in the study concludes the chapter.

The next chapter, Chapter 4 highlights the process that was used in the study to collect and analyse data for answering the study questions. The chapter explains and justifies the method used in the study including the presentation of the various steps and design decisions that were made in conducting the study, such as the site selection and description, sample and participants, data collection procedures, and data analysis process.

Chapter 4

Study Methodology and Research Design

4.0 Introduction

The research study explored the integration of technology for flexible curriculum delivery for the provision of blended and online learning programs at a university in Zimbabwe. This chapter outlines the process that was used in the study to collect and analyse data for answering the research questions. The chapter explains and justifies the method used in the study including the presentation of the various steps and design decisions that were made in conducting the study, such as the site selection and description, sample and participants, data collection procedures, and data analysis process. The critical issues of the researcher's positionality, trustworthiness, and ethical considerations are also addressed.

The researcher designed a qualitative research study that used an exploratory descriptive case study to investigate the role and actions of actors in the integration of technology for curriculum delivery at an HEI. The study's philosophical orientation is located in the critical paradigm to understand the power and negotiating issues of actors in the university network. The chapter will highlight various philosophical orientations in education with an emphasis of the orientation of this study. The methodological considerations and the research design of the study will be elaborated after which the research site, participant selection and data collection methods used in the study will be highlighted. In addition, the chapter presents the data analysis and interpretation of the study, trustworthiness and ethical considerations before highlighting the limitations of the study.

4.1 Philosophical Orientation

This section explores common philosophical paradigms used in education and validates the paradigm selected for this research study. A research paradigm refers to the way a researcher interprets and acts within the world, that is, how she views ideologies that shape the world (Kivunja & Kuyini, 2017). According to Rehman & Alharthi (2016), there are three different approaches to educational research which are Positivism, Interpretivism, and Critical theory. Ryan (2018) noted that, ontologically, positivists believe that reality is the same for each person since facts can be proven, and reality is understood through observation and measurement. Thus, positivism is not intermediated by our senses as it is administered by indisputable laws that assume that reality exists autonomous of humans (Rehman and Alhathi, 2016). According to Kivunja and Kinuyu (2017:30) "research located in this paradigm relies on deductive logic, formulation of hypotheses, testing those hypotheses, offering operational definitions and mathematical equations, calculations, extrapolations, and expressions, to derive conclusions." Thus, this paradigm views people as being passive and having no effect on the external environment completely disregarding the human element and its contribution to a phenomenon. The positivism approach has, however, been criticised for its objective approach and the disregard for the human element. In the social world, the laws governing individuals, their peculiarities, their

association with each other, with establishments, and with society and culture differ vastly from the order and consistency one finds in the natural world (Rehman and Alhathi, 2016).

An interpretive approach strives to literally 'get' into the head of the participants in a study to appreciate and understand their thought process and meaning making in his/her context. Thus, deliberate effort is made in an attempt to understand the vantage point of the subject under observation, instead of the viewpoint of the observer (Kivunja and Kinuyu 2017). According to Ryan (2018) through the interpretivism approach truth and knowledge are subjective, in addition to being culturally and historically situated. Based on people's experiences and their understanding of them, it informs the way data is collected, analysed, and interpreted. Interpretive research assumes that reality is an appearance of social construction such as shared meanings, language, consciousness, documents, tools, symbols, and other artefacts (Walsham, 2006).The approach, therefore, allows for the semiotic presentation of actors within a context (ibid). A central effort for an interpretivist researcher is to gain access to people's experiences and perceptions of the world by listening to them and observing their actions (Hancock et al., 1998). However, the interpretive paradigm has been criticised for lack of objectivity since it is considered 'soft' and incapable of yielding theories that could be comprehensively applied to broader populations and the close involvement of the researcher with participants (Grix, 2004).

The research design of this study is based on a critical paradigm. The three leading historical critical theorists of the original Frankfurt School, Horkheimer, Adorno, and Marcuse are historically related to critical theory as they have represented the original systematic effort to employ traditional practical and realistic techniques for the modification and testing of propositions derived from the Marxist tradition (Asghar, 2013). According to Ryan (2018:10) critical theory, "seeks to challenge world views and the underlying power structures that create them."

Therefore, the assumption made by the paradigm is that reality exists, although the social system has been shaped by cultural, political, ethnic, gender, and religious factors which interact with each other (Rehman and Alharthi, 2016). In contradiction to traditional theory that explores and confirms the status quo, critical theory challenges the status quo and strives for a balanced and democratic society (Asghar, 2013). In both the natural and the social sciences, critical theorists have always endeavoured to differentiate their aims, methods, theories, and systems of explanation from standard considerations (Bohman, 2013). The paradigm is therefore particularly concerned with the "issue of power relations within the society and interaction of race, class, gender, education, economy, religion and other social institutions that contribute to a social system" (Asgar, 2013:3123). According to the Bohman (2013), for critical theory to identify the actors who must bring change, leading to the provision of both clear standards for criticism and attainable practical goals for social transformation, it must explain what is wrong with the current social reality. Thus, unlike interpretive research, the goal of critical theory is not to reach a mutual understanding of a situation, rather it aims for the emancipation of institutional actors from false or unwarranted beliefs, assumptions, and constraints (Ngwenyama and Lee, 1997).

Brown (2011) emphasized the role of critical research in the quest to create knowledge as an agent for change and give voice to the side-lined groups in technology innovation. For this study, critical theory was useful in understanding how actors in a university network, resist, exercise power, and develop agency in the implementation of policy for the integration of technology for flexible curriculum delivery. Bohman (2013) highlighted three conditions for critical studies in a context which are:

i. It must be explanatory about what is erroneous with the present societal reality;
ii. It must recognise the action to transform it; and
iii. It must provide both clear standards for criticism and change.

Critical educational research, therefore, aims to change society and not merely to explain or understand it. Thus, the endorsed knowledge by those in power (politically or educationally) is to be critically observed (Patton, 2002; Rehman & Alharthi, 2016). According to Kincheloe & McLaren (2011: 305) in critical education research, "no one is confused concerning the epistemological and political baggage they bring with them to the research site". Although there might be issues related to blind spots, in this study the researcher was self-conscious of her epistemological assumptions to ensure clear communication when entering into an investigation. The critical paradigm allows for the exploration of issues and creates difference not only in the world of knowledge but literally in the world itself providing novel and stimulating viewpoints (Asghar, 2013). Modern researchers should therefore explore these refreshing viewpoints (ibid).

This study did not pursue a holistic critical agenda, rather it provided a critical analysis of the process of the integration of technology for flexible curriculum delivery at a university in a developing context. The process of engaging the discourses informing e-learning adoption and policy implementation assists in the uncovering of the myths and assumptions associated with the integration of technology for curriculum delivery in HEIs in developing contexts, centrally pinpointing the study within the critical paradigm that "aims to smash myths and empower people to change society" (Neuman, 2006: 105). In this case, the critical paradigm works as an approach to unpack social change that fosters actors in a university network the ability to "read their world" to develop a sense of their agency (Stommel, 2016). The study traced the trajectory of a university in the integration of technology for curriculum delivery, highlighting the role of various actors in the university network, and how they negotiate, resist, and work together in their context. Through the analysis of the e-learning implementation process at Africa University the study took a critical approach to form a critique that exposes true conditions within this system and among its actors.

The critique contributed to the body of knowledge for university management and practitioners on strategies and interventions that can be adopted for effective integration of technology for flexible

curriculum delivery in a developing context. The study did not conduct emancipatory social action to transform e-learning practice at Africa University or any other institution, rather it is hoped that this study provides a rich resource for critical self-reflection by the various technology integration actors which may or may not influence their future actions or practices in the integration of technology for flexible curriculum delivery. Luckett (2006) described such an analysis as a 'weak non- interventionist' form of critical policy analysis, which is "concerned with exposing the workings of social structure and power and to clarify the value, assumptions, and conflicts between those involved in formulating policy and those who must implement and be affected by it". In this study, critical theory is used to understand the power, social structure, resistance, and negotiations of various actors within a university network as they interact and work together in the implementation of an e-learning policy for the integration of technology for flexible curriculum delivery.

4.2 Methodological Considerations

Qualitative, quantitative, and mixed methods are the three predominant research methodologies in education. According to Tuli (2010) the paradigm guides the research activity of the study thereby governing the selection of the research methodology. This study adopted a qualitative methodology. This research methodology is suitable for the study since it tends to emphasise the dynamic, holistic, and individual aspects of the human experience and attempts to capture those who are experiencing them (Shepherd et al., 1999). Shepherd et al. (1999) also asserted that qualitative case materials presented in a context such as Africa University can be extremely effective in elucidating certain points or in imparting a more realistic impression to data, that might otherwise appear far removed from practical concerns, as they provide the researcher with the opportunity of having an intimate knowledge of the subject's condition, thoughts, feelings, actions, intentions, and environment. According to Maxwell (2008) the qualitative approach uses an inductive approach; allowing for a deeper understanding of actors involved in the integration of technology for curriculum delivery in their real and natural contexts. The lack of statistical analysis in qualitative results has been criticised on the position that the results cannot be generalised (Hammersley, 2007). However qualitative research can still make assumptions and draw comparisons that can be applied in other contexts.

For this study, the qualitative research approach was an obvious choice as the researcher attempted to understand the processes of interaction of human and non-human actors that led to the effective integration of technology for flexible curriculum delivery. Qualitative research allows one to trace and follow the sequential flow of events taking place in a given context, clearly showing how certain actions lead to certain consequences, resulting in fruitful explanations (Amaratunga, et al., 2002) .The main actors involved in the integration of technology for curriculum delivery at Africa University were interviewed to understand their perceptions and experience of e-learning and to generate qualitative information. Furthermore, the analysis of policy discourse created textual data that showed the way actors in a university network talk about and theorize e-learning through their use of language and the

meanings and assumptions attached to e-learning (Chikuni, 2016). According to Tuli (2010:106) quantitative methodology is 'concerned with attempts to quantify social phenomena and collect and analyse numerical data and focus on the links among a smaller number of attributes across many cases' (Tuli 2010:106). Quantitative methodology, therefore, tends to present results in a numerical format and is associated with the positive paradigm (ibid). Ryan (2018) surmised that quantitative methodology generalises findings by enumerating human behaviour without providing specifics into the effects of such behaviour. The main shortfall of the methodology is this lack of in-depth study of human behaviour.

On the other hand, qualitative research is conducted in the participants' natural environment, and it is formed using the words and informed detailed viewpoints of informers (Maxwell, 2008). Cresswell, (2007: 5) defined qualitative research as "an enquiry process of understanding … that explore[s] social or human activity". According to Tuli (2010), qualitative methodology relies on the creation of a partnership with the research participants leading to a deeper understanding of the context under study thereby enriching the depth of the data. Contrary to quantitative methodologies, qualitative designs reject the positivist assumption by contending that reality is subjective, multiple, and socially constructed by its participants (Tuli, 2010). Benbasat et al (1987) however, are of the view that no single research methodology is intrinsically better than any other methodology.

To maximize the strengths of both quantitative and qualitative research some researchers choose to combine the two methodologies. By combining the two approaches researchers attain a more in-depth look at statistical patterns that goes beyond explaining them, providing a holistic approach to a phenomenon (Tunjera, 2013). Through the mixed methods approach a researcher utilises a strategic and purposeful combination of both qualitative and quantitative data collection and analysis in the study, the epistemological and methodological advantage of each approach can therefore disclose complementary or even contradictory outcomes as they validate to support the findings (Saldana, 2011). Thus, the mixed method design is encouraged to ensure quality research (Creswell, 2008).

4.3 The Research Design

This study employed an exploratory and descriptive case study approach. The exploratory and descriptive nature of case studies depicts the reality of being in a situation, allowing for a dense description of participants' lived experiences (Yin, 1984; Cohen et al., 2011). Thus, in this study, it was possible to study actors such as management, lecturers, support staff, and policy documents lived experiences within their context. The lived experience of policy documents in this context is the effect the policy has in a context. The exploratory and descriptive case study method used in the study allowed for deeper investigations where the phenomenon is not yet fully understood as is the case of e-learning in developing contexts (Ebneyamini & Moghadam, 2018) Qualitative research is associated with five different types of research designs which are ethnography, case study, grounded theory, narrative, and

phenomenology. Despite the different research designs, the outcome of qualitative research is usually composed of vital representations and presentations of prominent findings from the analytic synthesis of data (Saldanna, 2011). The aim of all qualitative methodologies is therefore to enhance the understanding of the phenomena under study. Of note in the different types of research designs is the fact that although data collection tools may be the same for all the designs, how they are employed is different. A researcher may submerge themselves in a social context to carry out observations over a long period, while one researcher may choose to carry out a non-participatory observation in a very short time (Cresswell, 2007).

The study adopted a case study approach. According to Shepherd et al (1999) qualitative design emphasises the active, all-inclusive, and individual aspects of the human experience in an attempt to capture those who are experiencing them, which makes the case study an appropriate design for the study. The case study research approach permits the exploration of a problem in its natural setting, by engaging numerous data collection methods to gather information from one or more entities (Benbasat et al., 1987). This allowed for the in-depth study of the various actors in the Africa University context as they interacted and negotiated with each other within their social setting. Gillham (2010) gave a dissected description of a case study as an element of human activity entrenched in the real world which can only be considered or appreciated in the context which occurs in the here and now that combines in with its context so that precise borders are difficult to draw.

Case studies, therefore, strive to portray 'what it is like to be in a particular situation, to capture the close reality and 'thick description' of participants' lived experiences of thoughts about and feeling about a situation (Cohen, Manion, and Morrison, 2011). Contexts are unique and dynamic; hence case studies investigate and report the real-life, complex, dynamic, and unfolding interaction of events, human relationships, and other factors in a unique stance (ibid). The case study research approach, therefore, allows for the close collection of data by actually talking directly to people and seeing them, behaving, and acting within their context which is a major characteristic of qualitative research (Maxwell, 2008). Hence, the case study provided a detailed description and analysis of actors' views and experiences in the integration of technology for curriculum delivery for an HEI in a developing context. A case study "involves careful and in-depth consideration of the nature of the case, historical background, physical setting, and other institutional and political contextual factors", which lends well to the critical paradigm of this study (Ebneyamini et al., 2018:2).

Through the case study method, a researcher has the option to study multiple cases. For this study, however, the researcher only focused on one case which is Africa University. According to Saldana (2011), the deliberate choice of a case may be because of how the context presents itself as a rich opportunity and a good example for focused study giving it a unique character. The rationale for studying a single case in this study was to focus time and resources on one specific context. To gain an in-depth understanding of how actors in a university network interact and negotiate their way toward the implementation process of an e-learning policy for the integration of technology for flexible

curriculum delivery. Bryman (2016) noted an important criterion of choosing a case, which is that it should provide a suitable context that provides answers to the study's questions. Africa University as the first university in Zimbabwe ratified to offer technology-enhanced programs by the higher education quality assurance organisation, ZIMCHE is thus a suitable case study to answer the research questions of this study.

Stake (2005) classifies case studies into intrinsic, instrumental, or collective case studies. An intrinsic case study is undertaken for the researcher to get a better understanding of a particular case, an instrumental case study is examined to provide insight into an issue, that is to understand more than what is obvious to the observer, and in a collective case study the researcher studies multiple cases to investigate a phenomenon, population, or general condition (ibid). This study adopts the instrumental case study as it facilitates an in-depth understanding of the roles and actions of various actors in the integration of technology for flexible curriculum delivery in a university network. As an instrumental case study, Africa University itself is of secondary interest as it plays a supportive role, facilitating the understanding of the integration of technology in teaching and learning in an HEI in a developing context (Baxter & Jack, 2008).

According to Yin (1989) there are three types of case studies, depending on their purpose, these are descriptive, exploratory, and explanatory. Exploratory cases are sometimes considered a prelude to social research that involves a hypothesis-generating process to develop ideas for further study, whereas the explanatory presents data of casual relationships, and a descriptive case study provides a complete contextual description of a phenomenon (Yin, 1989; Tellis, 1997). The case study approach has been criticised for its generalisability and transferability with questions raised on its context-dependent nature as critics claim this might cause bias and predetermined ideas, especially on its inability to generalise the findings (Saldaña, 2011). Tellis (1997) also highlighted that the most frequent criticism of the case study methodology is the dependence of the method on a single case, arguing that this reduces its capability to provide a generalised deduction. Flyvbjerg (2006) however argues that humans tend to self-reflect and respond to societal problems in different ways, therefore, the issue of generalising should not restrain the use of case studies. Stake (2005) also challenged the criticism, by arguing that each specific case study is exceptional, and each is an example (not a reflection) of the larger population, therefore, it can be an element of the population.

Another criticism of the case study approach is its' tendency toward bias and verification of the researcher's preconceived ideas. Flyvberg (2006) argues that the case study methodology also follows the same rigorous processes that quantitative studies do. These include the use of multiple data collection methods, and rigorous validation techniques such as member checking and the production of confirmations, which were followed in this study. Case studies have also been criticised for being context dependent. Flyvberg (2006) however responds that results of context dependent knowledge

research are essential in allowing people to develop a deeper understanding of the participants in their natural environments as this provides a concrete genuineness of the phenomenon under study. Furthermore, a case study produces the type of context-dependent knowledge which allows researchers to progress from 'rule-based beginners to virtuoso experts' (Flyvberg, 2006:221). This study, therefore, adopted a case study research design. It is an exploratory descriptive study with an instrumental approach. The case study sought to provide a holistic in-depth understanding of the role of actors and their actions in the implementation process of an e-learning policy for the integration of technology in flexible curriculum delivery at an HEI in a developing context.

4.4 Research Site and Participant Selection

AU is a private pan-African institution in Zimbabwe, established by the United Methodist Church in 1992, with a mandate to provide quality leadership education and training in Africa. The institution is primarily a residential university that has sought to provide alternative technology-driven flexible learning in a bid to improve access to education and enrolments amid competition for students as the number of both state and private universities increases in Zimbabwe. The rationale for distance education is embedded in AU's mission statement that puts into high profile the commitment of the HEI to contribute to the educational and professional goals of African countries, especially in the training of the new leadership of the continent (Africa University). E-learning has therefore provided AU with an opportunity to expedite its mandate.

In 2005 the university set up infrastructure and an Educational Technologies Unit within its ICT Department to promote e-learning. By 2012, AU management had established a Distance Education Unit to provide an alternative delivery mode as the university sought to increase educational access to the rest of Africa. The university had been offering traditional flexible modes programs such as block releases, weekend programs, and parallel programs since 2009, which mainly catered for the Zimbabwean community. The HEI thus explored technology driven flexible education, as ICTs have removed barriers such as distance among economic actors allowing HEIs in far-flung corners of the world to reach students in the farthest parts of the planet (Nwuke, 2003).

In 2016, AU introduced a Continuing Education Policy (referred to as the E-learning Policy in this study) and an E-learning Strategic plan in a bid to embrace technology as a mode of delivery as well as to guide the implementation of technology for curriculum delivery in the university. In the same year, the university became the first university in Zimbabwe ratified to offer online programs by the ZIMCHE a higher education quality assurance organisation in Zimbabwe. The institution now offers several blended and online programs as alternative modes of delivery to residential programs.

For Africa University, e-learning presents an alternative cost-effective approach to teaching as the institution can increase its enrolment with potential students based all over the world (Kituyi &

Tusubira, 2013). Like most HEIs, AU had to deal with resistance to change both at institutional and departmental levels (McNeal, 2015). Of significance, is the fact that the complications in e-learning at an HEI are not only brought about by human actors but by non-human actors as well (Tatnall & Gilding, 1999). The change process is dependent on the legitimacy and power in integrating technology for curriculum delivery by actors (humans, policies, plans, technology, et cetera) (Law, 1999). The AU network is, therefore, a rich context for this study.

The researcher worked at Africa University as an Educational Technologist from the period 2013-2018 and therefore experienced the changes that took place and have taken place at the institution since the introduction of e-learning in 2014. The researcher, however, changed jobs and went on to work at a state university in Zimbabwe holding the same job position. The state university had just established an e-learning department, but it did not have either an e-learning policy or an e-learning strategic plan. The researcher saw the lack of such documents in most universities in Zimbabwe and how this hindered the effective integration of technology in curriculum delivery. This study is therefore prompted by the experience of the researcher as an Educational Technologist in two separate institutions. The case of AU is that of an institution that has strived to integrate technology in curriculum delivery in a very complex socio-economic context and from which several lessons can be drawn. The fact that the researcher was known to the participants enabled participants to open up about their experiences in e-learning. This familiarity ensured trust and honest insights from the participants. In addition, the researcher is familiar with the research site, which made approaching participants easy as well as giving the researcher a detailed contextual background. Issues of bias and positionality are engaged with and explained in detail further in the chapter.

4.4.1 Participant Selection

Cohen et al. (2011) define sampling as the selection process in extracting a representative portion of a population to participate in a research study. Qualitative-based research studies often employ purposive sampling methods. According to Merriam (2002) purposeful sampling assumes that the researcher desires to try and understand a phenomenon, and therefore she must select a sample from which the most can be learned. Purposive sampling was appropriate for this study as it allowed for purposeful selection of the actors of the Africa University context who are actively involved in the integration of technology for flexible curriculum delivery.

Information-rich informants (twelve) were purposely selected for the study including a member of staff of the Vice Chancellor's office team, a Faculty Dean, a Faculty Head of Department, a member of the ICT Department leadership, an E-learning Technician, ICT Support Staff, and six lecturers who teach in blended and online programs. The Vice Chancellor's staff, faculty dean and head of department were important for the study since technology enhanced flexible curriculum delivery was initiated from top management in this study. The Vice Chancellor's staff were interviewed to understand the trajectory of

the integration of technology for curriculum delivery from the perspective of top management. The staff provided valuable data on the motivation and drive towards technology-enhanced curriculum delivery at AU and the various strategies and interventions employed by top management for the advancement of e-learning at the university. The faculty dean and head of departments were also interviewed, and they provided valuable data on how the introduction of technology enhanced the curriculum creating tensions and resistance in the university network as well as how a turnaround was reached in the university context as a result of timely contextually based interventions.

Lecturers and students are important actors in teaching and learning, for the purpose of this study, however, only lecturers who teach in both blended and online programs were purposefully chosen with the assistance of the e-learning Technician who helped the researcher to identify active lecturers from each of the four online programs at AU who also teach in blended programs. The lecturers provided valuable data on their position as indispensable actors in the integration of technology for curriculum delivery and how they were affected by and reacted to the introduction of technology-enhanced flexible delivery in the university context. Furthermore, lecturers provided valuable data on the interventions provided by the university management to enhance the integration of technology and how these changed their perceptions and actions towards e-learning in the university context. The interviews of the ICT department head and staff provided valuable data on the essential role of the department as custodians of technology in the integration of technology for curriculum delivery. Furthermore, the participants from the ICT department provided data on the challenges of providing technology-enhanced curriculum delivery in a developing context, and the support they provided through interventions introduced by management at AU. The e-learning technician was also interviewed and provided data that was instrumental in understanding the role, challenges, and success of professional development in the university context. These twelve participants provided detailed data as they represented the key actors involved in the integration of technology for curriculum delivery in the university. Thus, in the study, purposeful sampling of participants involved in the integration of technology for curriculum delivery at Africa University including management, faculty, and support staff guaranteed that the collected data provided answers to the research questions.

4.5 Data Collection

This study sought to explore and understand the role of actors and their actions in the integration of technology for curriculum delivery in a developing context. Research case studies normally employ multiple data collection methods, since evidence from more than one source will congregate to back the research findings thus, allowing data triangulation which is essential for the researcher's conclusion (Benbasat et al., 2007). The study, therefore, used two main methods of data collection, interviews, and document analysis.

4.5.1 Data Collection Instruments

This section of the study discusses the data collection methods and instruments that were used to collect data from participants. The rationale for the method and instrument used is provided.

4.5.1.1 Semi-structured interviews

Interviews are vital tools used to gather experienced interpretations and descriptions of participants' events and permit the capture of information that cannot be personally experienced by the researcher (Denzin & Lincoln, 2011). According to Stake (1995) through interviews, the researcher gathers information that she could not capture or experience personally, but which has been captured or experienced by others. The interview thereby becomes a significant tool that can be used to obtain participants' interpretations and descriptions of events (ibid). In qualitative interviews, the researcher asks participants open-ended questions whilst recording their answers which were later transcribed for data analysis (Creswell, 2007). As noted by Blaxter et al. (2010) for human interaction conversation is a basic mode, interviews, therefore, become the best way to understand a phenomenon in a context through engagement with the participant, hence interviews are a move away from superficially obtaining knowledge.

Interviews are classified as structured, semi-structured, and unstructured. Structured interviews involve a tightly organized set of questions used to ask participants the same questions in the same way (Fox et al., 2002). Thus, this type of interview uses fixed questions that the researcher will ask, with few or no variations and no follow-up questions that seek elaboration from participants (Turner, 2010). The structured interview is therefore rigid in nature, as such this study did not employ this type of interview as the researcher would not have any room to seek or ask for clarity from given responses should there have been the need for that in the interview. Unstructured interviews on the other hand consist of a general list of topics for possible exploration only (Saldana, 2011). According to Cropley (2015) unstructured interviews are conducted with very little or no structure at all since they do not have preconceived ideas. As a result of this, they lack planning and structure, unstructured interviews are regarded as time-consuming and difficult to manage (Cohen et al., 2007). The study used a semi-structured interview method as this method is more similar to a conversation than an interview and is generally viewed as a "controlled conversation," which is tilted towards the interests of the interviewer (Jamshed, 2014).

As noted by Cohen et al. (2011) in semi-structured interviews both the interviewer and interviewee can engage in conversation to elaborate on issues of interest making the process flexible and open. The key questions used in semi-structured interviews allow the interviewer to seek clarification on issues through probing and asking follow-up questions (Cropley, 2015). The researcher chose the semi-structured interview method because it allows one to retain some control over the direction of the interview without limiting responses. Through one-on-one interviews, the researcher obtained an in-depth exploration and understanding of how various actors within the AU network negotiate and work

together in the implementation of an e-learning policy toward the integration of technology for curriculum delivery. Thus, a semi-structured interview allowed the researcher to ask questions or adjust them in response to the observed demeanours. Through interviews, the researcher collected information based on a participant's individual experiences and knowledge, including thoughts, principles, emotions, and demographic data (Best & Kahn, 2006).

In this study, one-on-one in-depth semi-structured online interviews were conducted with 12 participants from the university under study, the participants included a representative from the Vice Chancellor's office, a Faculty Dean, a Faculty Head of Department, an ICT department head, an e-learning support staff, an ICT technician and six lecturers who teach in blended and online programs.

4.5.1.2 Online Interviews

The World Health Organisation declared COVID-19 as a pandemic in the early months of 2020 and the pandemic went on to bring the world to a halt through travel restrictions and lockdowns (Pham & Ho, 2020). To avoid contact and ensure safety during the pandemic, the study used semi-structured online interviews as an alternative to face-to-face interviews as the researcher could not travel from her country of study to Zimbabwe due to travel restrictions and social distancing issues. For this study, the use of face-to-face interviews would have yielded even richer data as more information would have been through observing body language which was missing in online conversation. Nonetheless, instead of face-to-face interviews, in this study synchronous semi-structured online interviews were carried out through the Zoom web conferencing platform (Salmons, 2015). The development of research relationships and interactions online is still possible in the absence of face-to-face interaction and a physical place in which to ground fieldwork (Carter et al., 2021). The online interviews provided some benefits to both the researcher and research participants, that included accessibility as challenges such as geographic barriers transportation issues, and busy schedules were minimized with the added advantage of increased flexibility to conduct follow-up interviews (Mirick & Wladkowski, 2019). According to Hamilton (2014), the internet has become an integral part of everyday life for many people in recent years, and the accessibility of internet technologies has opened up new opportunities for researchers in terms of using web tools in their research. James & Busher (2011) observed how social sciences researchers have expanded their methodological horizons by exploring the potential of research in spaces where physical entry may not be possible.

However, researchers should not perceive online interviews as an 'easy option' as due attention to the justification, applicability, and benefits of such methods to a particular research study must be observed (Mirick and Wladkowski, 2019). Research participants in online interviews must have access to an electronic device with internet access, and they must be technologically savvy to access and use the internet technologies for qualitative interviewing (Hamilton, 2014). Mirick and Wladkowski (2019) identified the use of digital tools in research interviews as a challenge that leads to sampling bias since

potential participants without access to the required technology are excluded. In this study, however, participants were comfortable with online platforms since Africa University uses web conferencing tools such as Google Meet and Zoom for lectures and meetings, thus online interviews as a research methodology were suitable for this study and the context.

The researcher was based in South Africa and the participants were in Zimbabwe. The two countries are in developing contexts, hence technological issues such as connection issues, lags in sound and/or video, garbled or indistinct audio, or malfunctioning technology arose during the online interviews (Mirick and Wladkowski, 2019). These technological difficulties can be barriers to the development of rapport and the flow of the interview and can create opportunities for missed data (ibid). A few interviews were disrupted by poor internet connections and interruptions caused by electricity blackouts either on the part of the participants or the researcher. To mitigate these challenges the researcher discussed with the participant before the interview the need to repeat questions and answers where there were connection issues and in the case of electricity blackouts, interviews were re-scheduled.

In qualitative online interviews, a researcher seeks to gather something meaningful about their participants' lived experiences, through narratives and descriptions that will 'speak' to the depths of experience, the meaning of relationships and the understanding of identity (Mirick and Wladkowski, 2019). This data collection technique was, therefore, vital for the study of heterogeneous actors in the integration of technology for flexible curriculum delivery at an HEI as it allowed the researcher to get great insights and perspectives from the various actors within the AU network. Participants in this study were members of AU management, selected lecturers, and ICT and e-learning support staff as these individual groups are active actors in the integration of technology for curriculum delivery. According to James and Busher (2004:9), online interviews can allow participants 'to be more direct and spontaneous in their opinions and there exists greater freedom of expression. O'Connor and Madge (2017) concurred that some participants could ask questions without feeling self-conscious in an online interview, which they might not have done face-to-face.

Emails were used to recruit participants for virtual interviews where a participant's consent to take part in the study was granted, and an online interview was arranged at the convenience of the participant (Janghorban et al., 2014). Zoom interviews which were recorded were used for this study, and ethical guidelines were not compromised since scholarly online interviews were conducted by laid guidelines with e research participants providing informed agreement before taking part in the interview as well as the recording of the interview (Salmons, 2015). In this study, interviews were very crucial as participants provided data of past and present interactions of various actors in the AU context, unrestricted by any perspectives of the researcher or previous findings, with the researcher asking specific questions to elicit the required information (Cresswell, 2007).To increase the completeness of

data collection and to systematically fill expected gaps in data, separate interview guides for management, lecturers, and support staff (Appendix E) were used as they provided the interviewer with a freeway to pursue an array of themes and reshape the content of the interview with the participant (Bogan & Biklen, 1992; Cohen,et al,. 2011).

4.5.1.2 Document analysis

A document might be referred to as a record of an occurrence or procedure (Cohen et al., 2011). Document analysis, therefore, is a methodical process for studying or assessing both printed and electronic documents (Bowen, 2009). The researcher gets the opportunity to get insights into a research setting (Koshy et al., 2010). According to Bowen (2009), it is expected of the qualitative researcher to draw upon at least two sources of evidence to seek conjunction and justification through the use of diverse data sources and methods. Thus, besides documents, other sources of data included interviews (Yin, 2014). In qualitative case studies, document analysis, as a research method, is particularly applicable because it enables an intensive study that produces a rich description of a single phenomenon, event, organisation, or program (Stake, 1995). According to Merriam (1988:118) "documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem".

Thus, in this study, analysis of documents that speaks or addresses e-learning at AU provided an in-depth understanding of the phenomenon understudy thereby assisting in providing answers to the research questions of the study. Bowen (2009) highlighted five specific functions of documents as a research method which are:

- documents provide data on the context of the research participants and can act as witnesses to previous events. Documents provide contextual information as well as historical understanding. Therefore, the researcher gets to understand the historical roots of specific problems and can indicate the conditions that impinge upon the phenomena that are under investigation;
- information contained in documents can lead to some questions that need to be asked and situations that need to be observed as part of the research;
- additional research data can be derived from documents, and insights derived from documents can be valuable supplements to a knowledge base;
- documents provide a means of tracking change and development in cases where a draft of a particular document is accessible, the researcher can compare them to identify the changes; and
- documents can be analysed as a way to validate findings or substantiate evidence from other sources. If evidence from documents is opposing rather than corroboratory, the researcher is expected to investigate further. Convergence of different sources of information from different sources increases the trustworthiness (credibility) of the findings

Document analysis in this study was therefore a crucial element of triangulation, especially because it improved the validity of the research findings. The documents analysed were official documents in the form of an E-learning Policy and the E-learning strategic plan of the university under study. The use of documents as a research tool was important and suitable for the current study because the documents studied required a close and broad examination of how they are understood in the university context (Cohen et al., 2011). Thus, from an ANT perspective, the documents were viewed as (non-human) actors, and the study purposed to show how they acted and were acted upon by other actors in the university network. CDA was used to analyse the documents as texts that represent views of reality that are designed by leading discourses at a place and time (Taylor, 2004). In analysing the texts in the documents, the researcher aimed to deconstruct the meanings and language used in the documents, analysing how issues were expressed and highlighting the standpoint of policymakers in the role of ICTs in curriculum delivery (Chikuni, 2016).

4.6 Data Analysis and Interpretation

Data analysis involves increasing the understanding of collected data by methodically searching and ordering it, to enable the researcher to present her discoveries (Bogdan and Biklen, 1992). It is therefore a process of bringing order, structure, and meaning to collected data (Biggerstaff & Thompson, 2008). Through data analysis, the researcher gives the data meaning (Yin, 2014). According to Cohen et al. (2011), qualitative data analysis comprises the making of meaning out of data according to the participant's descriptions of the situation, perceiving patterns, themes, classes, and consistencies. Themes capture significant characteristics of the data about the research questions, highlighting patterned responses or meaning within the groups of data (Braun & Clarke, 2006). Culén (2010) described the process of data analysis as chaotic, ambiguous, and time-consuming, yet also a crucial and fascinating process. The qualitative methodology often has large volumes of data, which may complicate the analysis process. To circumvent this the researcher employed the services of a transcriber who made transcriptions from the 12 audio files from the online interviews.

To define the boundaries on which the collected data was to be organised and interpreted, it was crucial to identify the units of research and analysis of the study. By defining the units of research, the researcher was able to indicate what is being studied and the aspects that are being studied (Braun & Clarke, 2013). According to Patton (2002) an individual, program, institution, or community can be viewed as a unit of analysis in case study design, with the researcher focusing on contextual analysis of an event, conditions, and relationships. In this study, the unity of observation was the process of integrating technology for flexible curriculum delivery in a university context and the unit of analysis was the role and activities of actors in the integration of technology for flexible curriculum delivery. The units of research and analysis, therefore, informed the data analysis.

4.6.1 Analysis of the technology integration process: Semi-structured Online Interviews

To understand the trajectory of the introduction of technology for flexible curriculum delivery, the researcher analysed data from interview transcripts. Transcription was the first step toward analysis that was carried out in the study followed by the process of making sense of the data. The researcher employed a deductive approach to get a thorough understanding of the collected data. An existing theory, ANT, as well as the key concepts from the research questions were imposed on the data from the interviews (Burnard et al., 2008). The researcher reviewed the literature to identify codes in the data, which were then grouped into five code groups which were later classified under ANT's four moments of translation which are problematisation, interessment, enrolment, and mobilisation in Chapters 6, 7, and 8, in findings and discussions. To accommodate unexpected themes from the research process, the researcher, however, remained open-minded according to the guidance of John-Steiner & Mahn (2003) who advised taking note of themes that do not fit in the conceptual framework and reviewing literature which should be regarded as conceivable sources of new knowledge.

The study used the qualitative data analysis software ATLAS.ti 8. The software was used to capture and store all the collected data materials in a single repository. The software allowed the researcher to navigate around different documents through the creation of codes assigned to the text. The codes were used to create code groups, visualising concepts that emerged from the data to give it meaning. The researcher chose Atlas. ti because she had received training from her institution of study as well as from the experience of working as a Research Assistant on a project that used the software for coding research data within the university.

Thus, the analysis process of the data from the interviews involved:

- Transcription of data by a professional transcriber
- Reading and re-reading of transcripts
- Preliminary noting
- Developing codes
- Grouping codes according to connections to create themes
- Classifying the themes according to ANT's four moments of translation
- Interpreting the data

The researcher ensured the anonymity of the transcribed recordings by removing the names of people or places and using the terms interviewer and interviewee in the transcripts which were all password protected. The researcher immersed herself intensively with the text making the necessary annotations and descriptive comments on interview transcripts using Microsoft Word and/or ATLAS.ti 8. In addition, individual responses were thoroughly analysed word by word; sentence by sentence to ensure an exhaustive understanding of participants' direct and indirect communication (Eatough & Smith, 2008). Fig 4.1 below shows the coding section of ATLAS.ti 8:

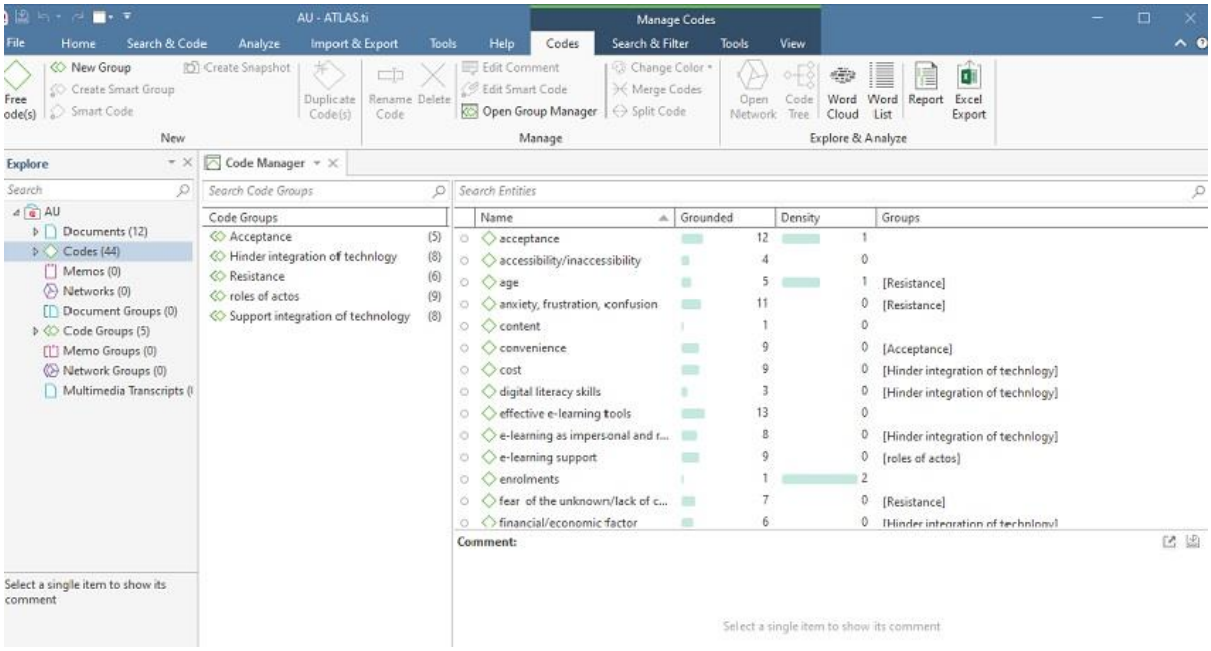


Fig 4.1 Coding of Interviews in ATLAS.ti 8.

4.6.2 Analysis of Policy Texts

The empirical evidence of Chapter 5 is drawn from the two documents at Africa University that address e-learning, which are the E-learning Policy and the E-learning Strategic Plan. The analysis of the policy took a critical approach where policy documents were viewed as texts that represent the views of reality that are shaped by dominant discourses at a particular place and time (Taylor, 2004). The purpose of the policy analysis was to deconstruct hidden meanings and uncover discourses that are replicated and permeated through policy documents by rigorous analysis of the narrative, grammar, and language used is imperative (Chikuni and Chigona, 2015). Analysis of the documents was done through the following stages:

- Reading and re-reading the policy documents to appreciate the covered issues.
- Identifying and selecting sections of the policy documents that addressed e-learning.
- Identifying dominant discourses according to reviewed literature and developing themes
- Generate sections that can be coded under different themes in Microsoft word.
- Perform a critical discourse analysis on the selected extracts from the policy documents.

Appendix H and Appendix I shows the chosen extracts from the policy documents.

The policy analysis involved the three levels of analysis for each extract according to Fairclough's 3 levels of Dimensions of Discourse Analysis (Figure 3.1, Chapter 3). The first dimension using Fairclough's framework involved the analysis of the 'texture of the text'; which refers to the form and organisation of the text at all levels, including the grammatical and lexical, as well as the constructions of argumentation used (Fairclough, 1995). The second level of analysis was the interpretative level CDA which identified the discursive charisma of policy analysis, which viewed policymaking as

discursive spaces where discourse and language played a crucial role in shaping policy options enabling the researcher to understand discursive practices (Jorgensen and Phillips, 2002). The third level involved the analysis of the sociocultural practice level of the text which involved analysis of the social circumstances under which the text was formed, disseminated, consumed, and understood (Kiersey, 2011). Each extract was then critically analysed under 'critical analysis' to unpack hidden issues of power and domination within the policy documents.

4.7 Trustworthiness

According to Guba & Lincoln (1994) the integrity, transferability, reliability, and applicability of the study determine the trustworthiness of the study's discoveries. The study used different research methods necessitating triangulation, a technique that provides a rounded assessment of educational outcomes bridging issues of reliability and validity (Cohen et al., 2011). The trustworthiness of the findings of the study was further guaranteed through the following processes:

- purposive selection of participants involved in the integration of technology for flexible curriculum delivery at Africa University including management, faculty, and support staff. Purposive selection ensured that the gathered data answers the research questions.
- data was collected from documents within the AU context that speak on and support the integration of technology for curriculum delivery, to guarantee an exhaustive and rigorous data analysis.
- data in the study was collected using interviews and documents, these multiple data collection tools ensured the trustworthiness of the findings through data triangulation.
- to strengthen data analysis and interpretation, after interviews, transcripts were availed to the participants for verification of the content according to their input. The participants were requested to give written feedback if further clarification is required.
- to ensure the trustworthiness of the findings, the results were discussed at Ph.D. writing retreats, for productive criticism from colleagues and faculty members which were useful, especially in promoting the validity of the study.
- regular feedback on the study from the Ph.D. supervisors strengthened the study

4.7.1 Positionality and Bias

According to Jackson (2013) social science researchers bring their own beliefs, understandings, philosophies, and personal views into an investigation that may affect their interpretation or presentation of collected data. Strategies such as researcher's flexibility and self-reflective must therefore be employed to counter them (ibid). In this study, the researcher was once employed by the institution as an Educational Technologist. Her relationship as a former colleague with most participants in the study was an advantage in the study as her previous experience with the phenomenon under study within its context created a bond with participants, but to reduce potential relationship-based answers in the

interviews several perspectives of the interview's questions were composed so they could be understood (Krefting, 1991). However, the researcher's position in the context of the study might have been causing bias. Norris (1997) highlighted the importance for the researcher to consider herself as a researcher, and then as self in correlation to the research phenomenon as a prerequisite for dealing with bias. The researcher was, therefore, deliberately cognisant of her position in the study through reflexibility, which involves a process of self-awareness as the researcher situated herself in the research process through self-critique so as to examine how her experiences might or might not have influenced the research process (Dowling, 2006). As highlighted by Patnaik (2016:100) reflexivity is "the constant awareness, assessment, and reassessment by the researcher of the researcher's own contribution, influence, shaping of inter-subjective research and the consequent research findings." Thus, in this study, the researcher worked against bias by subjecting herself to critical analysis.

Furthermore, the following steps as suggested by Norris (1997)were taken to avoid bias as a result of the researcher's position:

- colleagues and supervisors assessed the data to pinpoint the researcher's style.
- participants in the study gave feedback on the overall view of the research process (participant validation), participants overall view of the quality of the research process was used to improve the research methodology and substantive accounts.
- to explore preferences for certain kinds of evidence, interpretations, and explanations, considerate of alternatives, and help in locating hidden spots in the data and other irregularities, with the help of critical friends, colleagues, and Ph.D. Supervisors were sought.

4.7.2 Credibility

According to Korstjens & Moser (2018) credibility refers to the assurance that can be placed in the truth of the research findings. Thus, credibility determines whether the research findings represent reasonable information drawn from the participants' original data (ibid). It was therefore imperative that the researcher's comprehension of the phenomenon in its context was unquestionable. The use of semi-structured interviews entailed detailed data collection thereby giving the researcher the scope for further probing as the participants were not restricted in expressing their views on the issue under study. The researcher ensured data credibility by intensively exposing herself to the units of observation and analysis especially documents and the interviews in the case study.

4.7.3 Conformability

Confirmability entails the researcher's ability to guarantee that the interpretations of the findings match the data. The researcher was able to substantiate her claims by grounding them in the collected data when presenting the findings of the research study. In addition, to substantiate claims, there was a clear link between the conceptual framework of the study and existing literature in interpreting and explaining data or findings.

4.7.4 Dependability

According to Korstjens and Moser (2018) dependability of the study refers to the stability of findings over time. To ensure dependability the researcher has elaborated the research methodology, data collection processes, and instruments used in the study. The researcher strived to present the rationale for the selection of each by highlighting how each of these contributed to the study.

4.7.5 Transferability

According to Given & Saumure (2008), transferability reflects the need to be conscious of, and describe the scope of one's qualitative study so that its applicability to diverse settings (extensive or narrow) can be readily distinguished. This study endeavoured to ensure transferability by clearly identifying the study's unit of research and analysis, which is the role and actions of various actors within a university network in the integration of technology for flexible curriculum delivery, thereby guiding other researchers on the scope in which data was collected and interpreted, bearing in mind the context-dependent nature of case study research methodology.

4.7.6 Data Triangulation

According to Lincoln and Guba (1985), the processes of triangulations play a crucial role in proving the trustworthiness of the study through data triangulation, conceptual triangulation, and methods triangulation. In this study, triangulation was achieved through the collection of data from Africa University's selected management, academic staff, and support staff. The use of multiple methods of data collection which included interviews and document analysis ensured that triangulation was achieved. Conceptual triangulation in the study was achieved through the use of the theoretical frameworks in the interpretation of the phenomena. The study used ANT as theoretical framework and used the theory's translation process through the four stages of problematisation, interessment, enrolment and mobilisation to interpret the findings of the study, to understand how the implementation of an e-learning policy by a university in a development context influenced the integration of technology for flexible curriculum delivery. Conceptual triangulation in the study was therefore achieved through the development of an ANT inspired Framework for Technology Integration (AFTI) (Fig 9.1, Chapter 9) which can be adapted by HEIs in developing context. Korstjens and Moser (2018) emphasized the need for critical readers to scrutinize the study report. During the course of the study, the researcher engaged fellow Ph.D. candidates, academics, and supervisors who provided constructive feedback on the research process and content.

4.8 Ethical Considerations

Ethics are the rules or values of conduct that differentiate between right and wrong (Resnik, 2013). Ethics are therefore essential for distinguishing between acceptable and unacceptable behaviours while conducting a research study. The study is based at a university, and it involved human participants, therefore ethical protocols were adhered to. Maxwell (2013) noted how well-established ethical

principles can be used to overcome challenges inherent in qualitative research, these include anonymity, confidentiality, and informed consent. This position is supported by Eynden & Brett (2010) who concur that the two most important guiding principles of research ethics are informed consent and the protection of research participants' identity.

To avoid the infringement of participants' rights the study followed the protocols of the Cape Peninsula University of Technology Research Ethics Code, the Faculty Research Committee, the Faculty Ethics Committee involving human subjects, and as well as the Africa University Research Ethics Committee, (AUREC). Ethical clearance was sought from both institutions to ensure that the research process did not cause any harm to the human participants as well as to protect their dignity. To reach the targeted participants, permission was sought from the Africa University gatekeepers, who facilitated the researcher's access to staff and administrators. Participants were fully informed of the purpose of the study highlighting the voluntary participation nature of the study. The researcher also assured participants of their right to withdraw from the study, at any stage of the study. Consent forms were provided to potential participants to allow them to confirm or decline their participation in the study.
To ensure confidentiality and anonymity, participants' real names were not used in research writing, participants were referred to as 'participants'. However, due to the deliberate selection of other participants such as those in management, their anonymity might still be compromised through deductive disclosure (Kaiser, 2009). Data Sharing for Demographic Research[5] highlighted the following measures that must be used to reinforce participants' anonymity:

- ensure participants were fully informed of the study and what was required of them as well as how their contributions and the data will be used.
- participants were given full control over their data and the researcher deliberately hid material that could have compromised their identities.
- the researcher requested an autonomous individual who is familiar with both the system and the participants to read the study report, to ensure the anonymity of participants was explicit before sharing the data.

Guaranteeing participants' anonymity is crucial, the researcher must, therefore, endeavour to find an equilibrium between tinged descriptions and depth without compromising the quality of the study (Kaiser, 2009).
The interviews were booked to suit the participants' schedules. Thus, the participants determined the times, dates, and venues of the online interview. The protection of the rights and well-being of participants was of paramount importance to the researcher, to ensure that none of the participants would be exposed to harm in terms of reputation due to this study. The researcher made the necessary

[5] https://www.icpsr.umich.edu/web/DSDR/search/participants

efforts and commitments to maintain the privacy and confidentiality of the participants of the study and overall research ethics principles during both the data collection and compilation of this study.

4.9 Limitations of the Study

Lynch (2013) described limitations of the study as those characteristics of design or methodology that impacted or influenced the interpretation of the findings from the research. According to Yin (2004) qualitative studies tend to be subjective, however, to avoid bias the study followed the validity and trustworthiness protocols described above. Another limitation that is continuously raised in the findings of a qualitative case study is that they are generally not generalisable to broader contexts. However, Yin (2014) makes a strong argument that the findings of a case study can be transferred between two contexts if major similarities do exist.

The findings of this study may indeed be unique to a university in Zimbabwe, in particular, however, in the broader spectrum, it is an HEI in a developing context adopting technology for teaching and learning. Hence some similarities might exist, and thus transferability might be possible. The researcher's responsibility is "to provide sufficient contextual information about the field to enable the reader to make such transfer" (Lincoln & Guba, 1985). After reading the research findings HEIs in sub-Saharan Africa and other developing contexts may transfer the findings to their situation if they find the case described to be similar to their situation and the results relevant for their purposes.

4.10 Chapter Summary

The chapter discussed the methodology which was employed to collect and analyse data for the study. The critical theory philosophical orientation was expounded and motivated and the qualitative methodological orientation of the study was elaborated. Possible research study designs were deliberated, and the selection of the case study design was explored and reinforced for this study. The case studies enable an in-depth analysis of a small sample comprising twelve actors within the Africa University context by making use of data collection tools which include, semi-structured interviews and document analysis for triangulation purposes. The chapter further elaborated on the data analysis techniques used in the study, before concluding with issues of trustworthiness, ethical considerations, and limitations of the study.

The next chapter, Chapter 5 presents the findings of the document analysis. The Chapter through CDA foregrounds the attitudes and the views of policy actors in the integration of technology for flexible curriculum delivery in a university that is situated in a developing context.

Chapter 5

A Critical Discourse Analysis of E-learning Policy Documents

5.0 Introduction

This Chapter takes an in-depth analysis of the e-learning policy documents introduced in the university understudy during the interessment stage of the actor network in the integration of technology for flexible curriculum delivery. Within ANT, policy documents are non-human actors in the university network that have the capacity to initiate action. The interessment stage is the second stage of the translation process in ANT, where actors in the network show interest in the proposed solution, which is the integration of technology for flexible curriculum delivery. Chapter 7 provides more detail on the interessment stage and the introduction of the e-learning policy documents in the university network.

In this study, management was the focal actor or network builder in that it introduced the idea or solution of e-learning within the university network. As the network builder, management can strengthen its position in the actor-network in the interessment stage by acquiring the support of other actors as alliances. Thus, in this study, the policy documents which were an actor introduced as a network builder ally were also an Obligatory Passage Point (OPP) (See Chapter 3), which is analysed through CDA as emphasised by the Analytical Framework in Fig 3.2. In ANT an OPP channels the interest of university actors in one direction, thereby creating a translation process of e-learning that routinely run-in unison without case-by-case renegotiation (Bernsten & Seim, 2009).

5.1 Policy Documents Analysis

Using CDA, the chapter shows an analysis of the documents that address e-learning at AU to provide an in-depth understanding of the phenomenon under study. The documents were introduced to guide and enhance the integration of technology for flexible curriculum delivery in the university context. The documents to be analysed in this Chapter are:

The Continuing Education Policy – (in this study referred to as the E-learning Policy) is a document that provides the vision for flexible curriculum delivery within the university context, which highlights e-learning as a mode of curriculum delivery and provides guidelines and principles of e-learning as well as the role of actors in flexible curriculum delivery.

The E-learning Strategic Plan - a document that foregrounded the goals of the university in e-learning and technology-enhanced flexible curriculum delivery and the planned actions to achieve these goals.

Extracts that refer to e-learning in the two policy documents were deliberately analysed in order to unpack the role of policy documents as an actor in the integration of technology for flexible curriculum delivery. The policy documents are analysed using Fairclough's (1995) three-level model of CDA as highlighted in Chapter 3, and in Fig 5.1 below:

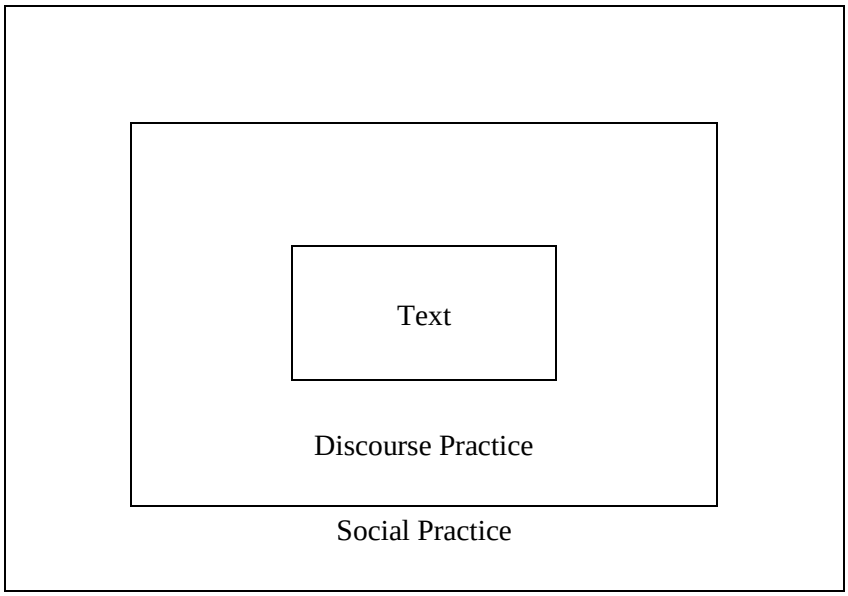


Fig: 5.1 Fairclough's 3 level Dimensions of Discourse Analysis (Fairclough, 1995)

In addition to a critical analysis, the policy analysis will consist of the three inter-related processes of analysis which are:

a) Text (description)

The way in which language works is highlighted by giving attention to text, as text is used to construct identities and social relations, and thus the method has special relevance to policy analysis as the text broadly refers to the content of the policy itself (Bell and Stevenson, 2006; Pinto, 2011). The analysis therefore seeks to bring to the fore text genres which (Thomson, 2005) described as follows:

- Confidence- the sense of something disclosed between people.
- Factual Information – presented as a fact, not to be disputed, objective
- Humour – funny, carefree, missing seriousness.
- Persuasion – urging or trying to coerce.

b) Discourse practice (interpretation)

The second level of analysis is the interpretative level, and the purpose is to interpret the "relationship between the (productive and interpretative) discursive processes and the text" (Fairclough, 1995: 97). The level will show how discourse endeavours to embed itself as the status quo, by becoming the standard through the groups of classes and linguistic functions it ensconces within texts, to characterize the way information, in this case, e-learning is communicated within the university (ibid).

c) Social-cultural Practice

The third level is the sociocultural practice level of the critical discourse analysis of the text which involves analysis of the social circumstances under which the text is formed, disseminated,

consumed, and understood (Kiersay, 2011). Fairclough (1995) describes the three aspects of the socio-cultural context which are communicative events: economic, political (power and ideology), and cultural to which social practice analysis pertains.

The analysis of extracts from the policy documents is organised into themes drawn from literature, as follows:

5.1.1 Contradictions in definitions

As the document that promotes non-conventional methods of curriculum delivery at the institution, the Continuing Education Policy which is generally regarded as an E-learning Policy within the university network (and in this study) gives definitions of the various modes of flexible curriculum delivery.

Extract 1

> *Continuing Education - the primary acquisition of knowledge and skill through instruction delivered using emerging technologies outside traditional learning hours and/ or semesters. Programs offered include degrees, professional development courses, short courses, and/or training courses.*

Descriptive Text Analysis

The definition describes continuing education as the provision of the curriculum using technologies outside of the constraints of time and period. The wording in the definition, therefore, infers that all flexible curriculum delivery in the institution would be delivered through technology.

Interpretive Discursive Analysis

The definition limits continuing education to technology enhanced flexible curriculum delivery. It infers the empowerment of non-traditional learners who prefer not to have limitations associated with time and learning period. The discourse of flexible learning is a growing trend in Zimbabwean higher education.

Explanation Social Practice

The definition takes on the global discourse of technology enhanced flexible curriculum delivery to adequately cater to the needs of adult learners. This mode of delivery is however new within the

Zimbabwean context and faces hindrances associated with infrastructural issues such as scanty, erratic electricity, and poor internet network associations.

Extract 2

> *Online learning and e-Learning- terms that have emerged to describe the application of information and communication technologies (ICTs) to enhance distance education, implement open learning policies, make learning activities more flexible and enable those learning activities to be distributed to many learning venues.*

Descriptive Text analysis

The policy gives the same definition to online learning and e-learning. ICTs are recognised as a tool that enhances distance education and increases the flexibility of learning activities through wider distribution. E-learning and online learning are also associated with open learning policies which infer flexibility which is normally not associated with not only time and place but also in the admission criteria although this is not explicitly expressed in the policy.

Interpretive Discursive Analysis

Online learning and e-learning as used in the policy infer the use of ICTs to support non-traditional students who learn through distance education. The definition of the two words infers the empowerment of non-traditional students by increasing their flexibility without time, place, and admissions restrictions.

Explanation Social Practice

The increase in flexibility provided through online and e-learning to adult learners in the Zimbabwean context is important given the increased demand of such mode of delivery in the country. Open learning policies are common in global discourse of continuing education for adult learners which allows increased flexibility where the learner chooses how, when and what to learn, as much as possible within the resource constraints of a HEI (Ezugwu et al., 2016).

Critical Analysis

The definition given to Continuing Education can be easily applied to online learning as it emphasises the use of technology enhanced curriculum delivery, yet the policy is supposed to cater for other traditional modes of flexible curriculum delivery in the university context including parallel and block release programs. Thus, according to the definition, all programs in the university context that are offered outside of the campus-based timeline should use ICTs as a mode of delivery. Continuing Education and Online learning and e-learning are given almost the same meaning in the policy as they all emphasize the use of technology for curriculum delivery.

To combine the meaning of online learning and e-learning within the policy is problematic since the university offers both blended and online programs as modes of flexible curriculum delivery and promotes the use of web-facilitated learning for campus-based programs. E-learning describes the use of emerging technologies in teaching and learning (Duan et al., 2010). Thus, whenever technology is used in learning, it is e-learning. Defining online learning and e-learning as one word therefore leads to miscommunication as actors within the university network might associate e-learning with distance education, a mode where there is no contact between instructors and students. Associating online learning policies with open learning policies in terms of a student determining how, when, and where to learn affects the admission, time, and duration of the study. This is also problematic in the university context as admissions and duration of the study for online programs follow the strict guidelines prescribed by Registry as indicated in another section of the same policy which states that Registry shall:

> *Enforce the same rules and regulations on Continuing Education students that governs the conduct of conventional student.*

The lack of clarity in the definitions might be a result of emphasising the global discourse of continuing education and online learning without trying to contextualise them to meet the needs of the institution. The misconception of the definitions in the policy shows lack of experience and rigour on the part of the e-learning policy developers in the university network.

5.1.2 View of flexible Learning

Flexible learning has been summarised by Li & Wong (2018) as a learner centred teaching and learning approach that revolves around the specific needs and preferences of the student. The approach therefore is planned and centred around the requirements of the student in the education setting. In the 21st century, technology has enhanced flexible learning with higher education institutions capitalising on the affordances of technology to increase students' flexibility in acquiring university programs.
The policy describes flexible learning as:

Extract 3

> *Flexible Learning - the provision of learning in a flexible manner; learning is built around the geographical, social and time constraints of individual learners, rather than those of an educational institution. Flexible learning includes delivering face to face training in the workplace or opening the campus longer hours, or organising weekend or long breaks or offering block release and parallel programmes*

Descriptive Text Analysis

The definition of flexible learning in the policy supposes the removal of place and time constraints for individual students. It emphasises face to face traditional modes of flexible curriculum delivery.

Interpretive Discursive Analysis

Flexible learning according to the policy is meant to accommodate students who have time and place restrictions, where the university must find ways to accommodate them by bringing the learning closer to them, providing block release and parallel programs thereby emphasising face to face traditional flexible curriculum modes of delivery.

Explanation Social Practice

The definition refers to the common modes of traditional flexible curriculum delivery modes that are common in the Zimbabwean context, as HEIs including the university under study in the country accommodate the excessive demand for higher education qualification through these traditional modes of flexible curriculum delivery, despite the affordances derived from technology enhanced flexible learning.

Extract 4

> *Preamble*
> *Higher education institutions are increasingly adopting non-traditional modes of delivery that focus on opening access to education and training for a large segment of society, which cannot afford to take the opportunity of traditional modes of learning. Africa University (AU) offers the highest quality educational experience to all its students, whether in the traditional mode of classroom instruction or in alternative teaching methodologies, such as online learning, flexible learning, and open learning that release learners from the constraints of time and place.*

Extract 5

> *Vision*
> *The vision for Continuing Education at AU is to be the premier provider of high-quality education courses and programs, using flexible learning modes to train and empower its students to become the future leaders of Africa in particular and the world in general.*

Descriptive Text analysis

The preamble and the vision of the policy shows the embracing of technology as a mode of curriculum delivery by the university to accommodate students who are usually learning and earning. The policy shows the university's confidence in the provision of quality education despite the mode of delivery used. The preamble also gives factual information on the benefits of online and flexible learning.

Interpretive Discursive Analysis

The text infers the discourse of openness in education to accommodate and empower adult learners. It emphasises the quality of education provided by the university which is an important aspect of higher education in the Zimbabwean context.

Explanation Social Practice

The policy emphasises the growth of adult learning not only in Zimbabwe but in the global context and the need for universities to accommodate the needs of students who face time and place restrictions. The policy also infers to the provision of quality educational programs, which is a very important aspect in Zimbabwe which is monitored under the higher education quality organisation ZIMCHE.

Critical Analysis

The conception of flexible learning in the policy is a very narrow and limited understanding of flexibility in curriculum delivery. Going back to the definition of online learning and continuing education in Section 5.1.1 the interpretation of the modes of delivery in the preamble of the policy creates contradictions of what technology enhanced flexible curriculum delivery entails in the university context leading to uncertainties in the implementation of the e-learning policy. Flexible learning in the policy is completely regarded in terms of traditional ways of accommodating adult learners (who are usually adult students who are working and learning) and does not take into consideration the affordances provided by ICTs in the 21st century. The definition is contradictory to the one given to continuing education and online learning in the university context, as both definitions emphasise the use of technology for the delivery and acquisition of knowledge and skills. These contradictions in definition might cause poor interpretation of the policy leading to poor implementation. Whilst continuing education and online learning seem to infer the empowerment of adult learners through the use of technology enhanced flexible curriculum delivery, the definition of flexible learning seems to promote the status quo which is the provision of traditional modes of curriculum delivery that are common in Zimbabwe which include parallel, evening and block release programs.

According to Ellington (1997) in Li and Wong (2018) instead of overly defining flexible learning individual institutions should develop the meaning of the mode of delivery when they develop and implement flexible learning. Since the introduction of the policy in the university context aimed to necessitate technology enhanced flexible curriculum delivery, the description of flexible learning in the policy should have been contextualised and articulated institutionally to ensure that it is relatable to the Zimbabwean and the broader sub-Saharan Africa contexts (Kirkpatrick & Jakupec, 1997). The developing context needs flexible education "that is responsive to learner and societal needs, available in multiple formats, through multiple delivery modes, in multiple timeframes and locations' (Veletsianos & Houlden, 2020: 850).

5.1.3 Widening access to university programs through technology

Globally, universities have taken advantage of the affordances provided by technology to broaden access to their programs by reaching out to potential students from all corners of the world. Online courses provide a market without borders for universities and colleges without putting pressure on on-campus infrastructure, whilst blended learning increases students' flexibility to learn when, and where, and how they choose, with the educators providing guidance in the learning experiences (Crawford &

Jenkins, 2017). The following extract from the e-learning highlighted the need to widen access though ICTs in the institution:

E-learning Policy (Extract 6)

> *The mission of Continuing Education is to increase access to high-quality university courses for its customers by utilising flexible learning modes, educational technologies, and emerging content delivery methods that reduce, and in some cases eliminate, the need for students to be in locations at set times to receive instruction.*

The strategic plan which was another policy document introduced in the university network to promote e-learning also stressed the need to increase access to education through ICTs as shown in Extract 7 below:

Strategic plan (Extract 7)

> *Online learning is a mode of delivery that falls within the broader concept of Continuing Education in which teaching and learning focus on increased access to education and training where barriers caused by time, place, and pace of learning are eliminated. The rise of the internet has brought about an academic revolution through online learning, where higher education institutions are enrolling massive numbers of students scattered around the globe in various courses and programs.*

Description (Text Analysis)

The policy documents describe ICTs as a medium of reaching out to more dispersed non-traditional students who will benefit from the unrestricted quality programs offered by the university. The statements instil confidence in actors as well as persuade them toward technology enhanced curriculum delivery.

Interpretation (Discursive type)

The statement places e-learning in the role of expanding the university's sphere of influence. The university's programs are depicted as of such high quality that they need to be accessed by as many people as possible. ICTs are regarded as an emancipatory tool in curriculum delivery for students who faced time, pace, and place restrictions in trying to acquire the programs offered by the university.

Explanation (Social Practice)

The statements show the educational progression brought about by ICTs in the 21st century which has led to the global growth of technology enhanced curriculum delivery to accommodate students who cannot be in traditional based learning due to commitments which include work or family. The emphasis of the statement is not however on the technology but on the quality of programs offered by the institution.

Critical Analysis

The increase in the demand for flexible programs in the Zimbabwean context prompted the need to reach out to more students and increase flexibility for students such as adult learners using educational

technologies for the university through the e-learning policy (Kandiero, 2015).The mission of online learning in the policy documents portrays social justice and equality in education. However, in a context such as Zimbabwe, the policy empowers very few people who are adult learners due to socio-economic challenges if they can afford both the university fees and the requirements of learning through educational technologies such as data, technological devices and a conducive environment. Mukeredzi & Kokutse (2020) have reported that learning has been described by some students in the Zimbabwean context as unaffordable, impractical, and elitist. This is also emphasised by the use of the term "customer" in the policy which depicts a business-oriented neo-liberal approach towards online learning by the university. According to Czerniewicz et al. (2021) the neo liberal discourse introduces language, norms, and other business practices, and the marketisation of higher education which lead to changes in education principles through the introduction of efficiency principles, with students referred to as consumers/clients. Such a discourse in developing contexts only serves to perpetuate economic disparities and inequalities. The view of ICTs as an emancipatory tool in the Zimbabwean context is also problematic given the infrastructural issues such as erratic electricity supply and poor internet networks associated with developing context (Sakala, 2019).

5.1.4 E-learning Training and Support

The introduction of e-learning within a university context must always be enhanced by continuous training and support for lecturers to ensure that they gain the required e-learning technical and pedagogical skills. According to Cross & Adam (2007) a huge number of lecturers find themselves in a position of academic flux characterised by a sense of volatility, indecision, overload, and in some cases hopelessness because of the changes introduced by ICTs in curriculum delivery. Elatihir (2019) therefore highlighted that the need for training lecturers in pedagogical and technological knowledge should be a huge part of continuous professional development, which could contribute to e-learning adoption, especially for those educators who resist the mode of delivery due to a lack of knowledge in the area. Both policy documents emphasize e-learning professional development in the university context as shown in the extracts below:

E-learning Policy (Extract 8)

i. *Working under the supervision of the Office of the Deputy Vice Chancellor, the Continuing Education Department shall exercise the following core functions:*
ii. *champion the development of improved student administration systems and other aspects of the University's online learning infrastructure, including the support provided by the staff to enhance Continuing Education production.*
iii. *identify eLearning technologies and pedagogy and recommend for implementation.*
iv. *assist academic staff with course design and course development for online and web-assisted courses.*

The strategic plan also stresses the provision of support and e-learning professional development of lecturers.

Strategic Plan (Extract 9)

Strategic Priorities

The foundations required to deliver the vision for flexible learning at Africa University are already in place, but a number of deficiencies must be addressed as key priorities. Through the support of Continuing education and ICT the University will:

i. *empower and support academic staff to develop and deliver effective approaches to teaching enabled by the innovative use of technology.*
ii. *enhance campus based and non-conventional programmes learning experience through more effective, integrated use of interactive technologies.*
iii. *support staff in developing and sustaining a core capability in online, distance education targeted primarily at high-quality programmes aligned to our academic strengths.*

Descriptive Text Analysis

The policy documents place the role of the department in charge of e-learning (referred to as the E-learning Department in this study) at the university to be that of assistance in technology enhanced teaching and learning programs at the institution. Words like 'recommend' in the policy give lecturers power in e-learning adoption and room to make their own choices. The role of the department is to assist, thereby giving lecturers the confidence, they need to adopt e-learning. The policy also encourages lecturers towards e-learning as they will be provided with the support they need in e-learning, highlighting the identity and engagement of the lecturer as an important actor in the mode of delivery.

Interpretive Discursive Analysis

The role of the lecturer in the statements is central. The power to choose and implement technologies for pedagogical purpose lies with the lecturers not the e-learning department whose role is to capacitate and guide but not control the development of e-learning resources. The department will empower and support lecturers to ensure they have the capacity to and confidence to develop content and offer effective online facilitation for blended and online programs.

Explanation Social Practice

The role of the educator is crucial in leading and facilitating learning in technology enhanced learning in all levels of education. The policy documents infer web facilitated learning for campus-based learning and blended and online programs for traditional modes of flexible delivery, whilst the use of technology enhanced flexible curriculum delivery is not common in the Zimbabwean context, it is a global educational trend in the 21st century. The policy extracts emphasise the role of the lecturer in the development of resources and the implementation of pedagogy for effective curriculum delivery and not the role of technology.

Critical Analysis

The text in the policy is highlighting the role of the lecturer and the proposed e-learning support. The buy-in of lecturers ensures their commitment to e-learning and their willingness to take part in any

strategies to support e-learning that are introduced by management. To counter resistance to e-learning, HEIs management must create commensurate educational policies to enhance the adoption of technology in flexible curriculum delivery (Ezegwu et al. 2016). Whilst both the e-learning policy and e-learning strategic plan have emphasised training and capacity building for lecturers in the required e-learning technical and pedagogical skills, the policy documents are silent on issues of resistance and proposed strategies to counter resistance of technology enhanced curriculum delivery.

The main purpose for the establishment of the e-learning department in the university network was to impart e-learning knowledge and skills to lecturers so as the equip them for their new roles as online facilitators. Thus, the capacity of the department to increase the adoption of technology enabled curriculum delivery and create an avenue or openness for change in academic staff will be dependent on the way the department contextualises its approaches and strategies to meet the needs of educators at the university. This has to be done whilst being highly cognisance of the various infrastructural and technological challenges in developing contexts in which the university is located. Becker et al. (2017) aver that in e-learning adoption, it is not technology that promotes education transformation but inclusive educational models and improved pedagogies which are supported by enablers and accelerators in the form of digital tools and platforms. Thus, for academic developers to provide effective appropriate support in a university network they must develop contextualised e-learning models and frameworks that are relatable to the beliefs of lecturers regarding flexible learning. That being the case the policy documents seem to be decontextualised and show no relation to the university context nor the development context in which it is located. Due to the generic nature of the policy effective integration of technology for flexible curriculum delivery might therefore be hampered.

5.1.5 E-learning as a Cost-Effective tool of flexible curriculum delivery

Traditional flexible modes of curriculum delivery in the Zimbabwean context are alternative modes of delivery that entails a university setting up sub-campuses in major cities and towns in the country to draw closer to students. A university will therefore incur costs such as rent for lecture rooms and office space as well as travelling and subsistence costs for lecturers. Technology enhanced curriculum delivery challenges the traditional delivery system as learning can take place, virtually, anywhere, anytime without the need for physical meetings leading to reduced costs of curriculum delivery for the institution (Al-fadhli, 2009). The policy recognises the cost effectiveness of using ICTs in curriculum delivery as shown in Extract 10 below.

(E-learning Policy) Extract 10

> *The ultimate focus of online learning at Africa University (AU) is based on fifth-generation distance learning in which curriculum development and pedagogical practices become drivers of new approaches to teaching and learning through advances in information communication technologies (ICTs) which have created space for these developments. ICTs, therefore, afford*

AU a cost-effective way to offer flexible learning to progressively more dispersed students across Africa and beyond, leading to increased enrolments.

Descriptive Text Analysis

The statement gives information on the role of technology as a mode of delivery. The statement foregrounds pedagogy and curriculum delivery before technology, thereby showing confidence in the ability of ICTs to necessitate effective learning and to enable increased access to diverse students.

Interpretive Discursive Analysis

The statement infers progression and advancement discourses in education and depicts AU as moving with the times. E-learning is considered to be a relatively cheap mode of curriculum delivery which means the university can afford to reach out to more students in Africa and beyond. The statement shows that e-learning has the capacity to strengthen the position of the institution in Africa.

Explanation Social Practice

In the 21st century, ICTs have progressively changed education through innovative curriculum delivery approaches. In the Zimbabwean context, the cost-effectiveness of e-learning could be realised on the part of the institution since the university had set up sub-campuses, one in the capital city and the other in a neighbouring country, Mozambique. Online learning allows the university to increase the accessibility of its programs and reach out to remote learners cost-effectively (Dhawan, 2020). HEIs throughout the world have reached out to students in far and remote places through e-learning. The statement, therefore, places university in the context of other global institutions that have managed to reach out to students in remote places of the world.

Critical analysis

The statement in the policy foregrounds the progressive power of ICTs in education as it infers the changes in curriculum advancement and pedagogical practices of distance learning which is driven by ICTs. The policy does not however expand on the implications or expectations of the 5th generation distance learning and how it is adapted in the unique context of the university. The policy taps into the 21st-century technology enhanced flexible curriculum provision discourse highlighting e-learning as a cost-effective way of curriculum delivery. It fails to unpack the insinuations of the mode of delivery in the university context to ensure the various actors of e-learning in the university network understand their expected roles and identity. According to the AAU (2020), the advancement of ICTs in sub-Saharan Africa over the past 20 years elevated the anticipation for a higher tech-level which would encourage a cost-effective technique of resolving the challenges of access to education. However, technology enhanced flexible curriculum delivery is not limited to the cost of offering education but also to increasing the quality and equity of university programs (Colbert, 2013).

The university might face challenges in garnering huge student numbers in online programs even though there might be a lot of potential students who would benefit from technology enhanced curriculum delivery in Zimbabwe and sub-Saharan Africa. As a private institution, the high fees charged by the university and the technical and environmental requirements needed to enrol for online learning might be a hindrance in the sub-Saharan context. However, the university can attract more students from all over the world thereby reducing the cost of delivery. The university might therefore disguise itself as a Pan African institution which is widening access and social justice discourse for potential students within the Zimbabwean context and the rest of Africa when in fact the focus of online learning is for potential students beyond the country and even Sub-Saharan Africa.

5.1.6 The role of Management in e-learning

Nihuka (2013) reiterated the importance of the supportive role of management in the successful integration of e-learning technologies in higher education, as management can provide the required conditions needed for successful technology enhanced flexible curriculum delivery. This includes policy, incentives, and resources, adding that the commitment of management is the most critical factor for effective implementation of e-learning. Management commitment and support can therefore facilitate the successful integration of technology for flexible curriculum delivery within a university.

Extract 11-E-learning policy: Deputy Vice Chancellor's Office

The DVC shall be responsible for the following:

- *Working with faculties, institutes, and the Continuing Education Department to promote innovative ideas to improve online program delivery.*
- *Promoting the desirable synergy among faculties/institutes, the Business Office, Registry, and the CE.*
- *Ensure academic credibility of programs.*

Description (Text Analysis)

The management's part in e-learning is emphasised in the policy with the role of the Deputy Vice Chancellor in the policy highlighting synergy between top leadership, faculties, the e-learning support unit, and other support units of the university although the ICT department as a support department is visibly missing. The statements instil confidence in the various members of the university as they are assured of management support thereby coercing them towards e-learning.

Interpretation (Discursive type)

The policy statements entail a discourse of management buy-in, with assured support from an executive office in the university for the integration of technology in curriculum delivery and the embracing of innovative ways of curriculum delivery. The statements do not depict power or authority instead they foster the spirit of unity and collaboration in the university setting.

Explanation (Social Practice)

Change is inevitable in education and management's role and has been highly regarded on the adoption of e-learning in HEIs (De Freitas and Oliver, 2005) and the credibility of online programs is important in the global education context.

Critical Analysis

The policy emphasises the synergy between actors through various departments within the university network. De Freitas and Oliver (2005) advocated for e-learning implementation through top-down approaches of management which emphasise policy and strategy development prompted by upper management and then proliferated through the organisation. The policy shows the dominant role of management in ensuring the adoption of technology for flexible curriculum delivery in the university network. Top-down approaches have however been associated with disrupting e-learning projects in HEIs Laurillard (2007). The policy however emphasises management working closely with the department responsible for online learning in the university context. Nonetheless, a top-down approach might be viewed as a forceful way of introducing technology in the university network leading to resistance amongst e-learning actors in the university context.

Management commitment in e-learning would be effective in a conducive environment. Zimbabwe is a complex context that has experienced economic crises for over two decades and this reality affects the implementation of new technologies in most of its economic sectors including education (Musiyandaka et al., 2011). The provision of essential resources such as connectivity and energy supply which are essential elements in online learning that the university management have very little influence over would inevitably affect the integration of technology for curriculum delivery in the developing context. Furthermore, the fact that the university is a private institution which does not receive any funding from the government affects the provision of online programs in the Zimbabwean context.

5.1.7 Bringing university actors together

According to a report by the AAU (2020) universities should hold consultations with various actors who include student, academic and non-academic staff in the university network to ensure buy-in and the appropriate choice for technological and connectivity systems as well as the adoption strategies. An e-learning committee that brings all actors together is therefore a suitable way to strategize and bring the views of all concerned actors together in a university network.

Extract 12 (E-learning Policy)

The E-learning Committee functions shall include to:

i. *collaborate with other University-wide units and committees.*
ii. *facilitate the development and promotion of Continuing Education programs and e-learning. support regular research on, and review of issues, challenges, and opportunities that might arise with respect to new and changing technologies learning technologies or modes of delivery, with a goal of making appropriate recommendations to the University with respect to these opportunities and challenges…*

The Committee shall comprise the following:

DVC-Chair, DCE Director: Secretariat, Director Research, Director ICT, or nominee, 1 member representing each Faculty/Institute, Registrar, representative from the Business Office, University Librarian or nominee, Quality Assurance Director, or nominee.

Description (Text Analysis)

The main purpose of the e-learning committee within the university context was the creation of unity of purpose over e-learning. The use of the words "collaborate" and "facilitate" depicts the wholesome, inclusive process of e-learning in the institution. This gives confidence to the various actors in the institution thereby encouraging them toward e-learning.

Interpretation (Discursive type)

The policy gives value and importance to all actors in the university that are represented in the e-learning committee. The committee gives decision making power to various actors in the university network ensuring the support of relevant units and departments in the institution.

Explanation (Social Practice)

The 21st century has seen continuous transformation and progress of educational technologies. The policy acknowledges this and puts in place the needed structure for development and advancement. In any context, successful e-learning adoption depends on the support of all departments in the university. According to Lin & Chen (2012) support of other members in the institution such as the human resources, finance, and technology divisions determines the success of e-learning in HEIs.

Critical Analysis

Committees are common in HEIs, Farris (2018) noted their ubiquity in universities where they are established as strategies that facilitate planning, communal governance, and administration, although committees are also infamous for their inefficiency. Whilst the idea of an e-learning committee might have been a noble one in the university context, the inefficiency of such groups in HEIs cannot be ignored. In a study of the attitude of university actors in committees, Farris 2018:231 noted that,

> *"*Participants confess that many, perhaps the majority, of professional staff assigned to committees exhibit what they characterise as typical committee behaviour; that is, not showing up, coming unprepared, being distracted by other work or personal devices, appearing, or acting disengaged, not responding to calls for volunteers to take on additional or voluntary work or not completing assigned tasks*".*

An e-learning committee does not, therefore, imply actor buy-in as the lack of motivation and enthusiasm by most members of the committee might lead to a few dominant voices determining the

route of e-learning in the university network. Without proper monitoring by management university committees may fail to contribute to the advancement of a university.

The policy is also conspicuously quiet on the inclusion of students in e-learning and the kind of support that would be provided, given the challenging socio-economic context the university is situated in. In addition, there is no student representation on the committee members outlined in the policy. According to Veletsianos and Houlden (2020) it is when students are regarded as relational beings and are honoured as such and collaborated with as such, that true flexibility in curriculum delivery begins. Thus, the voice of the students in the policy could have provided a realistic and all-inclusive ways of curriculum provision. The student who is the most important actor in online learning was rendered powerless in the policy. Thus, to be truly empowering the policy should be student-centric with clear guidelines on how students in Zimbabwe and sub-Saharan Africa will be supported in technology enhanced curriculum delivery as they are the most important actor in any education setting.

5.1.8 The need for an implementation framework

For e-learning to be effective a clear framework and objectives should be laid out within a university network. Nihuka (2013) emphasized the need for a defined institutional policy and strategic plan which would provide a framework for the advancement and implementation of e-learning projects. Strategic objectives provide the immediate implementation of e-learning in each period allowing the university to fulfil its goals step by step. Extract 13 below shows how E-learning Strategic Plan emphasised the need for an implementing framework.

Strategic Objectives (Extract 13)

> *The following strategic objectives are built on the strengths of Salmon's innovative and successful framework for the implementation of e-learning in Higher Education. When adopted at the university, faculty, and departmental level, they will provide a robust basis for the implementation of the University's e-learning strategy over the next crucial academic year:*
>
> *i. Promote creativity and innovation in learning and teaching.*
> *ii. Support and promote use of technology in assessment.*
> *iii. Support flexible delivery.*
> *iv. Support institutional strategies in learning and teaching, and inform e-learning developments in faculties/institute.*
> *v. Develop capacity for provision of e-learning and related support.*
> *vi. Provide student support.*
> *vii. Support monitoring, evaluation, and quality assurance*

Descriptive Text Level

The objectives set out in the strategic plan are deliberately action-oriented to show clearly how e-learning would be carried out in the targeted academic year. The objectives give confidence to targeted actors as they show the focus of the university on e-learning in the given period.

Interpretive Discursive level

The extract shows a clear framework of objectives to be fulfilled in the academic year, which depicts advancement and progression discourses in the university network, whilst at the same time seeking to empower the actors involved in e-learning in the university network. The policy views ICTs as a reformist tool which Aviram & Talmi (2005) describe as an ICT tool that can assist in promoting the right instructions such as constructivist, collaborative learning, etc. It can assist effective flexible learning through the provision of the required support for actors in the university network.

Explanation Social Practice

The extract refers to the Salmon innovative framework which is a framework that has been adopted or adapted in the global context in the integration of technology for curriculum delivery. Salmon developed an innovation framework 'that uses change practice for digitally enhanced learning strategies in universities based on a resource-based definition that matches what a university can make between its internal resources, structures, and skills, and the opportunities and risks created by its external environment which implies identifying an individual institution's core capabilities and strengths" (Salmon, 2014:221). In the global context e-learning frameworks have been used to successfully implement e-learning in universities. The objectives however show the e-learning strategy contextualised the needs of the university in terms of the support and skills needed for e-learning.

Critical analysis

One of the causes of e-learning failure in HEIS in the developing context has been the adoption of e-learning models that have been used in developed countries. As noted by Alkarang et al. (2013) e-learning implementation and operational models that are being used as yardsticks globally originated from industrialised countries were e-learning gained momentum earlier than the rest of the world. The extract infers that the framework to be used in the university is one established in the developed context, which creates challenges since different contexts and regions face diverse factors and hindrances to the adoption of e-learning compared to those identified in developed regions with varying gradations of force or significance (Alkarang et al., 2013). Nonetheless although Salmon's innovative framework was developed in a developed context it emphasises the need for HEIS to identify specific individual institutions' central competencies and existing strengths. By identifying its own strength, a university is most likely to come up with a contextualised e-learning model that would be more effective in the university network since it would consider the different needs of the university. Realistic pedagogical models that promote effective technology enhanced flexible curriculum delivery can be drawn from the strategic assessments and institutional policies set up by management leading to the success of e-learning (Mcpherson, 2007). Policies must therefore provide the ideal realistic models to be used in the university network. The extract shows the objectives of e-learning in the determined academic period. Whilst the e-learning strategy might show a clear pathway it is important that indispensable actors like lecturers in the university are motivated enough to take part in e-learning. Motivation can be sustained

by rewarding lecturers as they effectively adopt technology for flexible curriculum delivery (Stoltenkamp & Kasuto, 2011).Whilst the objectives are clear on the support and promotion in the acquiring of e-learning skills, there is no indication on how staff will be recognised and rewarded in e-learning to ensure they are motivated. Lack of motivation might derail the e-learning objectives clearly laid out in the policy documents.

5.1.10 Chapter Summary

The Chapter took an in-depth analysis of the E-learning policy documents introduced in the university under study during the interessment stage of the actor-network in the integration of technology for flexible curriculum delivery. Within ANT, policy documents are non-human actors in the university network that have the capacity to initiate action. The general language of the policy is meant to promote confidence in e-learning for actors in the university context. The analysis showed a general advancement, progression, and empowerment discourses with ICTs regarded as a reformist tool in the integration of technology for curriculum delivery. The policy also infers a more global context of e-learning.

The analysis showed contradictions in definitions that refer to online learning and flexible learning which might cause miscommunication and misunderstanding of technology enhanced flexible curriculum delivery in the university context. The analysis also revealed that the view of flexible e-learning does not necessarily define flexible learning in a developing context like Zimbabwe given its varied socio-economic challenges. The need to widen the access of university degree programs through e-learning was also highlighted as one of the main reasons to adopt e-learning in the policy documents despite the numerous infrastructural issues associated with developing contexts like Zimbabwe. The analysis also showed that e-learning training and support are emphasised in the policy documents although the documents do not show how issues such as resistance to technology enhanced curriculum delivery will be addressed in the university context.

E-learning is viewed as a cost-effective tool of flexible curriculum delivery although the policy does not show that, as a private institution, the cost of fees might still be too high for the majority of the poor people in sub-Saharan Africa. The role of management in e-learning is also highlighted in the policy documents, clearly foregrounding the top-down approach of the institution despite the fact that the approach might perpetuate faculty resistance in the university context. The policy analysis also showed that the policy sought actor buy-in by bringing university actors together in an e-learning committee. However, the most important actor in e-learning in an educational setting, the student, was conspicuously left out from the crucial decision-making agency. Finally, the analysis showed the need for an implementation framework and clear strategic objectives that enhances the adoption of technology for curriculum delivery, however the policy does not highlight the strategies to be used to ensure motivation of actors in the university context.

Whilst the policy documents were supposed to be essential actors in the integration of technology for flexible curriculum delivery in the university network, they seem to be too generic and decontextualised in that the discourse and language of the documents is more of a global view of e-learning that can be applied in any other context. The Sub-Saharan African context and Zimbabwe, in particular, have unique educational technology challenges, thus e-learning policies must be specific and deliberately contextualised to be truly impactful and transformational. The next chapters, Chapter 6, 7 and 8 will highlight the findings and discussions derived from the interview data which is classified according to the four phases of ANT's translational processes, problematisation, interessment, enrolment, and mobilisation.

Chapter 6

Findings and Discussion: Problematisation

6.0 Introduction

This study explored the trajectory toward the implementation of technology-enhanced flexible curriculum delivery for an African university in a developing context. Drawing from the data obtained from interviews this chapter is the first of the three chapters that answer the main research question:

How do the actions of various actors in a university network affect the implementation of an e-learning policy for successful integration of technology for flexible curriculum delivery?

As underscored in the Analytical Framework, on Fig 3.2 the three chapters address the research question according to the stages of the ANT translational processes: Problematisation, Interessment, and Enrolment and Mobilisation (combined) (see Chapter 3). The researcher was guided by the conceptual framework based on literature (see Chapters 2 and 3) to collect, analyse, interpret, and discuss the findings.

In the study, ANT is used as a lens to fully explore how an institution in a complex socio-economic developing context like Zimbabwe initiated and tried to establish technology enhanced flexible curriculum delivery as a mode of delivery in the university context. The empirical study has identified the following as the main human and non-human actors in the integration of technology for flexible delivery are: management as the network builder, lecturers as indispensable actors, support staff in the ICT Department and the E-learning Department, technology, which is comprised of data/internet, learning platforms, digital devices (computer, laptop, smart phones), E-learning policy documents (E-learning policy and E-learning Strategic plan) and finally, COVID-19 (See Chapter 2), the global pandemic which struck in 2020 during the translational process in the university network. The pandemic negatively influenced the global educational systems resulting in HEIs and schools closing in most countries necessitating emergency digitally enabled remote teaching (Khlaif et al., 2021).

As earlier explained, this chapter focuses on the initial stage of translation moment in which an actor or actors (referred to as focal actor or network builder) detect the problem and conceptualise a solution in a potential network (Latour, 1987). At this stage, the individualities and interests of other actors are clarified in support of the solution or idea being proposed by the network builder (Callon, 1986). Of the seven identified actors in the university under study, the most active actors at this stage were initially management and later on lecturers. Management was the focal actor or network builder of the university network. All the other actors except the E-learning Department, E-learning policy documents and COVID-19 were present in this stage. Thus, management took on the role of an e-learning initiator in the university network during the problematisation stage.

This Problematisation chapter is begins with the opening the black box in the university network, followed by the process of presenting the solution in the university network. Actor resistance follows before highlighting the of issue of faculty leadership dilemma.

6. 1 Opening of the black box

In ANT a black box is a group of entities that work together so seamlessly that they seem like one entity and usually develop as a result of a group of actors coming together and affecting each other through actions and translations (Panourgias, 2008). As highlighted in the section on "Background of the Context" (see Chapter 1), the university understudy had been running traditional flexible curriculum delivery programs since 2009. Magunje & Chigona (2021)) described traditional flexible learning modes in the Zimbabwean context as the creation of face-to-face intensive learning sessions for students who are normally working adult learners, who enrol for evening classes, block release programs and weekend programs (See Chapter 2). The traditional flexible curriculum delivery programs are the black box within the institution in this particular case. However, as argued by Cressman (2009) there will always be competing ideas and ingenuities that seek to open black boxes, as a result, all black boxes are leaky.

The university understudy had a change of management in 2014. The incoming management in the form of the Vice Chancellor and the Deputy Vice Chancellor (Head of Academic) sought to re-introduce e-learning not only for web-facilitated learning for campus programs but also for technology-enhanced flexible curriculum delivery. The aim of the new management was to change the mode of delivery from traditional flexible programs to blended and online learning programs. Thus, management sought to introduce e-learning as an innovative way of flexible curriculum delivery in the university context. To achieve this, change was required in the university context to introduce innovative ways of flexible curriculum delivery to replace what was already established (black box) in the university context. Thus, the introduction of e-learning in the university network entailed change that required the opening of an established black box of traditional flexible curriculum delivery. E-learning was therefore an innovation that was being introduced in the university as a mode of delivery. In ANT the network builder or focal actor analyses the situation, identifies, defines, and explains the problem and suggests a solution (Tatnall & Burgess, 2002). The following section presents the range of the problems identified by the network builder (management) after analysing the situation of the university network.

6.1.1 Cost as a problem for traditional flexible curriculum delivery

Similar to many other HEIs in Zimbabwe who strived to cater for the increased demand for higher education by adult working students and other students who chose to learn through flexible learning modes, the university understudy also offered traditional flexible programs (Nyanga et al., 2012). Although the institution had introduced e-learning as early as 2005 with the establishment of a LMS and engaging educational technologies personnel, e-learning was not a mode of delivery adopted on a

large scale within the institution (see Chapter 1). Rather faculties ran traditional flexible curriculum delivery programs, as espoused by the participants below:

> *We had programs that were running in Harare, we had programmes that were running in the town campus, which is a bit apart from the University, we had programmes that were running in Chimoio, so initially, we used to drive over the weekend to Harare and meet our students on selected weekends.* ***(Participant 3)***

> *Basically, our experience was that we experimented from the beginning, we were the first college, the first faculty to start with the parallel programmes umm when management wanted to increase the student numbers, we discovered that we were doing part-time courses… but we discovered that most of our students were coming from places like Harare and then we decide to go there.* ***(Participant 4)***

The institution ran off-campus, face-to-face programs (from around 2009) as is common in the Zimbabwean context. Participant 3 and Participant 4 are part of faculty leadership of 2 different faculties and they both portray their dominance in traditional flexible curriculum programs in the university context. Participant 4 identifies his faculty as a pioneer and leader in initiating traditional flexible modes of curriculum delivery in response to the need to increase student enrolment within the university at that particular time. Thus, faculties established sub-campuses in the capital city of Zimbabwe, Harare (350km away), as well as in Chimoio in Mozambique (the university is located in a border town and Chimoio is 100km away) to capitalise on the potential of huge numbers of students enrolled in parallel, block and/or weekend programs. As a result, the faculties display a discourse of power and control in traditional flexible curriculum modes of delivery within the university. In running these programs, however, the university had to incur extra costs as highlighted by the participants:

> *With the Campus (based programmes) we would finish teaching during the day then evenings we would go and teach in the evenings (in the parallel programs)…Then eventually, with the new VC, even the new Deputy Vice Chancellor came they started analysing the costs of going to Harare and then it was discovered that no why don`t we do a blended method, we, we reduced the visits then part of it is done online, part of it is done physical whilst we were transition towards completing online umm way of teaching.(****Participant 3)***

> *I remember the then Vice Chancellor kept saying, "Well, why do you need to go to Harare to teach a class? You could teach your class here together with the class in Harare if we are using eLearning technologies".* **(*Participant 4)***

Management as the network builder, therefore, identified high cost as a problem associated with traditional flexible learning programs that were run off-campus. Alkharang & Ghinea (2013) noted how e-learning leads to reduced cost of curriculum delivery specifically for costs related to instructors' travel and subsistence costs, and classroom rentals. Thus, management construed that technology-enhanced flexible programs would reduce and/or eliminate the need for off-campus structures and the travel and subsistence costs the university had to incur for lecturers who taught in these programs. Participant 4 also shows how the network builder, management, advocated for e-learning as an "idea or solution" from an economics point of view in the university network, by proposing that a lecturer could teach a campus-based class and an off-campus class simultaneously through technology thereby reducing costs. According to Worthington & Higgs (2011) there has been an increase in universities to lower costs through "economies of scale (average costs decline with output)". The cost of running a traditional flexible curriculum was therefore a problem the network builder analysed and identified in the university network and e-learning was proposed as a solution.

6.1.2 Restricted enrolments in traditional flexible curriculum modes

The second problem identified by management as the network builder was the fact that traditional flexible curriculum programs restricted enrolments to those towns and cities where the university had set up off-campus sites. Thurab-Nkosi (2013) and Ng'ambi et al. (2016) observed how globally, HEIs are modifying their practices to fully exploit the affordances of changing technologies through the development of online and blended courses and programmes to increase access for students, minimise classroom time and stay up to date with emerging technologies in education. Technology-enhanced flexible curriculum delivery in the university network was therefore proposed as a solution as the university would increase enrolments by creating a borderless university by reaching far-off students through technology. This is highlighted by the following participants:

> *But as an institution as a whole, I think much of the trigger came from the fact that trying to get more students on board in terms of recruitment meant some form of expansion virtually. And I'm sure the virtual side was the one that meant the battle of e-learning as a body so that the student body can be expanded using the same resources and the same space.* ***(Participant 7)***

The participant highlights how the need to increase student enrolment in the university network triggered e-learning. With traditional flexible curriculum modes, the university could only access potential students in those areas that the institution was able to set up off-campus structures and not beyond. Thus, the network builder, in the form of new management, proposed technology-enhanced curriculum delivery as a solution that would increase student enrolment within the university network through online programmes. Students could be spread all over the world without stretching the university's resources such as accommodation, classrooms and lecturers required to house and teach

them (Crawford and Jenkin, 2017). Participant 7 uses the term "battle" to portray the tension and power play and the introduction of the "innovation" which is the technology-enhanced curriculum delivery brought into the university network even at this early phase of the problematisation stage. Management's advocacy to increase students' enrolment through e-learning was also financially oriented. The fact that management justified e-learning on economies of scale is emphasised by the participant:

> *So, it was sort of like to get the recruitment higher and also improve the number of students that would benefit from a single lecture rather than having ten students benefiting from one lecturer because of proximity but you know, lecturers have different expertise. So, it was more like having someone's expertise being harnessed by more people than those that could fit in a geographical area.* ***(Participant 3)***

Thus, management construed that through technology-enhanced flexible curriculum delivery the university could deliver online courses to increased numbers of students at a lower cost per student (Barack, 2014).

6.1.3 Limited flexibility for students in traditional flexible modes

Another problem the network builder identified that was associated with traditional flexible curriculum delivery was the limited flexibility offered to adult learners in these programs. For adult learners, e-learning is an ideal mode of delivery as it provides them with access and much-needed flexibility in learning as one does not need to stop working, nor leave the workplace to pursue further studies, one can still access personalised, flexible, and distinguished focus on learning requirements and instruction (Bates, 2001; Bates & Sangra, 2011). The following participant highlighted that:

> *So, he (Vice Chancellor) kept pushing everyone to say we need to adopt e-learning. We need to visualise our institution as having a strong e-learning component so that we capture those persons who want to learn in our flexible systems and also those who will move away from the conventional system to the eLearning system. And also, to bring in flexibility so that students can access learning materials at convenient times to the learner and so there was that convenience and also, we need to capture the market ahead of other universities, the eLearning market.* ***(Participant 7)***

The participant shows how the network builder advocated for e-learning based on increasing flexibility, especially for adult learners who are usually adult working students. Online learning allows students to work anywhere and anytime, whilst in traditional flexible curriculum delivery students have to leave work, family, and other responsibilities to attend classes during a block session or travel to the closest off-campus for a weekend or parallel programs which are associated with long and tedious classroom times. The life-changing educational opportunities and benefits provided by online and blended learning

are that adult students can succeed in an arrangement where they work, study, and attend to family responsibilities (Duate and Craven, 2016). Management, therefore, proposed the possibility of increasing the flexibility of these students through online learning, with the hope that more potential students would prefer online programs leading to increased student enrolment in the university network that would allow the institution to dominate and lead in flexible learning enrolments within the Zimbabwean context.

The use of the word 'push' by Participant 7 shows how other actors in the university network regarded the network builder as using force and power as it tried to impose e-learning as a "solution or idea" in the university network. The use of the word 'markets' infers a business-oriented, a neo-liberal discourse of providing e-learning as a solution within the university network. In other words, management still considered e-learning in terms of economic or financial benefit that could be gained by the institution and was not averse to using its hierarchical power to achieve its goals.

6.1.4 Traditional flexible curriculum delivery as an outdated mode of flexibility

Lastly, the network builder (management) regarded traditional flexible curriculum programs as an outdated way of offering flexibility to students in the 21st century. Due to the shift towards e-learning in the digital age, most HEIs now offer online courses and motivate academic staff to integrate technology into courses as people aspire to be able to learn and work anywhere, with continuous access to learning resources and to each other (Chigona and Dagada, 2013; Becker et al, 2017). Thus, the participant reflects on this as the management's motivation:

> *My memory now, I don't – I know two aspects. One, there was the normal pressure from the development of education nationally in all the institutions, the world, the application of technology and so forth. There was a need for people to also be at least at level or better in terms of using technology. And the administration felt like our staff members needed to pick up the pace and enter this technology thing. (**Participant 4)***

The participant statement shows how the management used the global ubiquity of technology adoption as one of the reasons the idea or solution of e-learning was important in the university network. As a result of the advancement of the information society, the university community needed to move towards technology-enhanced flexible curriculum delivery so as to acquire the required skills for the 21st century. E-learning adoption in the Zimbabwean context faces challenges such as inadequate ICT infrastructure, insufficient, scanty, and unreliable energy supply, inadequate investment capital and inadequate digital literacy levels among other socio-economic related issues (Sakala, 2019). Nonetheless, the network builder sought to drive the institution toward the global discourse technology enhanced flexible curriculum delivery as technology has become the greatest innovation in education in the 21st century (Duan *et al.*, 2010). Asunka (2014) argued that despite the challenges of e-learning

in Sub-Saharan Africa technology is still regarded as the answer to quality and access problems in higher education.

6. 2 Presenting the Solution in the University Network

To establish and ensure acceptance of the idea of technology enhanced curriculum delivery as a solution within the university context in the problematisation stage, the university management especially the Vice Chancellor, communicated with all levels of university management. This included the University Board and the Senate to ensure they became alliances of the proposed solution thereby guaranteeing that e-learning is adopted as an institutional strategy.

> *It has to be the prerogative and priority of the top leadership. ….. So, the board itself, the senate itself, so I think it is, it really has to be adopted as the strategy, institutional strategy, the first institutional strategy is a priority. So, unless and until that is that happens, it will be difficult.* ***(Participant 7)***

The participant commended the level of commitment of management as the network builder in trying to ensure the idea of e-learning was embraced in the university as an institutional strategy by initiating the communication of the idea from the highest university administration boards. Altunisik (2012) raised the important issue of the role of management in e-learning implementation when he pointed out the importance of HEI leadership to articulate the intended direction and plans of the university, highlighting the role of management in aligning the people within an organisation with the vision of the organisation. Thus, in this case, the university management sought to align the vision of the institution in e-learning, starting with the highest decision-making boards in the university community and moving down to operative actors in the university network:

> *We really needed buy-in from the academic staff, the faculty, the lecturers and their leaders, their academic leaders, the teams, and directors. Those were critical in terms of getting on board. The technology side, the ICT guys had already warmed up to the idea, they did not have a problem because that is another critical stakeholder. (****Participant 7)***

As a member of the management team at the institution, the participant highlighted the importance of buy-in from various actors in the university network. Participant 7 shows that the ICT department was already an alliance of the network builder in the university network. Thus, the role of the network builder at this stage was to have all the other heterogeneous actors in the university network understand the proposed solution despite their differences. E-learning is a complex issue in HEIs, and its introduction within a university implies high level of institutional and individual transformation in teaching practice, which needs to be cautiously managed using suitable organisational strategies besides the provision of technology (McPherson & Nunes, 2008). Management as a network builder, therefore,

needed the buy-in from actors so as to fulfil the goal of achieving technology-enhanced flexible curriculum delivery. Another participant highlighted that:

> *The leaders had to really you know, sit them (actors) down and make it clear to them that the university, there are certain processes in the university that had to change. Then the academic staff, it was a matter of continuous engagement in different fora, you know in Senate, in Cabinet, in many meetings that the university leaders, especially the VC, he would take the opportunity to explain the importance of eLearning and to impress on everyone that change was coming and that change needed people to have skills in online learning and online teaching. (**Participant 3)***

Management network builders expected to convince other actors within the university network to adopt technology as a mode for curriculum delivery. The participant shows that the process involved constant relentless communicating and coercing of various actors in different university forums. The language of the participant shows that management used both factual information and persuasive language as it sought alliances among actors in the university network by continuously emphasising the inevitable change toward e-learning and the importance of acquiring e-learning skills. Management first sought the buy-in of the universities highest decision-making boards which included the university Cabinet and the Senate. With the support of these important stakeholders in the university context, management would be able to mobilise not only the resources, but the power needed to enable the adoption of e-learning in the university context. Cardona-Román & Sánchez-Torres (2016) observed that technology enhanced flexible curriculum delivery implementation needs a series of essential activities and organisational changes that are suitable for the operation of an online education system that goes beyond the teaching and learning process on the technological platform. Management therefore deliberately sought to introduce e-learning as a solution in different university forums so as to entice and prepare heterogenous actors in the university contexts toward the mode of delivery. The participants show the persuasive ways management used in the university context:

> *And of course, the carrot that he kept dangling was that "I'm willing to raise resources to support eLearning and to facilitate it and to provide for the technological needs for eLearning." **(Participant 7)***

> *And then the carrot side included, you know, there was a programme to give support equipment like laptops and I-Pads. I remember it was conceived at one point that those who will be eLearning champions will get that kind of support and that motivated some people to want to … **(Participant 3)***

It is apparent that the Vice Chancellor (VC) was a key actor in the university network. The participants show how the VC used persuasion in his bid to seek alliances toward e-learning as a solution in the university network is apparent. Management displayed its willingness to invest in e-learning to show the commitment of the university to technology-enhanced curriculum delivery. The participants describe the provision of technological devices as 'carrots' to entice lecturers towards e-learning and as a way to encourage early partakers of e-learning. However, Sife et al (2007) highlighted the need for university management to be at the centre of e-learning to ensure adequate provision of required conditions that are needed, such as policy, incentives, and resources. Management as the network builder was, therefore, willing to invest in technology so as to promote the integration of technology for flexible curriculum delivery in the university context.

The findings indicate management initially used coercion language as a means to encourage the adoption of e-learning in the university context. Whilst the findings show that management addressed and communicated with various departments and actors in the university context, the main focus of the communication and persuasion was on lecturers. Lecturers are an important actor in a university network and are described as indispensable actors in ANT (Cresswell et al., 2010). According to Aung and Khaing (2015) convincing lecturers to accept e-learning is very important as they need to change their perception of the mode of delivery. At this stage, lecturers were encouraged to start seeking e-learning related assistance from the Educational Technologies' unit in the ICT department and to post at least a course outline on the university LMS (Moodle), especially for traditional modes of flexible curriculum delivery programs offered in the university. Thus, agency towards e-learning was expected from all lecturers in the university network. However, despite all the efforts of the network builder, in this case, the university management, e-learning did not take off as would have been expected in the university, as actors, such as faculty management lacked the required knowledge to lead e-learning and lecturers resisted the solution and initiative of e-learning in the university context.

6.3 Actor Resistance

The efforts of management were faced with resistance from mostly lecturers who were indispensable actors in the network that management as the network builder was trying to build. Ogunlela and Ogunleya (2014) asserted that one of the main challenges of the integration of technology for curriculum delivery in HEIs is the fact that they must contend with a lukewarm reception by stakeholders and sometimes outright rejection. In the implementation of e-learning at a HEI, ANT provides an approach that can be crucial in assisting researchers to appreciate the density and flexibility of reality (Creswell, 2010). Instead of looking at only the positivity or end-product of the introduction of an innovation in a university network, ANT enables the analysis of the tensions that arose at the different stages of the translational process. Thus, ANT allows for the unveiling of hidden conceptions that are normally

neglected by research methodologies that assume a more direct and causal approach to the study of the employment of technology in various social settings (ibid).

6.3.1 Rewards and Incentives

Lecturers are indispensable actors in the integration of technology for curriculum delivery and enrolling them is paramount to the success of e-learning initiatives in a university context. According to Sukumaran (2019) for e-learning to be successful lecturers must accept the mode of curriculum delivery as its success depends greatly on their reception and willingness to accept change in teaching and learning. Thus, acceptance is an expected role for lectures as actors in the university network. However, the fact that the network builder proposed e-learning as a solution in the university network did not entail that all other actors in the network would readily get onboard. The following participant noted that:

> *Yes, the input of the lecturers into the mechanics of the e-Learning was crucial but obviously, there was resistance in the beginning because travelling made money, so the possible loss of income such as Travel and Subsistence allowance for overnight accommodation caused a lot of resistance in the beginning.* ***(Participant 4)***

Participant 4 who is part of faculty management highlights how the adoption of technology-enhanced flexible curriculum delivery was initially resisted primarily because it affected the socio-economic status of lecturers who were benefiting from substantial travel and subsistence allowances they received from the institution every time they travelled to teach in parallel and weekend programs. E-learning entailed the loss of financial benefits for lecturers. Since one of the problems raised by management that necessitated the adoption of e-learning was the need to cut costs on travel and subsistence which was a benefit to them, lecturers perceived from the position of management that e-learning would not directly benefit them. According to Cook et al. (2007) when teaching in e-learning programs, lecturers should be intrinsically motivated to assist students, but they also have to fulfil their physiological needs. Ali & Magalhaes (2008) argued that educators are unlikely to use something they disapprove of, and acceptance of technology depends on how much of these new innovations and practices are entrenched in the general organisational culture. Rewards were therefore an aspect that was paramount within the university culture that the network builder should have considered.

6.3.2 Lack of e-learning knowledge and Skills

Despite the intensive advocacy for e-learning at the university by management, there was a lack of comprehension of e-learning among lecturers which led to resistance. Introducing technology-enhanced curriculum delivery requires the equipping of lecturers with an advanced set of skills and attributes that go beyond subject-specific knowledge, to meet the possibility of successful online delivery that enhances adult learning and promotes the development of higher order cognition skills in students

(Martins & Nunes, 2016).The lack of e-learning knowledge and skill, therefore, led to resistance in the university network as highlighted by the participant below:

> *That's why I was telling you that at that time, some of our colleagues resisted because they did not understand exactly what was going on you see, yes.* ***(Participant 5)***

The participant's statement shows that despite the various communication about technology-enhanced curriculum delivery by management as the network builder there was resistance from lecturers as actors in the university network. Participant 5 attributes the resistance to e-learning on the lack of knowledge and skills in e-learning as a mode of delivery which rendered lecturers powerless, triggering the need to fight for the status quo which was the traditional face-to-face teaching method. Therefore, despite the extensive advocacy for e-learning by management, lecturers still lacked understanding of the mode of delivery which led to resistance. In other words, lecturers felt insecure and ill-prepared to adopt e-learning because they lacked the necessary pedagogical practice and support that would empower them to teach online. Ali and Magalhaes (2008) observed that there are presumptions by academic staff that e-learning creates more challenges than benefits and their lack of knowledge on the use and application of technology leads to resistance. Thus, resistance to e-learning in the university network could be attributed to the fact that management did not emphasise pedagogy as it introduced e-learning as a mode of flexible curriculum delivery, but rather emphasised the financial benefits of e-learning to the institution.

Because the teaching and learning process of e-learning was not emphasised, lecturers were not certain about what was expected of them as shown by the following participants:

> *It was still something that was completely new to us and the way it was being cascaded from the top management to the faculty level it was not that very clear and we were still living in the dark you know in the doubt whether this programme was going to work or not.* ***(Participant 2)***

> *Some lecturers understood e-learning but most of us were still doubting. We were saying this thing will never work, I think that's because of the way it was introduced. It did not come clearly from the top management to the faculty level.* ***(Participant 11)***

The participants' utterances show that although a few lectures understood e-learning the majority of them lacked clarity on e-learning and were sceptical of the mode of delivery. One of the participants, Participant 2 described the lack of clarity as "dark" portraying the depth of doubt and powerlessness lecturers felt in the problematisation stage of the ANT's translation process as e-learning was introduced by the network builder. Salmon (2005) noted that without intense comprehension of the reasons behind and the impact of e-learning in terms of quality and any resultant benefits, educators are logically reluctant to change their approaches to instruction and learning and most lecturers who have not been

exposed to e-learning largely regard it as a technical 'solution' or a solution to a financial problem rather than pedagogical innovation. Thus, poor comprehension of e-learning led to resistance in the university network. Both statements from the participants show there was a lack of confidence in e-learning among lecturers in the university context with lecturers blaming the state of affairs on the imposition of e-learning and the lack of a proper and clear mode of communication between top management and the faculty.

Most lecturers have spent the majority of their teaching in face-to-face modes of instruction; thus, e-learning is a novelty that they were not comfortable with, and they needed thorough grounding before they could unilaterally accept the mode of delivery. This is corroborated by the following participant:

> *By now everybody is thinking of Moodle, everybody is now on e-learning, and I failed and not just me, I thought that there was a gap in the way e-learning was introduced to people who have been used to certain approaches who now had to adopt e-learning, I felt there wasn't adequate capacity building on this person (the lecturer) who must learn this something new* ***(Participant 1)***

Participant 1 statement shows that the introduction of technology-enhanced curriculum delivery without adequate capacity building left some lecturers powerless as they felt they were not equipped with the e-learning skills and the required knowledge to work on the institutional LMS. The fact that the participant links e-learning to Moodle, the institutional LMS shows participants' limited understanding of e-learning. It is not surprising that lecturers only spoke about the lack of technological skills one needed to acquire and did not consider the pedagogical skills required for effective facilitation and learning in this mode of delivery. Equipping lecturers with e-learning is a complex task which does not only mean imparting computer technical skills but essential pedagogical knowledge (Voogt and Knezek (2008). Participant 1 felt that management failed to provide training and went on to impose the new mode of delivery without providing the required technical skills. The participant was not even aware of possible pedagogical knowledge and skills needed to implement e-learning successfully. Management was, therefore, setting up lecturers for failure despite their crucial role as indispensable actors in the integration of technology for flexible curriculum delivery in the university network. Thus, in this case, some lectures shunned away from e-learning, not because they were resisting but because they were not fully capacitated to adopt technology for curriculum delivery.

6.3.3 Negative attitude to a top-down management approach

Commitment to e-learning adoption by management is important as their support is crucial in the progression of the new mode of delivery in a university context. King and Boyatt (2014) reported on the need for clear leadership, shared vision, conducive culture, and quality support to ensure extensive adoption of an innovation, like technology-enhanced curriculum delivery within a university. However,

the leadership approach adopted by management may propel or hinder the integration of technology for curriculum delivery. Whilst some scholars advocate for a top-down leadership approach (De Freitas and Oliver, 2005), some view it as a hindrance to effective e-learning adoption. Laurillard (2006) however, argued that a top-down management structure is hostile to efficacious innovation because management lacks the required knowledge of the pedagogical practice. The participants below infer to a negative attitude of lecturers toward the top-down approach adopted by the network builder in the university network:

> *When you started the thing at your level there, still when it was coming down, the way the message was being brought to us, it was like a coercive way of doing things, they were not explaining it clearly…* ***(Participant 5)***

> *So, they'll (lecturers) just say this guy is too zealous for nothing, let's just weigh him down. He's going to you know at the end of the day he's just going to drop the issue…* ***(Participant 12)***

Whilst Participant 5 acknowledges that the language used by the network builder, management, was coercive, he still thought it was a top-down approach that lacked clarity on how e-learning was to be implemented in the university network which might have perpetuated resistance within the university context. On the other hand, Participant 12 shows how the lecturers in their identity as indispensable actors in the university network used resistance as a calculated move in reaction to the solution of e-learning proposed by the network builder. Participant 12's statement infers that lecturers as actors sought to derail the adoption of technology-enhanced curriculum delivery in the university network. By resisting, the lecturers were exercising power over management's position on e-learning and hoping the Vice Chancellor would let go of the 'idea or solution' of e-learning as a solution in the university network, implicitly pointing to the negative response of the top-down approach adopted by management in the university network.

De Freitas and Oliver (2005) advocated for effective e-learning implementation through top-down approaches of management which emphasise policy and strategy development prompted by top leadership and then proliferated through the organisation. However, as already established, there was neither policy nor an instituted e-learning strategy in the university network during the problematisation stage of ANT's translational process in the university network. According to Backhouse (2013: 346):346), the successes of top-down institutional implementations in HEIs depend on "well-established and understood technologies" in a university context. However, in the university under study an LMS and an office in charge of e-learning 'tucked' within the ICT department, had been put in place 9 years prior to the drive for technology-enhanced flexible curriculum delivery. The attitude of the lecturers shows that even after such a reasonably long period of time e-learning technologies were

neither well understood nor well established in the university network. Fawns (2022) avers to the importance of pedagogically driven e-learning initiatives by highlighting that the imposition of technology in the university network through the establishment of centralised LMS before course-level decisions are made, often leads to poor adoption of technology for curriculum delivery.

6.3.4 Threats and force as the cause of resistance

Open conversations between management, faculty, and other support staff are important for the effective integration of technology in curriculum delivery. Nihuka (2008) pointed out that one of the many attributes to successful e-learning diffusion in HEIs is the need for open communication and a concentration on innovative curriculum delivery philosophy. In the university under study instead of open communication threats and force were used leading to a negative response. The participant below shares how management sought to impose e-learning in the university network by exercising power and using threats to enforce the adoption of technology by lecturers:

> *To tell you the truth at first, I also …. I was very sceptical because there were statements that were being made that you need to upload all your material on Moodle and next time when you are not there, we can just hire someone to come and teach and to give them your material to deliver. So again, that did not go down well with me so you'll find that most of the time we could not upload some of the material onto Moodle.* ***(Participant 2)***

The participant's statements shows there was a lack of trust between management and lecturers during the problematisation stage especially because of threats by management toward lecturers. Lecturers were made to feel they would lose control of their content and their jobs if they were not willing to adopt technology-enhanced curriculum delivery. However, this contributed to the resistance of lecturers' as they responded by refusing to use the institutional LMS, thereby exercising their own power as content experts and indispensable actors in e-learning in the university network. Mcpherson, (2007) noted how university leadership has the power to assist or hinder the implementation of technology-enabled flexible curriculum delivery through availing resources and requirements set out in administrative procedures.

Resistance to e-learning is common in HEIs. As noted by Khalil (2013) several lecturers often resist the use of technology in curriculum delivery in many HEIs. Resistance is in itself a form of power exercised by the lecturers within the university context. ANT assumes that every actor is active, no actor is passive, and all have some degree of agency, but this will depend on the extent to which an actor influence or resist the influence of other entities (Callon, 1991). Therefore, in the problematisation stage although lecturers did not get to say much in response to the management's "idea" of e-learning, by resisting they exercised their power which affected the integration of technology in the university

network. According to Foucault (1990:95) 'where there is power, there is resistance, and yet, or rather consequently, this resistance is never in a position of exteriority concerning power."

6.4 Faculty leadership dilemma

The success of e-learning is dependent on how it is embraced and supported by faculty leaders. According to Salmon (2005) to engage academics' staff in technology enhanced curriculum delivery, any strategy that is employed by a HEI should ensure that the ownership of both content and pedagogy, lies directly within faculties, recognising, however, that a wide range of support mechanisms must sustain continuous developments. The university network faced faculty leadership dilemma as shown in the statement below:

> *You could have champions of this eLearning; you could have people who were interested but as long as management didn't have that appreciation of what it means, nothing was really moving. There was no moving forward and therefore there was really a need to get all those administrators at the faculty levels first to appreciate what it means and that was one of the aspects that we thought it should be done* ***(Participant 4)***

> *In those years the college deans, I'm sure they were also wondering like us, they did not bring much. Let me talk about probably our own college dean then, I'm sure he might not have got much about what was going to happen, then he was also a student like everyone.* ***(Participant 5)***

> *From the college's side it – the support was – at first it was not so much (**Participant 12)***

The extracts from the three participants show that faculty management who were supposed to be enforcing e-learning in faculties were not confident of the proposed mode of delivery alluding to a contradiction within the university context. This was shown by a faculty dean who as part of management should have been instrumental in cascading the proposed mode of delivery in the top-down approach that the network builder was adopting. Participant 5 describes his faculty dean as being uncertain of e-learning and portrayed him as an e-learning student. The dean also had a lot to learn about e-learning whilst enforcing the proposed mode of delivery. As part of management, the dean felt powerless and lost in the face of the required change and his identity as someone who was supposed to be leading the change was compromised, which would affect the reception of e-learning by lecturers. Participant 4 who is part of faculty leadership highlights how the lack of understanding and appreciation of e-learning at the faculty level hindered the integration of technology for curriculum delivery. Faculty deans could therefore not lead or enforce something that they did not understand themselves. Thus, even if there were lecturers within the faculty who had already taken up or those who were willing to

adopt e-learning, the lack of support at the faculty level derailed their efforts. Participant 12 emphasises the lack of faculty support during the problematisation stage of the translational process. Thurab-Nkhosi (2018) highlighted that one of the major responsibilities of Deans in technology-enhanced curriculum delivery is the provision of academic leadership. Without faculty leadership and the resistance of lecturers to e-learning, tension between the network builder and lecturers as actors were inevitable in the university network.

Nonetheless, in ANT the tension between the network builder and lecturers as actors in the university network plays a crucial part in attaining stability among the chaos. The actors involved (management as network builder, and lecturers as indispensable actors) had to align their interests, as stability and social order are frequently negotiated as a social process within a context (Hanseth & Monteiro, 1998). Lecturers used resistance to exercise their power to express their views and open a forum of negotiation with the network builder. According to O'Neill & Whatmore (2000), the way agency is attributed and negotiated describes the translation process in ANT. Thus, the four translational processes of ANT namely, problematisation, interessment, enrolment and mobilisation bring to the fore how the complex series of negotiations were expressed and how identities were fought over, and roles ascribed as power relations were fixed in the university network (Ruming, 2008).

6.5 Chapter Summary

The Chapter analysed and discussed the findings of the first stages of ANT's translation process which is the problematisation stage. The stage provided a deeper understanding of the process of introducing technology-enhanced curriculum delivery as an innovative 'idea' or 'solution' in the university network. The high cost of running traditional flexible curriculum programs, limited flexibility for students in traditional flexible curriculum programs, restricted enrolments in traditional flexible programs and the fact that these traditional flexible curriculum deliveries were outdated in the 21st century were the problems identified by management as the network builder in the university context. As a result, management sought to open the established black box of traditional flexible curriculum delivery in the university network and introduced technology-enhanced flexible curriculum delivery as a solution in the university network. However, even though the network builder tactfully sought the support of actors by presenting the solution from the highest administration boards of the institution moving down to operative actors in the university network through factual and persuasive communication, the solution was met with resistance in the university network.

Lectures as an indispensable actor in the university network resisted e-learning because they felt the network builder did not address the issue of rewards in technology enhanced flexible curriculum delivery. There was also a dearth of knowledge and skills in e-learning among lecturers, who were also averse to the one-way top-down management approach adopted by management in introducing e-learning and finally the use of power and threats by the network builder to enforce e-learning

perpetuated resistance in the university network. The lack of faculty leadership within the university network compounded the tension in the problematisation stage. The Chapter shows that by resisting, lecturers exercised power in the university network, and by doing so they opened a forum of negotiation with the network builder.

The next chapter focuses on the interessment stage of ANT's translational process. The chapter will show how management as the network builder began to build the network and seek alliances by advocating and convincing other actors that their solution (technology-enhanced flexible curriculum delivery) is the most appropriate through negotiations. The focus of management in the interessment stage involves getting the other actors in the university network to behave in ways that would ensure the university offers technology enhanced flexible curriculum delivery programs.

Chapter 7

Findings and Discussions: Interessment stage

7.0 Introduction

This study traced the trajectory of the integration of technology for flexible curriculum delivery for an African university in a developing context. This chapter is the second chapter of the three chapters that attempt to answer the main research question, which is:

How do the actions of various actors in a university network affect the implementation of an e-learning policy for successful integration of technology for flexible curriculum delivery?

Drawing from the data obtained from interviews this chapter covers the Interessment stage which is the second phase of ANT's translational process. Chapter 6 covered the problematisation stage which highlighted the problems of traditional flexible curriculum programs in the university network, which the network builder (management) identified. Chapter 6 also brought to the fore the challenges the university network faced as a result of the resistance to the "idea/solution" of technology-enhanced flexible curriculum delivery, which nonetheless created a platform for negotiation between actors in the university. In ANT, hindrances are part of the translational process after the introduction of an innovation in the university network since actors start from different viewpoints. What sets ANT apart from other theories is that a network is derived from intricate, incompatible, dissimilar entities, which however later on form links at a greater price as a result of resolved tensions through negotiations (Latour, 1987). Thus, in the interessment stage, the researcher attempts to foreground how management as the network builder began to build the network and to seek alliances by advocating and convincing other actors in the network such as lecturers, technology, and support departments that their solution (technology-enhanced flexible curriculum delivery) is the most appropriate (Callon, 1986).

The chapter highlights the network builders' attempts to build the network by facilitating the establishment of an e-learning committee which was tasked with the formulation of an e-learning policy. Despite many challenges, in the process of formulation and implementation of the policy, an e-learning department was established in the university network. The e-learning department was instrumental in changing the perception of e-learning, especially for lecturers as actors in the university network as it designed the required learning interventions. The network builder then reinforced the role of technology as an actor by investing in technological infrastructure and devices in the university network. However, the university network faced further hindrances that threatened the effective integration of technology for flexible curriculum delivery in the university network.

7.1 The E-learning Committee and the E-learning Policy as an Obligatory Passage Point

Once management as the network builder had identified, defined, and explained the problem and suggested a solution in the form of technology-enhanced flexible curriculum delivery through blended and online programs, the next stage in the translation process was the interessment stage. The

interessment stage entails the network builder attempting to impose and stabilise the identity of the actants identified during problematisation (Callon, 1986). Management's focus in the interessment stage was to get the other actors in the university network to behave in ways that would ensure the university offer technology-enhanced flexible curriculum delivery programs. According to Rivera & Cox, 2016) during the translation process, an actor cannot exert control by itself, so it needs the support of other actors. Thus, as a first step, management as the network builder sought to introduce an e-learning policy as an actor that had the potential to enhance management's alliance in the university network as portrayed by the following participant:

> *That's why they at some point management realised that without the policy there's no way to enforce, there's no way to encourage people to get into that.* ***(Participant 9)***

As highlighted by Participant 9, the e-learning policy was an instrument to exercise power and enforce the adoption of technology for curriculum delivery in the university context. In terms of ANT, the e-learning policy was to be introduced in the university network as an Obligatory Passage Point (OPP). Management as a network builder, proposed the formulation of the e-learning policy to channel the interest of university actors in one direction and to create a translation process that routinely ran in unison without case-by-case renegotiation (Bernsten & Seim, 2009). Thus, through the e-learning policy, the network builder sought to impose its solution or idea through the OPP since problems in the university network would only be resolved if actors passed through the policy (Law, 1986).

According to Chikuni (2016), an institutional e-learning policy is an important internal factor for the effective embedding of e-learning in HEIs since it assists management in creating a common vision for e-learning that positively affects the development of e-learning in universities. The e-learning policy was therefore an important actor that would be an ally of the network builder that would strengthen the position of e-learning as a solution in the university network, as we can see from the following comments:

> *It was just "words" all the time, just trying to encourage people but there was no instrument that would guide how things were going to work, and not work, there was no clear policy on compensation. There was no clear policy on the amount of work that e-learning entailed although for the rest of the world universities were already using technology. So, all those questions were raised by staff members and at some point, the administration realised that there was a need for us to organise ourselves and that's what I remember prompting the need of the e-learning policy at that time*. ***(Participant 4)***

*It was to see how e-learning could be implemented or fostered at the faculty level and also, things like policies, priority areas, benchmarking so it was – ja, it was a process of trying to kick start this eLearning drive in the institution …… **(Participant 7)***

Policies in education are of paramount importance as they convey to academics and other actors, how and why an institution has foregrounded certain educational principles and practices (Alford, 2005). Both Participant 4 and Participant 7 show how the network builder's efforts toward e-learning were fruitless due to the lack of an instrument in the form of an e-learning policy to kick start and direct the adoption of technology for curriculum delivery. According to Rajaram & Peters (2010) without an e-learning policy HEIs face challenges in harnessing the affluence of knowledge of actors influential in the implementation of e-learning in a university context. Thus, despite the implication of buying in to the global discourse of e-learning, the participants show that there was a need for a contextualised e-learning policy that addressed issues such as course loads, incentives, priority areas, and benchmarking for technology-enhanced programs within the university context. For the network builder, the policy was therefore an OPP that would facilitate the interessment stage of the translation process in ANT.
To enhance synergy during the formulation of the e-learning policy within the university network the university management facilitated the creation of an e-learning committee. The committee had representatives from the various faculties, units, and departments from the university network. The role of the committee was to unify the various actors of the university to ensure that they collaborate and work together on issues about e-learning (AU Continuing Education Policy: Appendix#). A member of management highlights the need for synergy among actors through an e-learning committee as shown by the extract below.

*And so, there was a lot of that kind of resistance but when I joined the team, it was a time when we were developing the framework for continuing education and e-learning. During the formulation of the policy, we transformed the name to continuing education and the process included initially brainstorming to see what key things we would put in the policy framework and then we called in the key stakeholders, representatives from different units of the university from different schools, faculties and departments and we pulled them out of the university to a hotel in town so that they are away from everything else. And so, we had a very stormy, very active, very lively debate and so I was unfortunate to be the one chairing most of the sessions but – and then we came up with the inputs from the different units. **(Participant 7).***

The formulation of the policy in the university context was meant to curb e-learning resistance as it brought different departments and units of the university together (as a committee) which allowed different actors to conceptualise e-learning in different ways and plan how each entity would fit and contribute towards e-learning adoption. Participant 7 shares that the process was intensive with different

actors raising debates and arguments and negotiating their (new) roles within the network in the adoption of technology for curriculum delivery. By encouraging entities to interact around the development of the e-learning policy, they acquired qualities and took their form as they collaborate with other entities, thus, creating a network through negotiations and enrolment of participants (Nonaka, 2005). However, the committee had its own challenges as highlighted in the following statement:

> *You know what the thing about the committee is that the people who were there, even those who were not part of the committee, they appreciated the fact that we need e-learning. But as I said before, most of the people even those in the committee, only a few of them would really understand what e-learning means*. ***(Participant 5)***

The e-learning committee with representation from various actors within the university context was set up for the formulation of an e-learning policy, as the network builder tried to create alliances within the university network. Ogbogu (2013) highlighted the importance of university committees as a mechanism developed for advancement as well as to curb various challenges associated with rapid changes of the current period. However, according to Participant 5 most members of the committee who were supposed to lead the formulation of the policy did not understand the fundamental issues such as the pedagogical knowledge and skills to integrate technology meaningfully into curriculum delivery. This situation would affect the effective contribution and representation of actors in the formulation of the e-learning policy. The committee faced a dilemma on how to move forward in terms of the policy formulation process and how it will be implemented as highlighted in the statement below:

> *Transferring face-to-face practice to the platform. So, we are having a platform, a Moodle platform and we said OKAY now submit electronically but then it was similar to students bringing the paper to your office. So that's what was happening at that time and our understanding, and this committee really knew what – they really knew we needed that but how to go about it, that's what we didn't have.* ***(Participant 4)***

The formulation of the e-learning policy created tensions already within the university as the people who were supposed to be contributing to the policy were not equipped with the required knowledge on e-learning and what it entails. Participant 4 shares how lecturers transferred their traditional face-to-face teaching method to the institutional LMS instead of adapting the required pedagogical methods to the new delivery mode (e-learning). The fact that the people who were leading the policy formulation, the committee members, also lacked the required e-learning knowledge compromised the effective integration of technology in curriculum delivery within the university network. This is contradictory to the role of committees in universities as posited by (Bowen & Shapiro, 1998)who are of the view that university committees allow the institution to benefit from the expertise and experience of faculty and other staff members, thereby providing a solid basis for administrative decisions, as the following quotes show:

The e-learning Committee was there, it was just by name because when it came from the faculty level, they were not really reporting what was supposed to be done. Although there were members representing us to that level of the e-learning, I don't know up there but when they were coming down, I don't remember them really understanding what was supposed to be done and reporting it correctly to the faculty at the faculty level, I doubt. ***(Participant 2)***

Well, I cannot speak for everyone but personally, I did not have a chance to see that policy. I knew that there was a policy that was being drafted and a lot of people put a lot of effort but to be honest I was not privy of the information when it was published or even to get a copy of it…. Maybe it was distributed at the directorship level and people didn't take cognisance that we also would need to view the policy so that we know the guidelines that demarcate between online learning and ICT. ***(Participant 8)***

I wasn't – since I was only a junior in that department, all documents maybe were accessible to my supervisor and also senior members, so I was not in the picture. ***(Participant 6)***

The actors within the university network did not feel fully represented in the formulation of the e-learning policy as there were no clear communication and feedback channels between the committee members and the faculty or support departments. Participant's 2 statement shows that at the faculty level the committee was just another top-down approach tool meant to impose e-learning on the lecturers. Participant 8 and Participant 6 who are members of the ICT and E-learning departments respectively also show the same challenges in support departments. This highlight how actors who were supposed to drive e-learning in the university network did not contribute to the policy during the formulation phase and neither did they have access to the policy during the implementation phases of the policy. Adegbite (2004) is of the view that university committees should not be management watchdogs or guardians of the existing state of affairs, rather they should take the role of critical stewards of the university who are strategic and supportive as true participants of the decision-making process. In this case, e-learning committee members failed in their role as representatives of their faculties or departments.

7.2 Establishment of the E-learning Department

Despite the disparities in the e-learning policy formulation, the policy documents were developed and ratified in the university network. As a response to the e-learning policy, management established an e-learning department that can be viewed as another ally of the network builder that would strengthen the university network. The e-learning department was tasked with supporting the integration of technology for curriculum delivery through the provision of training and development of e-learning resources thereby accelerating and strengthening the adoption of e-learning in the university network (AU E-learning Policy: Appendix: H). Acceptance of technology for curriculum delivery by lecturers depends

on how much of these new innovations and practices are entrenched in the general organisational culture (Ali and Magalhaes, 2008). Thus, the network builder hoped that the establishment of the e-learning department and the introduction of e-learning experts to guide technology-enhanced curriculum delivery within the university organisation may lead to the acceptance of technology for curriculum delivery by lecturers:

> *My experience tells me that even policies are not enough. If you have a department that takes care of the processes, teaching, training, I mean training or the development of materials, they should also have specialists who will help in drafting and recommending teaching strategies.* ***(Participant 4)***

The e-learning department was established to strengthen the entrenchment of technology-enhanced curriculum delivery in the university network. Participant 4 emphasises the role of the e-learning department in capacity building and leading the development of e-learning material development and the impartation of the necessary knowledge and skills in innovative teaching strategies. According to Aung and Khaing (2015) to effectively integrate e-learning pedagogical approaches in a university context, there is a need for robust training of educators characterised by professional development, mentorship, networking, and support. The statement below shows the importance of e-learning training and professional development:

> *Then the other thing was also: even when people embrace e-learning and even those who had wanted to get online, they needed proper training for them to become real online teachers so to speak. Because many of them still wanted to teach in the conventional face-to-face way even when they were teaching online. So, there was a need for that re-orientation of their skills and of their attitudes and of their teaching methods so that they fully utilise and fully benefit from the benefits of online learning and online teaching.* ***(Participant 7)***

A participant in management recognised the need to re-orient lecturers in terms of skills, knowledge, and attitude to prevent a situation where they just transfer face-to-face teaching methods to online environments. Training of lecturers as indispensable actors was therefore used as an empowerment tool by the network builder to strengthen the university network in technology-enhanced curriculum delivery. According to Esterhuizen et al. (2013), successful lecturer development interventions go beyond mechanical and technical aspects of technology integration in curriculum delivery to emphasise appropriate pedagogy, the addressing of personal teaching beliefs, the provision of collaboration and interaction for online students, and contextualising the content according to the needs of the lecturer. In establishing this department management showed a shift from an economic or financial view of e-learning that it had emphasised in the problematisation stage to a more pedagogy-driven orientation.

The e-learning department was therefore an important actor in the university network as shown in the next statement:

> *So, what it means is that you can have yes, the lecturers, the deans, and the administrators but you always need a department whose responsibility is to make sure that the learning processes follow, they follow the latest trends.* ***(Participant 4)***

The extract by Participant 4 shows that whilst the buy-in of various actors in the university network is important, a department dedicated to e-learning training and promotion is essential for the adoption and development of technology-enhanced curriculum delivery in a university network. The university had since 2005 set up an office of educational technologies in the ICT department that might have not been effective as expected as it was most likely overshadowed by other predominantly information technology services in the department. According to Voogt and Knezek (2008:33)"utilising the potential of information technology in educational practice often implies that the role of the teacher has to change, faculty not only has to learn IT basic knowledge and skills but more importantly, has to learn appropriate pedagogical skills to be able to integrate IT in a sound way into educational practice".

The establishment of the e-learning department, therefore, reinforced and foregrounded the importance and uniqueness of e-learning in the university context. The e-learning department made an impact on the university network as shown in the statement below:

> *It has helped to ….it's a support department that gives back up and support this is new and this is a new area for most people some of us we moved involuntarily, some were forced by circumstances and some there were not resisting per se but it was their knowledge of technology that was a bit worrying, so you need a close support department that you know sometimes you have a general knowledge about eLearning but there are certain things that are on those the elements, the teaching platform, the synchronous platforms.* ***(Participant 5)***

Participant 5 shows that there was a perception in the university network that most lecturers were forced into e-learning, and they felt powerless since it was a position management had taken in the university context. Noteworthy is the participant's observation that the resistance of some lecturers towards e-learning was a result of a lack of the required knowledge and skills in the new mode of delivery. The participant appreciates the e-learning department and how its establishment empowered lecturers by giving them a feeling of confidence toward e-learning as it provided the required e-learning knowledge, skills and support that enhanced the adoption of technology for curriculum delivery and the effective use of various e-learning new platforms within the institution.

Rienties et al. (2013) noted the importance of linking e-learning professional development and e-learning policy as it entails that actors and institutional management share the same view on technology-

enhanced curriculum delivery thereby intensifying momentum and awareness of training within an institution. The study shows that the e-learning department intensified the momentum of e-learning in the university context as lecturers acknowledged and appreciated the role of the department in introducing, training, and supporting the innovative ways of curriculum delivery required in e-learning.

7.2.1 Training and Capacity Building

The e-learning department as an ally of the network builder in the university network enhanced the integration of technology for curriculum delivery by providing training in technology and pedagogy for lecturers in the university network. According to Mostert and Quinn (2009), HEIs must respond to challenges associated with moving from traditional-based learning to e-learning through the provision of staff development with emphasis on the professionalisation of lecturers. The department was under the leadership of a director, with three staff members, two educational technologists (one of them being the Director) and an e-learning technician.

7.2.1.1 The need for an intervention and the introduction of inscriptions

The e-learning department was officially established as an actor and an ally of the network builder in the university network. The department staff included two Educational Technologists and an E-learning technician. The researcher as one of the Educational Technologists at the university during this period, noted a slight improvement in the use of the learning management system by academic staff as the e-learning policy was being implemented. However, the main challenge that the department faced was the use of the learning management system as a push tool for notes which included mainly power points presentations and course outlines (Africa University Strategic Plan, 2016). Technology-enhanced curriculum delivery requires that academic staff be adequately equipped with the skills to facilitate in online environments, hence it was imperative to introduce and expose educators to good teaching ideas to improve student learning through effective learning design (Dalziel et al., 2020). As the e-learning momentum intensified in the university network, the challenge for the e-learning department was finding ways to introduce these online teaching approaches without undermining the educators as they are experts in their own fields of specialisation (Gachago et al., 2021).

Using TPACK as a framework

The Technology, Pedagogy and Content Knowledge (TPACK) model by Koehler and Mishra (2005) as espoused in Chapter 2 allows a comprehensive understanding of the relationship between content, technology, and pedagogy. The interaction of these 3 components and the interplay between them accounts for wide disparities in the extent and quality of the technology-enhanced curriculum delivery across a variety of diverse contexts (Eisterhuizen et al., 2013). Koehler and Mishra (2009) observed that while there might be several ways of integrating technology into curriculum delivery, the three central components of content, pedagogy and technology are central to its success. Fig 7.1 shows the TPACK framework.

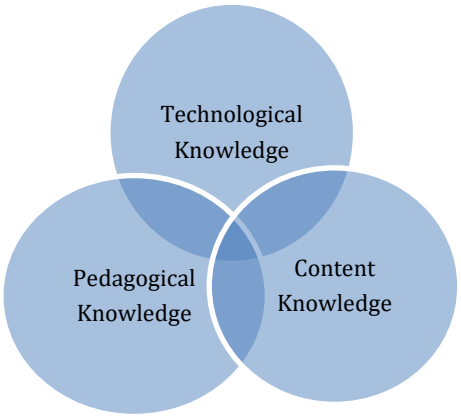
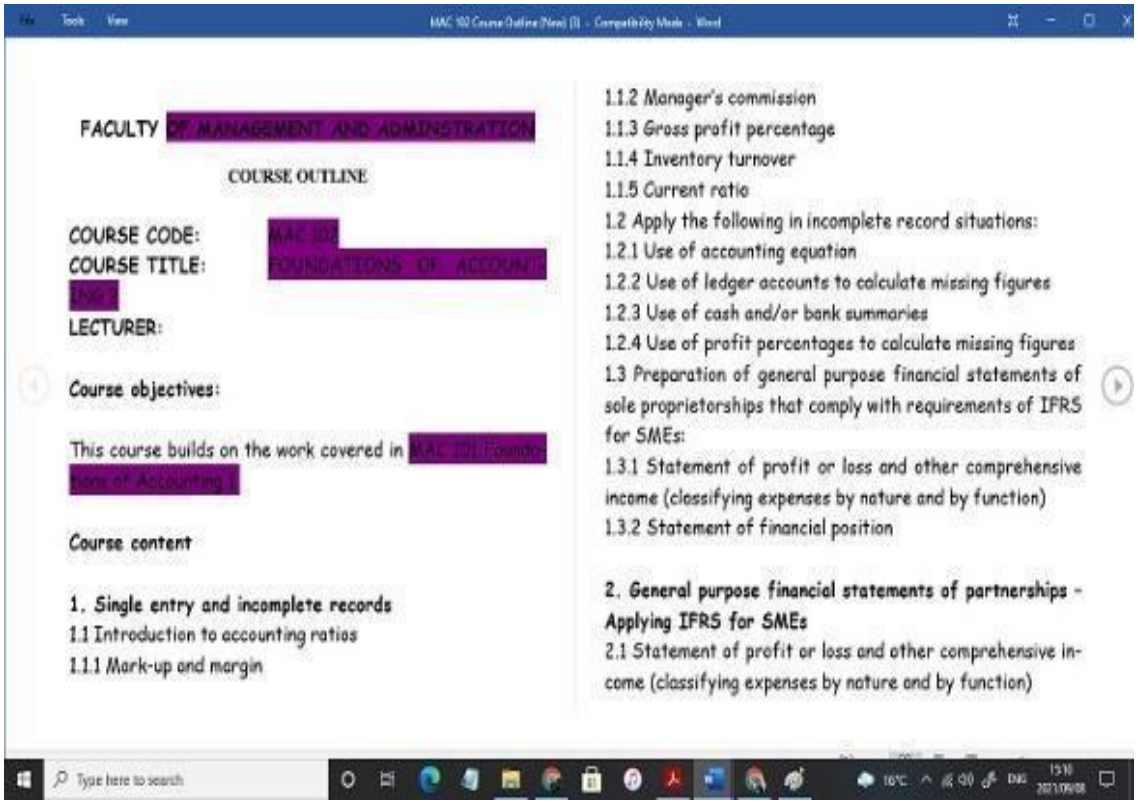


Figure 7.1 The TPACK Framework and its knowledge components (Mishra and Kohler, 2005)

Koehler and Mishra (2005) perceived that the technological knowledge of the educator is important, but not detached and unconnected from the teaching contexts thus emphasis is not on what technology can do, but essentially on what technology can do for them as educators. Thus, an e-learning intervention that incorporated aspects of the TPACK framework would most likely provide the skills and knowledge that lecturers required to enhance their knowledge and skills in e-learning in the university network.

Course Outlines

The educational technologists' team under the leadership of the Director of the E-learning Department sought to develop a contextualised learning design intervention in the university network. The required intervention was one that would lead to pedagogically sound online courses in terms of content, structure, timing, pedagogical strategies, sequence of learning activities, and the type and frequency of assessment in the course, as well as the nature of the technology used to support learning (Paulsen, 2004). The point of entry in the learning design process to emphasise the pedagogical and content aspects of TPACK was the course outline which is a mandatory teaching resource at the institution. At the institution under study, the structure of the course outline for face-to-face programs is usually a list of topics and sub-topics to be covered in a course followed by a list of recommended textbooks without much detail as shown in Fig 7.2a and Fig 7.2b (See also Appendix E). Such a course outline could be described as teacher-centric since only the educator would know how a particular topic would be taught and what would be achieved from the learning process. According to Biggs et al. (2011) in most institutions teaching has traditionally been conceived as teacher-centred, with emphasis on the content the educator has to cover.



FACULTY OF MANAGEMENT AND ADMINISTRATION

COURSE OUTLINE

COURSE CODE: MAC 102
COURSE TITLE: FOUNDATIONS OF ACCOUNTING I
LECTURER:

Course objectives:

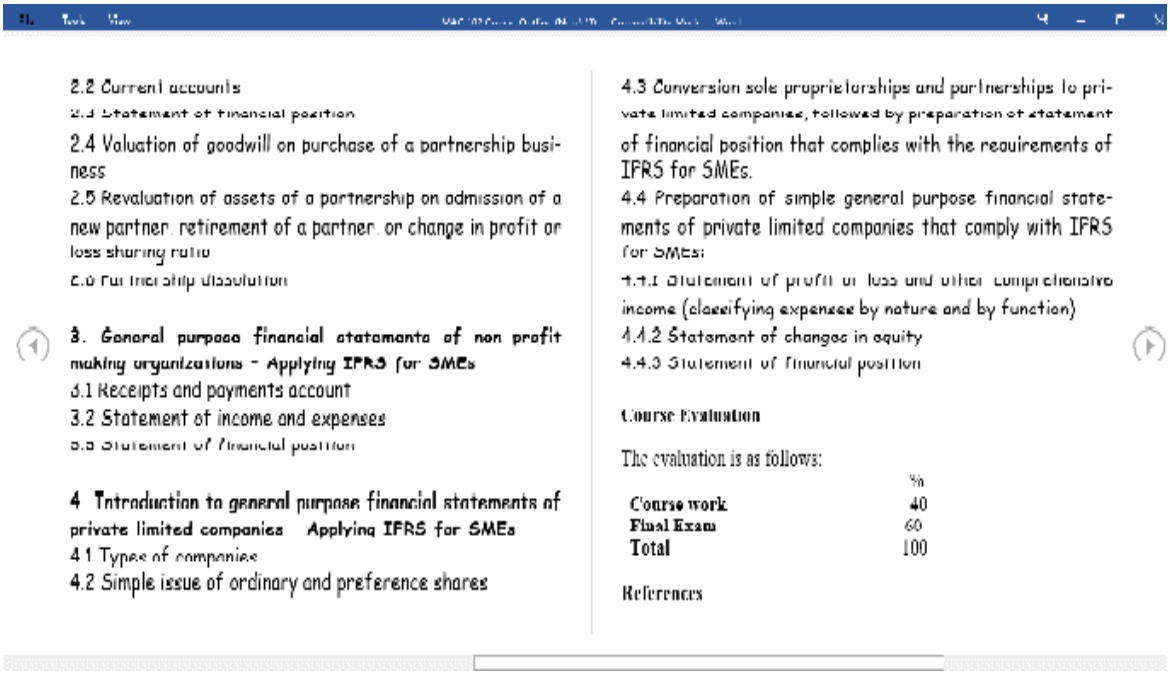
This course builds on the work covered in MAC 101 Foundations of Accounting I

Course content

1. Single entry and incomplete records
1.1 Introduction to accounting ratios
1.1.1 Mark-up and margin
1.1.2 Manager's commission
1.1.3 Gross profit percentage
1.1.4 Inventory turnover
1.1.5 Current ratio
1.2 Apply the following in incomplete record situations:
1.2.1 Use of accounting equation
1.2.2 Use of ledger accounts to calculate missing figures
1.2.3 Use of cash and/or bank summaries
1.2.4 Use of profit percentages to calculate missing figures
1.3 Preparation of general purpose financial statements of sole proprietorships that comply with requirements of IFRS for SMEs:
1.3.1 Statement of profit or loss and other comprehensive income (classifying expenses by nature and by function)
1.3.2 Statement of financial position

2. General purpose financial statements of partnerships - Applying IFRS for SMEs
2.1 Statement of profit or loss and other comprehensive income (classifying expenses by nature and by function)

Fig 7.2a: Sample of face-to-face program Course Outline



2.2 Current accounts
2.3 Statement of financial position
2.4 Valuation of goodwill on purchase of a partnership business
2.5 Revaluation of assets of a partnership on admission of a new partner, retirement of a partner, or change in profit or loss sharing ratio
2.6 Partnership dissolution

3. General purpose financial statements of non profit making organizations - Applying IFRS for SMEs
3.1 Receipts and payments account
3.2 Statement of income and expenses
3.3 Statement of financial position

4 Introduction to general purpose financial statements of private limited companies Applying IFRS for SMEs
4.1 Types of companies
4.2 Simple issue of ordinary and preference shares
4.3 Conversion sole proprietorships and partnerships to private limited companies, followed by preparation of statement of financial position that complies with the requirements of IFRS for SMEs.
4.4 Preparation of simple general purpose financial statements of private limited companies that comply with IFRS for SMEs:
4.4.1 Statement of profit or loss and other comprehensive income (classifying expenses by nature and by function)
4.4.2 Statement of changes in equity
4.4.3 Statement of financial position

Course Evaluation

The evaluation is as follows:

	%
Course work	40
Final Exam	60
Total	100

References

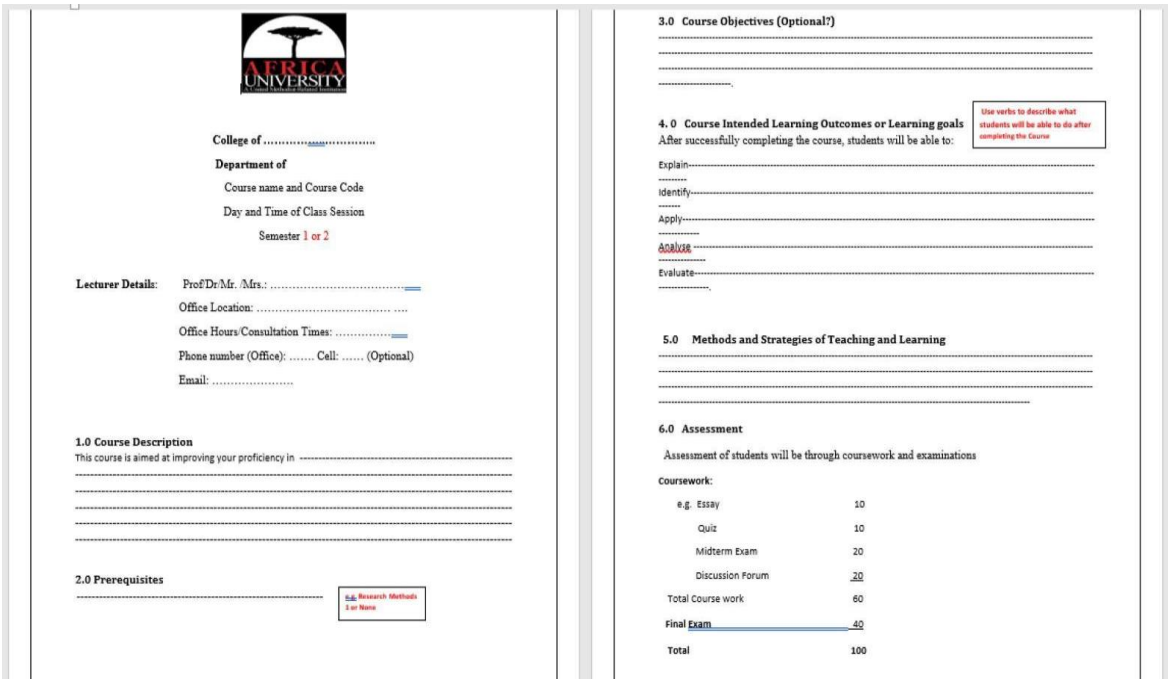
Fig7.2b: Sample of face-to-face program Course Outline

According to Bower et al. (2011) course outlines should have a uniform format that clearly communicates outcomes, expectations, and opportunities to the students. Thus, the educational technologists, who included the researcher, initiated the process by engaging first the faculty leadership, before the rest of the lecturers and held workshops on how the course outlines could be revised so that

it could be more student centred. Thurab-Nkosi (2018) highlighted how faculty leaderships are specifically responsible for providing academic leadership within a university network. Chapter 6 highlighted the challenges the university faced when introducing e-learning as a result of a lack of knowledge and understanding of technology-enhanced curriculum delivery by faculty leadership. By engaging the faculty through an instrument that was highly valued in the university network such as the course outline, the e-learning department emphasised the role of the lecturers as content experts, pedagogical executors, and indispensable actors in technology-enhanced flexible curriculum delivery.

When dealing with the content and pedagogical elements of the TPACK, the most important part is the creation of clear learning outcomes for each course that will provide a clear path in the structure of content and the need to actively engage students in the learning process. The educational technologies team, therefore, developed a course outline template that led to the connection between the learning outcomes and the content since clear learning outcomes can streamline content, allowing the learning process to be focused on what the student will be able to achieve at the end of the course or module. The course outline training and template emphasised constructive alignment of outcomes, activities, and assessments (Biggs & Tang, 2007). Constructive alignment allows for learning design which emphasises exactly what is intended for students to learn, and how this should be clearly expressed and stated before teaching takes place to ensure that learning activities and assessments are designed to maximise students' chances of achieving these outcomes (ibid).

Clearly defined learning outcomes allowed lecturers to think critically about how a particular outcome can be achieved thereby leading to effective choices in learning activities as well as assessments. The learning outcomes therefore then determined the sequence of the topics and the online activities that the students would need to engage in in order to fulfil the learning outcomes. Thus, as the educators prepared the course outline, he/she is already involved in learning design and embedding pedagogically appropriate online activities into the course. Through a weekly schedule, the course outline would show the activities to be covered, the resources to be used (and the links to these resources), and clearly show the expected dates of these activities and assessments. Fig 7.3a and Fig 7.3b below shows the course outline artefact that the lecturers used to develop their online course outlines.



College of .....

Department of

Course name and Course Code

Day and Time of Class Session

Semester 1 or 2

Lecturer Details: Prof/Dr/Mr. /Mrs.: .....

Office Location: .....

Office Hours/Consultation Times: .....

Phone number (Office): ..... Cell: ..... (Optional)

Email: .....

1.0 Course Description

This course is aimed at improving your proficiency in ----------

2.0 Prerequisites

---------- e.g. Research Methods 1 or None

3.0 Course Objectives (Optional?)

4. 0 Course Intended Learning Outcomes or Learning goals Use verbs to describe what students will be able to do after completing the Course

After successfully completing the course, students will be able to:

Explain----------

Identify----------

Apply----------

Analyse----------

Evaluate----------

5.0 Methods and Strategies of Teaching and Learning

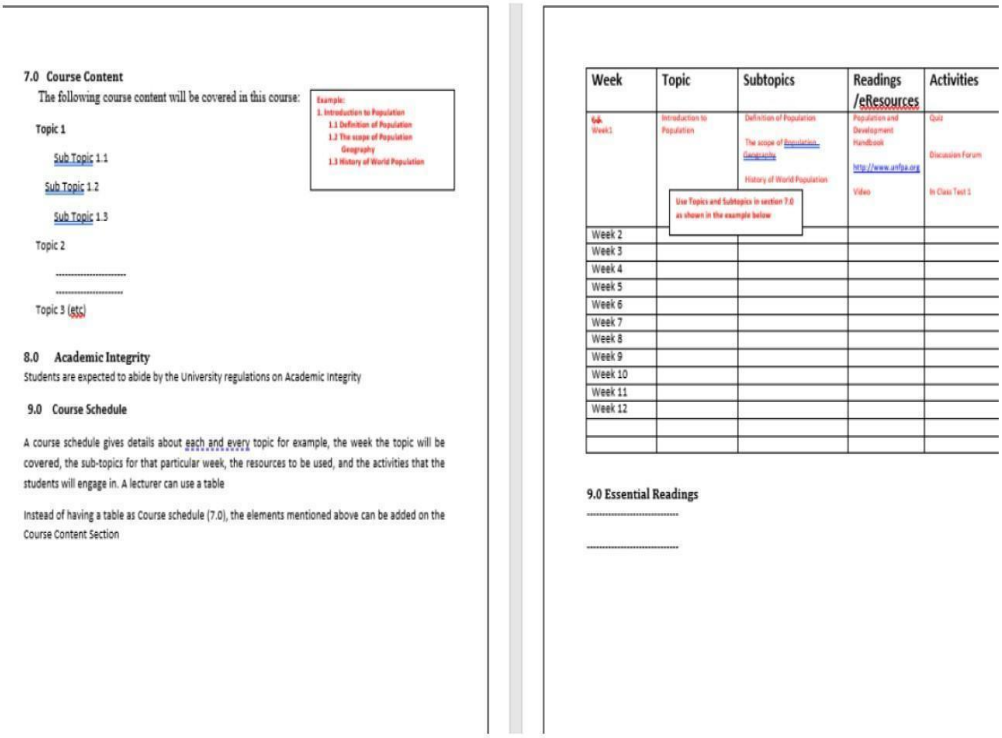
6.0 Assessment

Assessment of students will be through coursework and examinations

Coursework:

e.g. Essay	10
Quiz	10
Midterm Exam	20
Discussion Forum	20
Total Course work	60
Final Exam	40
Total	**100**

Fig 7.3a: Online Course Outline



7.0 Course Content

The following course content will be covered in this course:

Example:
1. Introduction to Population
1.1 Definition of Population
1.2 The scope of Population Geography
1.3 History of World Population

Topic 1

Sub Topic 1.1

Sub Topic 1.2

Sub Topic 1.3

Topic 2

Topic 3 (etc)

8.0 Academic Integrity

Students are expected to abide by the University regulations on Academic integrity

9.0 Course Schedule

A course schedule gives details about each and every topic for example, the week the topic will be covered, the sub-topics for that particular week, the resources to be used, and the activities that the students will engage in. A lecturer can use a table

Instead of having a table as Course schedule (7.0), the elements mentioned above can be added on the Course Content Section

Week	Topic	Subtopics	Readings /eResources	Activities
e.g. Week1	Introduction to Population	Definition of Population The scope of Population Geography History of World Population	Population and Development Handbook http://www.unfpa.org Video	Quiz Discussion Forum In Class Test 1
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				
Week 7				
Week 8				
Week 9				
Week 10				
Week 11				
Week 12				

Use Topics and Subtopics in section 7.0 as shown in the example below

9.0 Essential Readings

Fig 7. 3b Online Course Outline

Online Activities

Effective online learning is one that includes the design of sequential learning activities that encourage both individual study and collaborative learning, that leads to a profound exploration of content knowledge, providing regular formative assessment in varied formats that cater to joint and exceptional student requirements and aspirations (Reinig, 2010). Online activities, which Salmon (2005) referred to as e-tivities, entail the deployment of valuable, planned principles and pedagogies including the choice of technologies for the online teaching and learning experience. The concepts of online activities were introduced through the course outline, highlighting the need to have activities that best satisfy a specific topic and learning outcome.

Week	Topic	Subtopics	Readings /eResources	Activities
e.g Week1	Introduction to Population	Definition of Population The scope of Population Geography History of World Population	Population and Development Handbook http://www.unfpa.org Video	Quiz Discussion Forum In Class Test 1
Week 2				
Week 3				
Week 4				
Week 5				

Use Topics and Subtopics in section 7.0 as shown in the example below

Fig 7.4 The weekly schedule section of the course outline template that shows e-tivities and e-assessments

The Course Site Template and Manual

Another artefact introduced in the university network by the e-learning department as an actor in the university network was a course site template that provided the structure of the online course sites. The purpose of a course site template was to ensure effective integration of technology into the teaching process, by enhancing their technological skills on the LMS, thereby fulfilling the technology part of the TPACK framework. The course site template was usually introduced to lecturers in small groups and in one-on-one sessions to capture the essence of the learning design process. The course outline

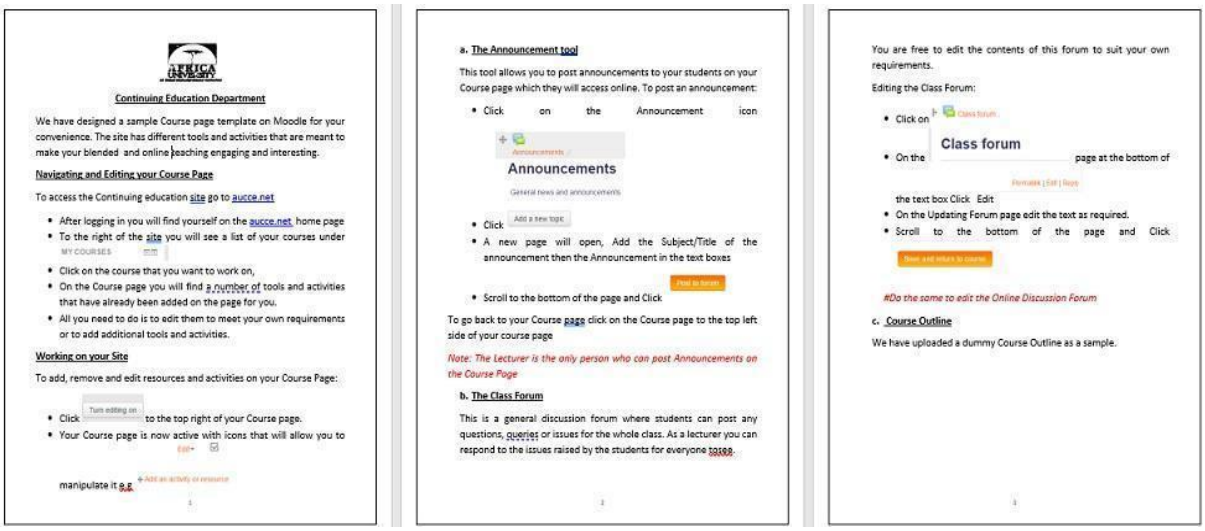
saved as the main resource of the online activities and resources to be used for every topic in the course would have been clearly outlined in the document.

The course site template entailed that the e-learning department would create a skeletal course site for all course on the LMS, so that when the lecturer logs on to his/her course, the structure of the course will be ready, all one needed to do was to upload and update it with the necessary resources and activities. The Course Site Template was divided into the following sections:

- Introduction- a brief introduction of the lecturer including a photograph and contact details, the Course Outline, Announcement and Chat tools, Important Resources folder etc
- Assignments
- Discussion Forums
- Other Activities
- Topics

Fig 7.5 An example of a course Introduction Section on Moodle adapted from the Course Template

It has been proven that the introduction of ICTs in the curriculum delivery process does not guarantee technology integration since technology on its own does not lead to transformation (Koehler and Mishra, 2005). To reinforce the technological skills on the Moodle course site the e-learning department created a Course Site manual which showed step-by-step instructions on how to navigate and work on the course site template. The manual was welcomed by educators as they could easily refer to it when working on the LMS.



Continuing Education Department

We have designed a sample Course page template on Moodle for your convenience. The site has different tools and activities that are meant to make your blended and online teaching engaging and interesting.

Navigating and Editing your Course Page

To access the Continuing education site go to aucce.net

- After logging in you will find yourself on the aucce.net home page
- To the right of the site you will see a list of your courses under MY COURSES
- Click on the course that you want to work on,
- On the Course page you will find a number of tools and activities that have already been added on the page for you.
- All you need to do is to edit them to meet your own requirements or to add additional tools and activities.

Working on your Site

To add, remove and edit resources and activities on your Course Page:

- Click Turn editing on to the top right of your Course page.
- Your Course page is now active with icons that will allow you to Edit + Add an activity or resource manipulate it e.g

a. The Announcement tool

This tool allows you to post announcements to your students on your Course page which they will access online. To post an announcement:

- Click on the Announcement icon

Announcements

General news and announcements

- Click Add a new topic
- A new page will open, Add the Subject/Title of the announcement then the Announcement in the text boxes
- Scroll to the bottom of the page and Click Post to forum

To go back to your Course page click on the Course page to the top left side of your course page

Note: The Lecturer is the only person who can post Announcements on the Course Page

b. The Class Forum

This is a general discussion forum where students can post any questions, queries or issues for the whole class. As a lecturer you can respond to the issues raised by the students for everyone to see.

You are free to edit the contents of this forum to suit your own requirements.

Editing the Class Forum:

- Click on Class forum
- On the Class forum page at the bottom of the text box Click Edit
- On the Updating Forum page edit the text as required.
- Scroll to the bottom of the page and Click Save and return to course

#Do the same to edit the Online Discussion Forum

c. Course Outline

We have uploaded a dummy Course Outline as a sample.

Fig 7.6 Section of the Course Site Manual

As an ally of the network builder, the e-learning department as an actor, therefore, sought to entrench e-learning in the university network not only through training, but they also developed artefacts or documentation that would be used by lecturers in the university network. These included the Online Course Outline Template and the Course Site Template and Manual. In ANT, these artefacts and documents are types of actors called inscriptions and they are essential to the process of control in a network because they enable action at a distance (Van House & Buttenfield, 2003). Riviera and Cox (2016) noted that technical and support documentation associated with the introduction of technology in an organisation can be seen as an inscription. However, not all inscriptions in a network can achieve control, to ensure conformity they need to strengthen relationships with other actors of the network (ibid). In this case, the intervention of the e-learning department and the inscriptions they introduced were highly dependent on their acceptance by lecturers. Kong et al. (2017) observed that the shift from a technology-oriented towards pedagogy-oriented planning of staff development for educators in technology-enhanced curriculum delivery demands the transformation of their mindsets and the required change in practice to emphasise student-centred learning.

7.3 Lecturers Agreement and Acceptance of the Solution

According to Callon (1986), the interessment stage comprises a number of actions that the network builder attempts to interest an actor (in this case lecturers) enough to agree with its solution. As a result of the deliberate efforts of the e-learning department to develop a contextualised learning design intervention, actors (lecturers) within the university network appreciated the training provided by the e-learning department and had a positive attitude towards the training in contrast to the resistance they had towards management during the problematisation stage as this section will show. The extract below by two participants of the study show a positive attitude towards the professional development provided by the e-learning department in the university network:

Yes, the e-learning department helped us so much because it was a new area. It was a new territory that we were venturing in. We were used to face-to-face teaching. So, the issue of developing a comprehensive course outline, setting up an assignment, loading an assignment, downloading it, loading a course outline, creating - all those we had to take through by the e-learning department. And they did so very patiently because some of us were born before computers and we are on the wrong side of age, so the issue of computers is not so much……. but they were patient… ***(Participant 1)***

There was more capacity building on the part of lecturers, the e-learning department has had some workshops with both the full-time and part-time lecturers to capacitate them to teach them on various things and that I must say helped and it's still ongoing. So, the support is still there and there are other people also from you know, in management they've got that department of Computer Sciences Department within the College of Business and so you get those lecturers also coming in as facilitators when we are having the workshops. ***(Participant 3)***

The participants acknowledge the role of the e-learning department in capacity building and in empowering lecturers to transition from face-to-face teaching to online facilitation. Participant 1 described e-learning as a new territory describing the novel knowledge and skills required in creating and developing an online course. According to Bensona et al. (2011), successful e-learning in an educational setting in HEIs occurs when there is a change in the teaching and learning culture that is acquired through learned new knowledge and skills in curriculum delivery by lecturers. The participant also appreciates the level of patience portrayed by the trainers in the e-learning department. Participant 3 highlighted the role of the e-learning department and the continuous support provided for lecturers as indispensable actors within the university network.

Eltahir (2019) confirmed that e-learning training and support have to be an ongoing process of professional development as this will reduce the number of lecturers resisting the mode of delivery due to their lack of knowledge and skills in the area. The contribution of the Computer Science Department which is a faculty department shows there were e-learning champions among lecturers in this department who worked closely with the e-learning department in the provision of professional development in the university network. This indicates that there was synergy and the creation of relationships and alliances among actors within the university network thereby strengthening the solution of the network builder in the university network. The importance of lecturer awareness and knowledge in e-learning is proven by the positive attitude towards the e-learning department that was expressed by lecturers in the university context.

This section has shown that lecturers were receptive and appreciative of the training provided by the e-learning department. The lecturers portrayed a positive attitude towards the department, unlike the

resentment and resistance they had towards management during the problematisation stage. This change of attitude reinforces the point raised in Chapter 6 that one of the reasons for resistance toward e-learning by lecturers was a result of a lack of pedagogical knowledge and skills in e-learning. As highlighted by Wilson (2007) e-learning professional development is a change process within a university network.

7.4 Strengthening the role of Technology as an Actor: Investing in Technology to support e-learning.

As management realised the positive response to e-learning because of the training and support provided by the e-learning department, they sought to invest in more technological infrastructure and equipment. Technology is an important actor in technology-enhanced curriculum delivery in a university network. Nihuka (2013) reiterated the importance of the supportive role of management in the successful integration of e-learning technologies in higher education as management can provide the required conditions needed for successful technology-enhanced flexible curriculum delivery. This includes policy, incentives, and resources, adding that the commitment of management is the most critical factor for effective implementation of e-learning. The network builder, therefore, sought to work closely with the ICT department which is a crucial actor in the integration of technology for curriculum delivery to boost technology in the university network. By bringing the ICT department to support e-learning activities as an ally, the network builder enhanced its power within the university network. A participant in ICT highlighted the importance of ICT infrastructure and software in e-learning:

> *So internet in e- learning is imperative, it is imperative to specifically say that with the role of technological changes even outside the e-learning the actual learning part of it, we need to have the technology to boost the viability of business because when we look at ERP how it has been introduced into eLearning and how we have introduced it to e-learning, it has changed the viability of business because now we are saying our business processes have changed.* ***(Participant 10)***

The provision of technology-enhanced curriculum delivery meant there was a need to boost the technological requirements of the university, in this case, the internet. Participant 10 from the ICT department emphasises the importance of the internet as an important actor that drives learning in technology-enhanced curriculum delivery. According to Kasse and Balunywa (2013) in most underdeveloped countries lack of resources such as electricity, essential devices like computers to access e-learning, lack of and the high cost of internet, and other infrastructural challenges have hindered the implementation of ICT projects. Thus, even though there is not much university management can do with issues like scanty electricity challenges, they can provide those resources within their power to enable e-learning. The findings are consistent with those made by Naveed et al (2007) that effective and beneficial implementation of e-learning systems in HEIs, there is a need for huge investments in hardware and software infrastructure. Participant 10 however infers a neo-liberal

discourse, referring to the running of e-learning programs as a business and how an Enterprise Resource Plan (ERP) was introduced in the institution to boost technology-enhanced curriculum delivery. He further explains that:

> *Then following that we also had the issue of bandwidth. Well, yes, the bandwidth we were using was quite okay but now there comes an issue of like greater number of users on the same channel and the number of users that have increased, has also increased its demand of resources because these people are sort of like streaming on the platform to get their lectures, to get whatever they need. So, the issue of bandwidth was also another limitation, and you know the prices of bandwidth, if you were to look at the prices that were being offered on fibre, they were a bit too tight, and the university was running on a strict budget. So, it became a little bit of a predicament when it came to trying to harness more resources to get a bigger bandwidth channel*. ***(Participant 10)***

The provision of technology-enhanced curriculum delivery in developing contexts is a challenge since internet bandwidth becomes an issue (Sakala, 2019). The participant highlights the challenges faced because of inadequate internet bandwidth due to the introduction of online programs as students access online resources. Thus, the issue of bandwidth would have been a limitation and hindrance, but management as the network builder provided a solution.

> *If I remember well, that's when we did the project where we had to revamp the whole internet system on the campus. We moved from 100 megabytes per second to 1000 megabytes per second to facilitate the speed of the internet for students and I believe that all this was coming up to the kind of circumvent the challenges that we are now facing because of this new thing that was coming through. And I'm sure this is also something that was coming into play well probably yes, it was there in the pipeline but from my own perspective, I saw as if it was sort of like pushed. The dates were pushed back instead of it being implemented later, there was sort of like a push to make it faster so that as this eLearning comes on board, it comes through on a new platform. So that it can be administered with the minimum number of glitches.* ***(Participant 8)***

The response by Participant 8 a member of the ICT department shows how the management was quick to respond to the internet challenges that were threatening the integration of technology for curriculum delivery, by providing the required internet bandwidth to support e-learning within the university. The participant also infers to the upgrading of resources such as computer servers, showing the network builders' commitment to e-learning adoption. The participant also shows that the provision of these technological resources was prioritised by management to ensure the efficient running of online

programs. According to Nchunge et al. (2013) HEIs in developing, contexts must enhance and upgrade their technical architectures to accommodate digital content, more so with the fast changes taking place in technology in the 21st century. The network builder, therefore, strengthened its position by enhancing the position of technology as an ally actor in the university network.

7.4.1 Provision of enabling resources

Developing contexts are inundated with several challenges which include a lack of enabling resources such as internet connection or data and the required digital devices to facilitate online courses (Sakala, 2019). Thus, management as network builders sought to strengthen the position of technology as an actor in the university network. According to Cheawjindakarn et al. (2012) technology-enhanced flexible delivery requires a budget to be fully implemented and HEI must invest in them. The enabling resources provided by the university management included a laptop scheme, the provision of data, and providing off-campus internet to lecturers as shown in the sections below.

7.4.1.1 The Laptop Scheme

The university provided a laptop scheme for staff, enabling them to work anywhere, anytime which is an important aspect of online learning. The provision of laptops to lecturers created human and non-human actors' impartiality emphasising the network formation, especially how actors recruit each other, negotiate, and create alliances to achieve a particular goal, in this case, the provision of technology-enhanced curriculum delivery (Riviera and Cox, 2016). Thus, the relationship and agency of lecturers and technology as actors were strengthened in the university network. A member of management highlighted the importance of the project:

> *I think the project came into effect starting last year and what we have done is we have obtained laptops as a scheme for our staff. And they are able, they are able to pay back their laptop and these laptops are able to allow them to go online and interact with students. Last year we were able to purchase laptops for all our academic staff and some admin and senior administrators and these laptops are being paid back in monthly instalments.* ***(Participant 7)***

According to Aung and Khaing (2015), one of the biggest challenges of the effective integration of technology for curriculum delivery in a developing context is ensuring that certain preconditions such as network infrastructure and ICT tools are met. Thus, in establishing a laptop scheme in the university network, the network builder strengthened the adoption of technology for e-learning within the institution.

7.4.1.2 Internet off-campus

The availability and accessibility of technology is essential in e-learning. Management as the network builder went on to ensure that lecturers were connected to the internet on and off- campus in the university network. Lack of funding to purchase technology infrastructure has been identified as one of the major challenges that affect the integration of technology for curriculum delivery in developing

contexts (Kasse & Balunywa, 2013; Eltahir, 2019).Thus, to curb the challenges associated with technological infrastructure in the university network understudy, the ICT department as an alliance actor of the network builder necessitated the provision of the internet in university staff residential homes situated off campus. A member of the ICT department leadership highlighted that:

> *Initially what we did is the first thing that we did was we provided those that are staying at university properties, we gave them – we installed modems g-phones. We were able to install them in every household which allowed the staff members to actually access the internet because the modem is the most expensive component of the internet, so we are now able to do that.* ***(Participant 10)***

By providing internet modems for lecturers to be able to work from home, the network builder strengthened and empowered the lecturer as an actor as the internet (technology) is also an integral actor in the integration of technology for flexible curriculum delivery.

7.4.1.3 Provision of Data

In addition to connecting lecturers off campus, management provided data for lecturers who were teaching online. Data as technology is an important factor in the university network. Kaputa et al. (2022) observed the restrictive high cost of data when it comes to e-learning in the Zimbabwe context. Therefore, to support technology-enhanced curriculum delivery, management offered data to lecturers involved in blended and online programs as highlighted in the next statement:

> *They provide data every month we agreed that each lecturer should get 15gig per course that one is teaching online, so what they do is because the data is provided by various service providers the money is deposited into their bank accounts, then you go and buy the data from your service provider. Yaa but the biggest challenge is that some of the people also ended up using the money for the data for their personal use.* ***(Participant 3)***

The participant who is part of the faculty management team shows the support provided to lecturers through the provision of money to buy data dependent on the number of courses the lecturer is teaching online. The provision of data facilitates the teach anywhere, anytime fundamental principle of e-learning as shown in the comment below:

> *They are giving us data bundles monthly, every month for every course. So, it's really enough. I don't want to complain on that side and the Wi-Fi even here at (Off-Campus) Centre, they tend to beef it up. They've increased the bandwidth, everything, there are no challenges. That's why it' smooth (****Participant 11)***

The lecturer appreciates and is satisfied with the support they are receiving from management in terms of data. The university has also gone further to improve internet access at an off-campus centre which are closer to most lecturers' residents where they can also work efficiently with improved internet bandwidth.

> *We are fully supported both like what I said, they are really giving us money for the data bundles every month ….* ***(Participant 12)***

Another participant also echoes the same sentiment:

> *We have a facility for data through the university system and I can now access the online platform from home or from anywhere else.* ***(Participant 5)***

The lecturers' statements show that they feel fully supported and empowered in terms of the provision of data and the internet in the integration of technology for curriculum delivery in the university network. The lecturers, therefore, feel empowered in e-learning as a result of the support provided through the provision of data.

> *Yes, indeed right now management has organized that we get data, we buy data its subsidized direct TelOne. We have a partnership with TelOne and out of that partnership, TelOne offered that if the lecturers would want to buy data for their online learning, where they'll buy data for 54 US Dollars, they would pay half.* ***(Participant 2)***

Furthermore, in addition to the provision of data by the network builder, management went into partnership with a service provider, so that lecturers could buy subsidised data. This strategy strengthened the position of the network builder in the university network because technology, through the internet, becomes an alliance enrolled in the university network.

> *They have started giving you incentives like data to lecturers and also a laptop acquisition facility and so eLearning is running in motion. So, it's just policy, leadership and also then they also looking at the conditions, yes, some incentives.* ***(Participant 12)***

Both Participant 2 and Participant 12 appreciates all the support provided by the university management that enhanced the integration of technology in curriculum delivery. The provision of the various support mechanisms is viewed by the participants as incentives that have motivated lecturers and promoted e-learning in the university network. The issue of rewards that had caused resistance in the problematisation stage of the university had been addressed through the provision of these incentives. Elatihir (2019) highlighted a survey carried out by UNESCO which showed that a huge number of educators in sub-Saharan Africa reported that their main barrier towards e-learning was the shortage of adequate hardware and software and unreliable internet access. The provision of laptops, data, and

home-based internet connectivity, therefore, went a long way in covering the inconsistencies of hardware issues and poor internet connectivity associated with developing context. In view of ANT, the agency of technology in e-learning is apparent in relation to the role it plays for lecturers to efficiently offer technology-enhanced curriculum delivery. Thus, as an actor technology in the university network was able to make other actors, especially lecturers, "bend space around itself, makes other elements dependent upon itself and translates their will into a language of its own' (Callon and Latour, 1981: 286). Thus, as purported by Dwiartama & Rosin (2014) material objects such as ICT and related infrastructure exercise agency just like humans.

7.5 Hindrances threatening the university network's stability

According to Riviera and Cox (2016:6), a network emerges when, "actors align their interests through negotiations, and weaken the presence of other actors that might act against the goals of the network". As an institution situated in a developing context, the university network faced several hindrances that threatened to weaken the established alliances and derail the university's goal of offering technology-enhanced flexible curriculum delivery. Where an actor-network's stability is threatened by other actors or external actors, it has the capacity to transform and develop, since the relationships linking actors may be weakened, a failure which an actor-network can fail and potentially disappear (Riviera and Cox, 2016).

7.5.1 Shortage of e-learning support

Whilst the e-learning department had developed an accepted e-learning intervention in the university network, there was still a need for a lot of handholding in technology-enhanced curriculum delivery among lecturers in the university network. Responding to the question of whether lecturers felt they had the required e-learning support for effective e-learning adoption participants expressed the following views:

> *Not 100% per se because they are still giving us, you see they are still teaching us, you see this is a new area. We cannot say that they've given us enough support and we have known everything. No. They've given us what they could to facilitate the task to move and one thing that I'm appreciating about them because even up to now, they are still coming in.* ***(Participant 12)***

> *I can't say they've supported us fully, but they are still supporting us and capacitating us… because we can't say right at the moment we are now – we now have all the capacity to teach online; we still have many things that we need to learn.* ***(Participant 1)***

Both Participant 1 and Participant 12 show their appreciation for the continuous training provided by the e-learning department. Participant 12's statement shows he appreciates the dynamism of

technology-enhanced curriculum delivery and the efforts of the e-learning department in trying to build up the skills of the lecturers through continuous training workshops. According to Cholifah & Rini (2020: 69), lecturers must continuously improve their professionalism because as educators they must "constantly develop, enhance, and develop competencies". Both participants however allude to inadequate support from the e-learning department as lectures in the university network still had a lot to learn when it comes to innovative pedagogical knowledge and skills. Ng'ambi (2013) identified the shortage of satisfactory training for HE educators in the proper use of technology to advance learning outcomes as one of the challenges of integrating technology for curriculum delivery in the university context.

The following participants also highlight inadequate e-learning and support staff:

> *To say yes, the department here is a department that we want. We want to capacitate. Before capacitating the lecturers, they themselves to capacitate the department so that it can adequately support the lecturers. I feel that that area is lacking because you find there's one person, I mean you can't be serious here. I'm talking about lecturers who were not confident. There's one person to service all the lecturers. That person is not a machine. Again, these are my personal impressions.* ***(Participant 1)***

> *Yes, to say I think if you are serious about developing e-learning then you must be prepared to spend so that you can be sure that you service and I've always felt that while this is the in thing, there's no going back, this is the new normal I still feel that area also needs to be resourceful so that it can adequately support the lecturers* ***(Participant 2)***

Participant 1 highlights that there was only one person in the university network providing e-learning support in contradiction to the needs of the university as it adopted technology-enhanced curriculum delivery. Participant 2 acknowledges the fact that e-learning adoption could only progress in the institution, inferring the irreversibility of the solution of the network builder in the actor network. Walsham (2017) describes irreversibility as a concept of ANT where actors experience high levels of impossibility to manoeuvres, which is, therefore, a no-turning back point. Participant 2 might have arrived at this conclusion because of the determination portrayed by the network builder to enforce e-learning as a solution in the university network. However, both participants are of the view that to fully support the integration of technology for curriculum delivery the university should have provided enough manpower in the e-learning department that would cater for the needs of lecturers so that they would be completely supported in e-learning. Support is, therefore, an important aspect in e-learning adoption this is reinforced by Toohey (1999) who noted that in educational settings pressure might generate the need for change but, it is support that facilitates such changes.

However, instead of ensuring that all departments are fully equipped with the required human resources to enhance e-learning, HEIs tend to concentrate on technology investment as highlighted in Section 7.4. Glowartz and O'Brien (2017) noted that integrating ICTs in HEI requires costly financial investment for infrastructure, equipment as well as technical support staff, and in relation to the personal investment made by staff and students in using the technology for curriculum delivery. Thus, although the lecturers in the study were willing to personally participate in e-learning training, the fact that the university had not invested fully in technical support staff threatened the effective integration of technology for curriculum delivery.

7.5.2 Fear of the unknown by lecturers as actors in the university network

Chigona and Dagada (2015) noted that there are several threats to the integration of technology for curriculum delivery in HEIs due to cultural factors, which include faculty resistance to innovation and change and negative attitude towards technology, and in this case, it was no different.

> *You know, every technology it comes with the resistance so at the beginning lecturers were a bit reluctant especially the lecturers because the students already some of them were techno-savvy, but the lecturers were still hinged on the traditional approaches where they will be like, they just want to write on the board with the white … (**Participant 7)***

> *Because we were used to the face-to-face thing so bringing in this thing, it was like bringing in something completely strange to us, but it was just a matter of not understanding what exactly was going on. **(Participant 2)***

Despite the introduction of an e-learning policy and the establishment of an e-learning department to support the integration of technology for curriculum delivery, there were still elements of resistance towards the adoption of technology for curriculum delivery in the university network. Chigona et al (2010) argued that effective integration of ICT within the curriculum can only take place when there is a deliberate shift from traditional methods of teaching, thus an educator's approach to pedagogy impacts the integration of technology into the teaching and learning process. If a lecturer believes and holds on to traditional methods of teaching, chances to change the pedagogy to embrace ICT in curriculum delivery become slim. Both participants felt that the new method of teaching was being imposed on the lecturers in place of their traditional methods of teaching which was their comfort zone.

> *That's why I'm saying most of us were still doubting because we did not understand what exactly was - the whole thing was about. You know the policy was written but when it came down to the faculty, I think it was not clearly explained to the people, that's why the doubt was still there. And I can share this with you I remember there were some of our colleagues who were actually saying this thing will not work **(Participant 5)***

However, the extract by Participant 5 avers to the blurred e-learning policy formulation and implementation processes which might have left patches of poor clarity and knowledge on e-learning, leading to uncertainties among lecturers as to the potential of e-learning as a mode of curriculum delivery. According to Wallace (2003) when HEIs adopt ICTs for curriculum delivery without clear goals and cautious planning and backing, they run the risk of ineffectively using scarce resources leading to unsatisfied users and the creation of poor e-learning outcomes. Thus, despite the training and capacity building provided by the e-learning department in the university context, some lecturers remained pessimistic about e-learning as the mode of curriculum delivery.

> *And what I felt was not appreciated was you know there was a fear of the unknown amongst the lecturers, it's not everybody who was confident and then now when you feel like this is something that is pushed on you and you are not confident you tend to resist kind of and I think that was the general feeling to say people appeared to resist it because they were not confident of what they were expected to do. And they didn't feel that they were – they had the necessary skills for that and that was the general impression.* ***(Participant 1).***

The lack of confidence by lecturers as actors in the university network led to resistance which hindered the integration of technology for curriculum delivery. Lecturers still felt e-learning was imposed on them, with management using power and force to ensure e-learning adoption. The use of the word 'fear' by the participant depicts an elevated level of powerlessness that the lecturers felt which management did not consider when they introduced e-learning in the university network. As a result, the resistance to e-learning portrayed by the lecturers was emanating from a point of powerlessness.

> *So if somebody has used that (face-to-face learning) all their life and then all of a sudden you want to be computer literate and at the same time learn this technology, this is why I always said it was the fear of the unknown and the educator in me would have wanted to go slowly with this but because unfortunately, time doesn't allow you technological development is too fast and doesn't allow you to go slow you just have to embrace them when they come.* ***(Participant 1)***

The participant emphasises the uncertainty the lecturers felt concerning e-learning, and the fear of letting go of their way of teaching which they had practiced all their lives. The lecturers felt overwhelmed as they had to acquire computer literacy skills whilst at the same time there was the demand to learn e-learning skills which are continuously evolving. Whilst the participant accepts the accelerated development of technology in the 21st century he would have preferred to take a slower pace in the integration of technology for curriculum delivery.

> *And also, this aspect of the fear of the unknown still comes in because again, these are impressions that I'm giving, I'm not saying there's real evidence to say this was it. You know I'm coming back to the generation before computers always referring to it. Because our generation, even the computer in itself, people are not comfortable with it* ***(Participant 1)***

The participant also highlights the level of unpreparedness of lecturers and the lack of confidence in teaching in online programs, which is portrayed by fear. Lecturers resisted e-learning as they were not clear about what lay ahead and how this mode of delivery would affect their role and identity as lecturers. Adoption is therefore a result of an innate decision by an individual lecturer. Moerschell (2009) observed that the culture in academia is a significant issue of resistance to technology: it "epitomises this behaviour," and is a necessary systemic component of implementing technological change. This was further heightened by the issue of age as the participant views it as a hindrance to the adoption of e-learning since most elderly lecturers were not comfortable with computers.

7.5.3 Age as a hindrance to technology-enhanced curriculum delivery

One of the issues raised by lecturers as actors in the university network is the issue of age. Technophobia amongst lecturers can therefore be influenced by age issues, where one perceives that they are too old to use technology in curriculum delivery.

> *The support unit was doing its best, but I think the problem which I noticed was of age. The department of (X) in terms of you know, older people are not keen to engage in technology. It was not easy for them to set up all those things. So, they were not really ready to really embrace the technology. I think it was age because if I had to look at those, [name of lecturers) they were not ready but if I had to look at [name of lecturer] a lecturer was a bit young; he was already using it.* ***(Participant 2)***

The lecturer views age as a great hindrance to the adoption of technology for curriculum delivery, inferring that elderly lecturers are not keen on adopting e-learning as they view it as too much work and also because of their lack of digital skills pointing to the resistance to learn new ways of doing things. Older lecturers in the university context may therefore not see the benefit of investing their time to learn new ways of teaching with the technologies. They would rather stick to what they know which according to them works. Fischer et al. (2014) highlighted that older lecturers usually have limited interaction with technology and are reluctant to develop the required e-learning skills as they are comfortable with their long traditional teaching experience. The participant was of the view that e-learning adoption is easier for younger lecturers because they are already comfortable with technology and had already adopted e-learning before it had become policy in the university network. Zalat et al., (2021) observed that younger academic staff generally use technology in their daily lives compared to

older lecturers hence they are more receptive and willing to increase their abilities through the use of e-learning technology.

Other lecturers reflected that:

> *……some of us were born before computers and we are on the wrong side of age, so the issue of computers is not so much easy.* ***(Participant 12).***

> *Yes, although there was resistance from the other guys, you know most of these guys didn't use technology during their school days and so on. So, to start doing that and implementing Moodle, it was a problem.* ***(Participant 2)***

> *Yaa there are a number of them, first of all among our faculty we have people who learned a long time ago who believe that learning can only be done face to face so the issue of credibility and acceptance was one of the problems even on.* ***(Participant 11)***

The issue of age is again emphasised by all 3 lecturers who viewed old age as a blockage to the integration of technology for curriculum delivery, as elderly staff were not comfortable with using technology. The prospects of e-learning whilst they lacked basic digital skills seemed daunting for elderly lecturers leading to resistance towards technology-enhanced flexible curriculum delivery. Participant 11 is of the view that faculties that had more older lecturers faced more challenges in adopting technology for curriculum delivery as they doubted the credibility of online programs hindering their acceptance of the mode of delivery. According to Basta (2009), the issue of the credibility of online programs has been mainly around the enforcement of summative online assessment since e-assessment raises issues of student identity, and appropriate measures to avoid plagiarism. Thus, elderly lecturers would have misgivings toward e-learning as a mode of curriculum delivery if they felt it was against the traditional standards of quality educational programs they valued.

7.5.4 Lack of digital literacy leads to technophobia

According to Sukuruman (2019), HEIs have faced hindrances to e-learning success due to the failure of educators to acclimatise to e-learning transformation quickly, and again this was reported by participants who were interviewed for this study:

> *The second challenge that I see there is what is it called? Attitude towards technology and what I call technophobia are always there. The challenge here is that it appears, that students know a lot more technology than the educators and these educators are always afraid to make mistakes or blunders that will embarrass them with technology. So sometimes when you try to give them some training, they will resist. They will find excuses, they will find all sorts of ways to escape the training and be left out of this training so there will be lots of excuses, lots, and*

all sorts of resistance and so forth. That is what happens, that's another challenge, once you pass those barriers you are okay. ***(Participant 4)***

The participant highlights lecturers' fear in using technology as compared to students who are usually techno-savvy as compared to their educators. The fact that lecturers are afraid to make mistakes and feel embarrassed even to learn and receive training in the new digital and e-learning skills shows the level of powerlessness the lecturers felt in the face of e-learning. In addition, e-learning entails the need for a paradigm shift or a new understanding of what lecturing entails, i.e., moving towards a more collaborative, participatory teaching approach, where you rely on students to teach you... so the lecturer is not the all-powerful person they once were but, in some ways, less powerful than their students. This paradigm shift also demands drastic cultural change from lecturers. The lecturer's resistance and negative attitude towards e-learning, therefore, emanated from a point of fear and powerlessness. Nonetheless, the 21st century has made the need to acquire technological skills imperative for educators. According to Dron (2022) educators have no choice when it comes to acquiring the skills to use technology in teaching since education is always enacted through technology.

So, all these you are able to see from the Moodle platform, so the challenge now was we have those with big classes they now appreciate but they don't want to shift from the point of actually doing it themselves. They still want the ICT and e-learning departments to continue doing the [online work, such as] ... the quizzes. ***(Participant 10)***

Participant 10 who is a support staff noted how lecturers appreciated the affordances provided by some of the tools on the LMS in reducing workloads. However, lecturers still expressed fear of technology, instead of empowering themselves with the required e-learning skills they wanted the support team to perform the task for them, a position that can only derail the interessment stage of the university network, as lecturers need to take on their role as content developers and online facilitators to ensure e-learning success.

7.5.5 The developing contexts: infrastructure issues

Developing contexts face unique developmental challenges when it comes to e-learning adoption, whilst management as the network builder in the university network had invested in ICT infrastructure for the institution, the infrastructural issues of Zimbabwe as a country would inevitably affect technology-enhanced flexible curriculum delivery in the university network. Sakala (2019) highlighted issues such as inadequate, scanty, and erratic electricity supply and inadequate ICT infrastructure as some of the challenges that affect the effective offering of technology-enhanced curriculum delivery in the Zimbabwean context. Actors were faced with this reality as they tried to deliver online courses in the university network:

The electricity has posed a very big challenge for us as an ICT department because sometimes it would go for more than eight hours of which our generators were all recommended to just run for eight hours. So, if the electricity went beyond that point, it became a problem. So now if the whole system is hosted on the institution, then that becomes a problem, students will not be able to access but that's another side. ***(Participant 10)***

The participant shows how erratic power supply affected the accessibility of e-learning resources. As a developing context, Zimbabwe has an erratic electricity supply which hinders the integration of technology for curriculum delivery. Eltahir (2019) identified poor electricity supply as one of the challenges affecting the integration of technology in curriculum delivery in Africa. Management as the network builder would have very little influence on such factors that negatively affect the integration of technology for curriculum delivery:

Sometimes we have some challenges with the network, the network, the electricity, sometimes but generally, we're okay. ***(Participant 11)***

So, challenges like the cost of data and the bad networks our infrastructure is not very good so the eLearning infrastructure at the country level is not good. ***(Participant 3)***

That is the main challenge although I haven't had those challenges often, but it can be an inconvenience. So, when you are talking about e-learning you also need a reliable infrastructure of internet and electricity so that your lessons are not disturbed in the middle. That is the main challenge. ***(Participant 12)***

The participants highlight the challenges caused by poor and erratic electricity supply, poor internet network challenges and the high cost of data as hindrances to the effective integration of technology for curriculum delivery. Sakala (2019) posits that it is difficult to implement new technologies in a developing context since poor ICT infrastructure results in inadequate internet bandwidth, and poor network connectivity. The participants showed that infrastructural issues were a national challenge that affected the effective integration of technology for curriculum delivery. In the Zimbabwean context, electricity outages, poor internet connection, and lack of ICT infrastructure affect the effective implementation of ICT project (Konyana & Konyana, 2013). Unfortunately, the situation remains the same, if not worse a decade after the scholars reported about it.

7.5.6 Lack of systems view on course loads in the university network

To ensure the successful integration of technology in curriculum delivery, lecturers as indispensable actors within the university network must have the time and acceptable course load or teaching load that allows them to efficiently facilitate blended and online courses. An important factor in the

integration of technology for curriculum delivery is the need to recognise the contradictory demand on faculty time and how this produces a very difficult atmosphere to generate the motivation to endure new e-learning initiatives (White, 2007). The statements below show how time is an important factor for lecturers:

> *I cannot say that I now have more time. It's now different from the face-to-face learning that we used to do. With this online thing, you have to be at work maybe 30 hours a day.* ***(Participant 5)***

> *Like now after my lecture and so on, you see normally you should wait so that you take the material from wherever it is Google whatever, yes, Google Drive then you post it on the Moodle but there are times I forget you see. I can forget because I have a lot to do and which is different now from the face to face because face to face when I was meeting students, I would teach them, teach them then done. The next day I know that I will meet them again on such and such a day. I will give them this, already I could have given them the assignment, they are working on them and so on but teaching online, it requires a lot of discipline, and it requires a lot of preparations.* ***(Participant 2)***

Charles & Anthony (2007) noted how lecturers shy away from technology-enhanced curriculum delivery as they hold the perception that the mode of delivery is time-consuming. Extracts from Participant 5 and Participant 2 reveal how teaching online is time-consuming for lecturers. However, according to Bensona et al (2011) technology enhanced flexible curriculum delivery entails cultural change within education as it transforms the lecturer from a teacher to a facilitator who must take control of the technology and adapt it for pedagogy as they take charge of learning the new technology and adapting it to pedagogy. Cultural change in teaching has also been reinforced by the anywhere, anytime nature of e-learning as a mode of delivery as lectures feel they are forced to work beyond their normal working time and capacity. Participant 2 shows the different platforms that he has to deal with to facilitate an online session. The lecturer feels there are too many preparatory arrangements that must be done online. He also infers the need for discipline in online learning if teaching is to be efficient. The lecturer reflects on how he had power and control over face-to-face traditional teaching mode as he was confident in the flow of the teaching process. This is supported by Kaputa et al (2022) who posited that due to technology, lecturers who teach in distance education programs have excessive loads in comparison to the work they had in traditional systems.

Another lecturer highlights how the workload in the university affects effective technology-enhanced curriculum delivery:

> *Yes, even online we must meet 12 credit hours that's the minimal. Then if you do not have 12 credit hours like for some cases, they will give you an extra load, maybe some work to do so*

that you meet that requirement. So that's the challenge, the challenge is already there, nothing has been discussed yet although we know it, but we have not yet discussed it because we are respecting this policy. ***(Participant 5)***

Truly speaking that area has been affected is research I have to spend most of my time on laptop downloading the assignments, uploading the material, trying to improvise so there's really no time, if you are really to do everything then really, really there is need for more time. We are failing to really have more time for the research and community work because we are spending most of our time glued on our laptops, even during the night at home we will be there trying to ensure the preparations are in place I've prepared for tomorrow's lecture if the invite's been spent. I have to upload the videos so there's a need for more time. Maybe if we can reduce the workload for those teaching online to some extent that can assist as we really need to concentrate on those few courses then have you can have time for other things. ***(Participant 2)***

Yes, it is difficult to say because of the workload here. It is not eLearning, it's just the workload. If you have a standard workload, one can say you've got time. For me it's actually too much. I'm overwhelmed, like now I've got seven courses that I'm teaching. I'm supervising 27/28. At the end of the day, it has nothing to do with students. It's just this heavy, unreal workload that I have. So, I can't [indistinct]. You asked me, so I will ventilate. ***(Participant 1)***

The lecturers refer to the university policy on teaching load which was literally transferred to online learning and how that creates challenges in terms of time and the amount of work in online learning. Cook et al. (2009) recognised course release as one of the incentives that HEIs can use to promote the integration of technology in curriculum delivery by lecturers, however, in this case study the participants showed that lectures teaching in online programs carried similar course loads (or even more) to those teaching in traditional face to face delivery modes in the university network. The lecturers are of the view that the preparations for online learning activities are too intensive and time-consuming and leaves them with no time to venture into the other responsibilities expected of lecturers such as research and community building.

This is in support of the observation that HEIs are continually challenged to create technology-enhanced curriculum delivery opportunities in unconducive environments inundated with paradigms that are still heavily dependent on traditional practices (Becker et al., 2017; Gachago et al., 2017). Lecturers as actors in the university network have not questioned the issue since they feel powerless as it is something enforced by the policy in the university network. One of the challenges that restrict the wider uptake of technologies in developing context are such organisational barricades (Ngambi et al., 2016). Thus, by not addressing the need to develop different course load policies for online programmes the university

created a barricade that affected the integration of technology for flexible curriculum delivery in the university context.

The e-learning trainers also faced challenges with time in e-learning training.

> *That's the first thing, all you need to do is to get the people to know how to use those things and that going requires a lot of time, it requires time, it requires interest. If you don't have the time, it's not going to work, you cannot work with the people who don't have the time because you can - with these technologies that you've bought there is no way you can conduct training that gives you a 100% view or all the skills that – the skills or features that any tool can give you, that's impossible, what it means is that it's a 50/50 situation. You give them training on Moodle and let them explore other features.* ***(Participant 8)***

Participant 8 as a member of a support department emphasises the importance of adequate training time for lecturers within the university network. However, lecturers because of the nature and demands of their job often do not give/have ample time for e-learning training, this, therefore, hinders the integration of technology for curriculum delivery if the lecturer does not have a personal interest to explore other e-learning features. According to Thurab-Nkosi (2018), it is the role of faculty administration as they work with lecturers to ensure that barriers to e-learning at the institutional level such as infrastructural, workload and pedagogical issues impacted by professional development are identified and dealt with. The onus, therefore, lies with university leadership as they are under pressure to be alert and read the signs of the times to ensure that they position themselves to employ positive influence on their institutions through deliberate decision-making as far as the role and integration of educational technologies in curriculum delivery is concerned (Piña et al., 2018).

The findings indicated that there were indeed threats to the integration of technology for flexible curriculum delivery in the university network. A threat occurs when there are unexpected associations (or disassociations) between heterogeneous elements in a university network which stray from the straight path of reason and control that the network builder would have envisioned (Latour, 2003). Therefore, management as network builders had to find ways to mitigate any threats against technology-enhanced flexible curriculum delivery in the university network. The network builder has to seek stability through actor relations which are subject to incessant making and re-making of threats and how to control them as the network aims to achieve the black box of the "idea or solution", which would be a stabilised network (of technology-enhanced flexible curriculum delivery) depicting a coherent entity representative of a heterogeneous assemblage (Callon and Law, 1997).

7.6 Chapter Summary

This Chapter covered the interessment stage of ANT's translational process. It is the second chapter of the 3 chapters that presents and discusses the findings from interviews through ANT lenses. All actors

identified in the university network, except COVID-19 were active in this Chapter. The e-learning policy was introduced as an actor and OPP in the university network to strengthen the integration of technology for curriculum delivery in the institution. However, the formulation of the policy was hampered by the lack of knowledge and skills and poor reporting structures in faculties and departments by the E-learning Committee members who were tasked with coming up with a policy. Nonetheless, the e-learning department became a product of the e-learning policy in the university network. The department emphasised training and capacity building and developed a learning design intervention that modelled the TPACK framework to come up with a holistic training outfit in the university network. The role of the E-learning department was welcomed by lecturers in the university network as lecturers showed signs of accepting e-learning as a delivery mode. The network builder also reinforced the role of technology in the university network by investing in ICT infrastructure and providing enabling resources such as laptops, home internet connections and data provisions for lecturers. The university network however faced threats such as a shortage of e-learning support staff to assist lecturers as they navigated through the new mode of curriculum delivery, lecturers' fear of the unknown in technology-enhanced curriculum delivery, and elderly lecturers holding on to traditional modes of delivery and general technophobia. However, threats in a network are 'neither a property of the human or non-human world but arise from the interactions between them and is performed by the complex ensembles they constitute' (Healy, 2004: 284). Thus, in the next chapter, the Enrolment Stage, the study will aim to show how actors performed "negotiations and the trials of strength and tricks that accompany the interessment that enable them to succeed in the university network" (Callon, 1986:211).

Chapter 8

Findings and Discussion: Enrolment and Mobilisation

8.0 Introduction

The study traced the trajectory of the integration of technology for flexible curriculum delivery at an African university in a developing context. This chapter is the third chapter of the three chapters that attempt to answer the main research question, which is:

How do actions of various actors in a university network affect the implementation of an e-learning policy for successful integration of technology for flexible curriculum delivery?

Drawing from the data obtained from interviews this chapter covers the enrolment and mobilisation stages which are the third and fourth phases of ANT's translational process respectively. Chapter 6 covered the problems identified by the network builder in the university context which led to the proposition of technology-enhanced flexible learning as a solution and the challenges faced in the university network in that stage. Chapter 7 showed how management as the network builder began to build the network and to seek alliances by advocating and convincing other actors that their solution (technology-enhanced flexible curriculum delivery) is the most appropriate (Callon, 1986). The chapter highlighted the introduction of the e-learning policy as an OPP in the university network, despite various discrepancies in its formulation and implementation processes. The major highlight of the chapter was the introduction of the e-learning department as an actor and how its efforts and actions changed the attitude of lecturers towards e-learning in the university network.

This chapter highlights how management as the network builder in the enrolment stage sought to mitigate against the threats to the university network that had arisen in the interessment stage. The chapter will also show how actors began to appreciate the benefits of e-learning as a solution in the university network. The chapter also highlights the inevitable intrusion of COVID-19 as an unforeseeable actor in the university network and the disruptions created in the university network before the pandemic was translated and became part of the university network. Finally, the chapter highlights the final stage of ANT's translational stage, mobilisation, that foregrounds the transformation of actors from reluctant actors to spokesmen of the solution.

8.1 Mitigating against threats in the university network

The enrolment stage involves "negotiations, trials of strength and tricks that accompany the interessment and enable them to succeed" (Callon, 1986:221). Chapter 7 brought to the fore the threats that arose in the university network that could derail the effective integration of technology for flexible curriculum delivery. The threats included technophobia among some members of faculty staff, infrastructural issues associated with a university situated in a developing context and a lack of systems view on course loads in the university network. Thus, the network builder and its alliances had to use

negotiations, or trials of strengths to overcome these threats. According to Callon (1986:214) to ensure successful enrolment, the network builder can adapt alternative approaches such as "physical violence, seduction, transaction and consent without discussion against the predators". This entails that a network builder might choose a more collaborative and participatory route to ensure success in the university network or take a forceful and unyielding stance on other actors. In other words, the network builder will go to any length to ensure the success of the solution in the university network.

8.1.1 Management's firm position

In the face of threats, the network builder maintained its firm and consistent position on technology-enhanced flexible curriculum delivery in the university network. According to Altunisk (2012), successful e-learning initiatives in HEIs require a clear and insistent leadership style. The network builder had to use strategies that eliminated threats in the university network as highlighted by these two statements from participants of the study:

> *But I'll say the deliberate pronouncement in policy by the Senate and the Vice Chancellor itself, a firm commitment in the advocacy of e-learning was very, very important in the enforcement. And then there was, also enforcement of that policy by the deans, the HOD's (Head of Departments) and ja.* ***(Participant 5)***

> *Yes, very much especially our dean, Prof……. He was always hammering, "Please, can we embrace eLearning? Please, can you engage IT people so that you start using it?"* ***(Participant 11)***

Participant 5 and Participant 11 attribute the successful integration of technology for flexible curriculum delivery within the university network and the removal of threats to the leadership and support shown by higher university boards and management in promoting e-learning and the policy declarations made from the top management, trickling down to the deans who were at this phase of the translation process enforcing the adoption of e-learning at faculty level - unlike in the problematisation stage when they lacked the required e-learning knowledge to enforce it at the faculty level. Participant 5 uses the word *enforcement* which pertains to the use of force and power by the university management as it sought to eliminate any threats to technology-enhanced flexible curriculum delivery by lecturers as actors in the university. Participant 11 shows how faculty management, some of whom had problems in leading e-learning within faculties, were now also reinforcing the use of technology in the university network. The use of the word *hammering* to describe the way the Dean implored lecturers to use the technology shows the insistent, forceful way e-learning was being imposed in the university network.

> *So, I can state when I joined, no one shared with me the e-learning policy on that note I would say policy implementation had issues, but it's tied to another C which is policy communication – how is the policy communicated? Is it communicated at all levels? Is it communicated in the*

right manner? So, it took the Vice chancellor himself to stamp his authority which I believe all policies require the buy-in of the top officials, had it been not for him, that policy implementation and communication could not have happened. ***(Participant 12)***

The Vice Chancellor would continuously say we are moving, and we are not going to go back. So, from there we knew that there was no way that we could go back and since these two guys (Vice Chancellor and Deputy Vice Chancellor) meant their words, we had to adapt and adopt to everything that was being said and also, we had to work hard and see to it that we succeeded in using Moodle. ***(Participant 10)***

Participant 12, a lecturer who joined the university in the latter years when e-learning had been introduced within the university, acknowledges the role played by management as the network builder in ensuring effective communication on the importance of e-learning in the university network. He infers that the way policy is communicated in any context is important for implementation purposes. The policy and e-learning were being led and communicated to users by the university's Vice Chancellor reflecting the university's clear position on e-learning and highlighting how the management used authority to enforce e-learning in the university context.

Participant 10 reflects on the unwavering position of management on e-learning adoption, which was instrumental in the adoption of technology in the university network. The participants are of the view that e-learning adoption was inevitable because the initiative was driven by management. Management's pronunciation that *"we are not going back"* was a declaration of the position of the network builder on e-learning as well as a warning to any actors who thought they could derail e-learning in the university network.

Thurab–Nkosi (2018) highlighted the importance of a university's management in establishing a sense of urgency and clear communication of institutional vision as advocators, communicators, and leaders to drive the sense of urgency for implementation. The study showed the university management took this role seriously and communicated relentlessly at all levels of the university structure as it advocated for the integration of technology for flexible curriculum delivery. This is in line with Altunisk's (2012) position that effective management in a technology-enhanced flexible curriculum entails being able to move large numbers of staff in the same positive direction. The firm position taken by management in the study showed that they viewed this as the most effective way to enhance change in the university context. Despite the threats that could have easily led to the failure of the university network, management maintained a steadfast position in their firm and consistent leadership style. Although management as the network builder adopted an insistent top-down leadership style and exercised power and force to ensure the integration of technology for curriculum delivery in the university network, it

cannot be refuted that they provided enablers that were meant to equip actors with the required knowledge and skills to enhance e-learning in the university network.

8.1.2 Continuous Training

The threats to the university network included the lack of digital literacy skills, thus, to eliminate the threat the university provided continuous training and support through the e-learning department. According to Akinyemi & Bassey (2012), effective development and training of lecturers lead to effective work ethics and delivery even in a harsh environment as they strive to give their best towards achieving institutional goals.

> *Because the management had the vision, and they were steering the ship and they were saying this is the direction that we are taking and from there you will see that the world is also taking that direction. So, the management has taken its position and with that, they've also put in place that department in charge of online learning, which is steering things in the direction the management has chosen.* ***(Participant 9)***

Participant 9 acknowledges the role of management as a network builder in leading and directing e-learning as a result of the global discourse of e-learning. He notes how the network builder enforced the adoption of technology for curriculum delivery through the establishment of the e-learning department which is an alliance in the university network which promotes e-learning advancement. The role of the e-learning department continued to be dominant in the enrolment stage with increased appreciation from lecturers as indispensable actors in the university network, as supported by the following comment by a participant of the study:

> *They follow proper e-learning pedagogies, and they conduct training, regular training, and continuous training, and they are ready to advise any staff member old or new on what needs to be done and how it needs to be done.* ***(Participant 9)***

By providing continuous constant training and support in online learning and equipping the lecturers with the required pedagogical, technical and assessment skills to enhance their online facilitation, the e-learning department was also instrumental in dispelling threats such as technophobia and resistance to e-learning in the university network. The participant highlights the training and support provided to lecturers to enhance their capacity to effectively deliver courses online. Thus, the e-learning department as an actor and an ally of the network builder strengthened the university network. Lecturers as indispensable actors took on their new role as content experts and online facilitators, as technology became an important actor that not only necessitated delivery but enabled effective curriculum delivery. According to Rivera and Cox (2016), a successful alliance in a university network occurs when the

roles of the actors which the network builder wants to exercise control over are devised by their roles as assigned by the OPP, in this case, the e-learning policy.

8.2 Actors identify benefits of technology-enhanced curriculum delivery

Enrolment in ANT involves the network builder (i.e., Management) influencing and exerting power on both social and material actors that lead to the connection of some actors, with the connection between some actors becoming more durable and more influential and larger than others in a network (Cressman, 2009). Thus, enrolment of actors in the university network takes place when there is acceptance of e-learning among actors i.e., when actors have identified and gained certain benefits from the 'idea' or 'solution' introduced in the network.

8.2.1. Increased flexibility and interactivity for/with students

As indispensable actors in the university network, lecturers' attitudes toward e-learning changed as they realised favourable benefits in the mode of delivery. Becker et al. (2017) noted how perceptions towards online learning have been changing favourably in recent years, as increased numbers of educators view it as a viable option for some methods of face-to-face learning. The following statement from a lecturer shows acceptance of technology-enhanced curriculum delivery by a lecturer:

> *You want to make things easy as possible for the student and this eLearning platform I feel the type of student we have in our program, it's ideal because they don't have to travel all the way, you can interact with them from anywhere and I also found it exciting most of all* **(Participant 1)**

The lecturer shows the benefits derived from teaching online for adult students in a university program. He appreciates the fact that students can work from wherever they are and can still collaborate and interact online. The fact that the lecturer is excited by the fact that he can teach students anywhere, anytime shows his acceptance of e-learning and confirms his enrolment in the university network. The acceptance of e-learning by lecturers as a result of the flexibility it gives to curriculum delivery is also supported by another participant:

> *It's always intertwined but the thing about eLearning is that you no longer need to go to the classroom. That means you can learn any time you want, and you see if you look at our context, most people who want to go to school, may not have resources because if you give them a face-to-face situation, they're forced to leave their jobs which is not ideal. But if you give them technology and tell them you can access your material at midnight, they will be very happy. Because they will prefer to go to bed late but go to work during the day and they will have the money now to pay for their studies. So that is one way of looking at this situation you see, most of the African countries are poor and the scholarships are also limited. It is not everybody who's got access to a scholarship. We've got a lot of people who need education, and that*

education is not cheap. It requires you to be working so that you can pay for it, so from that perspective, I think it's very important. ***(Participant 12)***

The participants refer to the need for education by adult learners in the African context yet there is a dearth of scholarships that would allow them to leave work and study full time. This is supported by Bates & Sangra (2011) who noted that e-learning is an ideal mode of delivery as it provides adult learners with access and much-needed flexibility in learning as one neither needs to stop working nor leave the workplace to pursue further studies but can still access flexible learning requirements and instruction. The lecturer appreciates e-learning because it empowers adult learners through flexible learning programs in developing contexts such as Zimbabwe, who would not have continued to acquire new skills and higher qualifications had they not been able to be working to pay for their studies and other commitments. Another participant supports the flexibility provided by technology-enhanced curriculum delivery to adult learners and also how it promotes the Pan African nature of the institution:

Yes, I would say the major benefit was of course gaining access to students who would otherwise fail to come to campus, gaining access to those students who are busy during the day and who would want to attend classes after hours like those are at work. So, many of the students who got onto the online classes were people who were working so they could work and then learn at the same time….and by being Pan African, we could also increase our reach and were able to get students from beyond the borders. ***(Participant 9)***

The participant shows how e-learning has allowed the university to enrol students beyond the Zimbabwean borders from other parts of Africa and beyond, as a result allowing the university to fulfil its Pan-African mandate, unlike traditional modes of curriculum delivery where the university could only set up two sub-campuses in Zimbabwe and one in Mozambique. This corresponds with Chigona, & Dagada (2015) position that the growing population in Africa is one of the main motivations for the development and deployment of technology-enhanced flexible curriculum delivery that ensures the provision of quality, accessible educational opportunities.

According to Johnson et al. (2009) and Khalil (2013) of importance in the integration of technology for curriculum delivery is the need to overcome the issues of faculty resistance to using technology through organisational change, including the need to educate academic staff on the use of educational technology concentrating on innovative pedagogies instead of the technologies themselves. The support provided by the e-learning department through training and capacity building is highlighted by the high level of acceptance, confidence, and appreciation portrayed by a lecturer:

For me, it's that self-fulfilment and it's now very convenient because we don't travel anymore. I just woke up, connect to my laptop, prepare my material, and deliver my lecture. There's no

hassle so it has added some positivity to my life and it's easy now. There's no pressure going to the campus, to getting to the bus, and being back so online learning, has not changed my status and role as a lecturer, but it has simplified the way I do things. ***(Participant 12)***

Participant 12 acknowledges the convenience provided by e-learning, in that he does not need to travel or commute to work if he is teaching online as he can work from anywhere. Whilst lecturers in the university context initially resisted online learning during the problematisation stage because they could no longer claim for travel and subsistence to travel to sub-campuses in other cities, they now appreciated the freedom it gave them in terms of the unrestricted teaching space. By stressing that online learning has simplified his work, the lecturer implies that he is empowered as he can do most of his work from his laptop regardless of location.

8.2.2 Pedagogical benefits of e-learning

Adopting technology for curriculum delivery is a complex process that goes beyond adding an ICT tool to a course. Technology should transform the way lecturers teach and what they teach, thus, converting from face-to-face to blended or online mode of curriculum delivery is therefore not a self-evident enrichment process (Brouwer et al., 2013). Lecturers in the study were able to appreciate the pedagogical benefits of e-learning from their position not only as a content expert but as someone with extensive knowledge in the science of teaching and learning as shown in the statement below:

For me, it was this new technology and maybe my educational background is the one that helped me to be interested. I have qualifications in education, a diploma and degree in Adult Education and I was more fascinated by this new technology that is coming up and I wanted to know about it and once you get the technological skills, you realise e-learning is convenient you as you can effectively sequence teaching content and assessment. ***(Participant 1)***

Because of his educational qualifications, the lecturer could appreciate the affordances of technology-enhanced curriculum delivery, highlighting that once one acquires the required technological skills applying pedagogical knowledge becomes easier leading to effective online curriculum delivery. It is important to note how Participant 1 had to overcome his age-related issues which he previously considered as a hindrance to e-learning in the university network during the interessment stage of the translation process.

8.2.3 Delegation between the Social and the Technical

In ANT, the concept of delegation describes the shared relationship between the social and the technical, whereby reading the social from the technical is the same as reading the technical from the social (Latour, 1991). In other words, technology is used to delegate or translate a major effort into a minor effort, as the following comment shows:

The technology was so easy in terms of assessment because it will take time creating the quiz online but when it comes to assessment …. our classes were big. We had 35 students or 40 students so really, once I started the quiz everything would be just smooth-running. ***(Participant 9)***

The participant appreciates the affordance provided by the quiz tool in e-learning as all he has to do is create the quiz and everything else including the marking is performed by the LMS. The convenience provided by the e-learning tool is liberating and empowering for the lecturer especially when he is dealing with large classes. Thus, through delegation a major effort became a minor effort when the lecturer used technology, the technologies delegated the work of lecturers and in turn technologies delegate behaviour back into the society (Latour, 1991). In the interessment stage support staff were complaining that whilst lecturers appreciated the affordances of technology in curriculum delivery, they expected the support departments to perform tasks such as creating an online quiz for them. But in the enrolment stage Participant 9 shows he has embraced the delegation offered by technology in the university network.

8.2.4 Open Education Resources as a solution in a developing context

In Zimbabwe, like most developing contexts, the shortage of textbooks that cater for STEM-related courses have always been a problem since the economic meltdown that affected the country at the turn of the century in the year 2000 (Shoko, 2010; Kandiero, 2015). However, as highlighted by the participants e-learning provided a solution to this challenge in the university network:

I would find that e-learning brought a lot of advantages that directly accrued to us as lecturers as a department because engaging in eLearning allowed us to make use of online learning resources. If you recall at that time, if you were teaching technology, it was a difficult era of bookshops where you would hardly find any Computer Science books. And it was not only at our bookshops but also even anywhere in town. The textbooks that we would find are basically secondary school textbooks. So, using eLearning and e-resources ja, it was a motivator, so it was really facilitating our job and also improving the performance of our job. ***(Participant 11)***

The participant acknowledges the convenience brought by e-learning to their department in terms of learning resources needed in that particular degree program. Kandiero (2015) highlighted how the lack of educational resource requirements for both educators and learners for HEIs in Zimbabwe was a serious issue that demanded immediate remedial measures. Whilst traditional textbooks and resources that were needed in the program were not available in Zimbabwe as a developing context, e-learning provided the solution as the lecturers could use various forms of e-resources in their teaching. The use of e-learning and e-resources, therefore, empowered the lecturers in their role as educators and online

facilitators reinforcing the alliance and relationship between technology and lecturers as actors in the university network.

8.2.5 Freed up time through e-learning

Whilst e-learning was once considered time consuming in the interessment stage, through continuous training and use which led to the acquiring of the required pedagogical and technological knowledge and skills, the lecturers' perception changed as they now regarded e-learning to be a time saving and convenient mode of curriculum delivery in the enrolment stage of the university network: This is supported by the extract from Participant 3:

> *We have to free our time for other things so the resistance was less because the gains that were making that type of saving in terms of time saving and doing other things were much outweighing what will be experienced by doing face to face* **(Participant 3)**

The participant who is in faculty management shows how the resistance towards technology enhanced curriculum delivery in their faculty was overcome as a result of the benefits and freedom gained from the mode of delivery through timesaving and convenience. Traditional modes of learning which entail face-to-face sessions were therefore considered time-consuming confining and restrictive. Lederman (2019) highlighted a study in which lecturers who had converted from face-to-face to online or blended classes noted the reduced lecturing time through e-learning, even though they had incorporated more active learning techniques in the technology-enhanced mode of curriculum delivery. Thus, enrolment in the university network was achieved as a result of the change of perception toward technology-enhanced flexible curriculum delivery by lecturers.

8. 3 COVID-19 as an actor

According to Montenegro & Bulgacov (2014:113) within ANT, activities are 'constantly interrupted, disrupted, and impeded by uncertainties". The actor-network of the university understudy was inevitably affected by an unforeseeable uncertainty in the form of COVID-19. In January 2020, the World Health Organization (WHO) announced a worldwide public health crisis, COVID-19 which was a novel coronavirus disease outbreak that was reported as a pandemic in March 2020 (Pham and Ho, 2020). As a result of the pandemic schools and colleges were temporarily closed in most countries worldwide, as face-to-face education would affect social distancing, which was crucial at this stage, however, this led to a negative impact on educational activities (Toquero, 2020; Zalat et al., 2021). Like many other institutions around the world, the university understudy was "compelled to engage in emergency remote learning and teaching, working from home arrangements for staff, finding alternative ways to support students and reallocation of budgets to address the emerging needs" (du Plessis., 2022: 537). As discussed in Chapter 2 the unplanned sudden move from face-to-face curriculum delivery to the use of technology for curriculum delivery due to unforeseen disasters such as a pandemic is referred

to as emergency remote teaching (ERT) (Khlaif et al. (2021). Thus, as a result of COVID-19, the university under study found itself in this mode of delivery.

8.3.1 Actors unprepared for remote teaching and learning

Despite having run successful online programs, COVID-19 was still an unexpected disruption in the university network. Although lecturers in this study had experience in online learning, they were not entirely ready for emergency remote teaching and learning. Of course, it can be argued that they were better off than their colleagues who did not teach in blended and online programs and who were not used to e-learning before Covid19, however, issues would obviously arise on the part of students and institutional resources. Johnson et al. (2020) observed that lecturers were expected to learn how to teach online and pivot to online learning within short, unrealistic, timeframes irrespective of whether the lecturers had previous online teaching experiences or not, as the following extract shows.

> *I can't say that I was fully prepared because we weren't expecting things just to change overnight, or we were thinking things were moving gradually and we had introduced online learning bit by bit and in our department, most of the students were on campus there were just a few students who were in a full online learning program. So, it was difficult for us to introduce online because we had students who never wanted to do online, we had students in blended programs they preferred face to face and then get their assignments and so on whilst they are at home and then they'll write and send online and so on. So, we were just prepared for that but with this pandemic, it was something else. Yes, because it was just an overnight change* ***(Participant 2)***

Participant 2 shows how COVID-19 was a disruption in the university network. Whilst the faculty had been running online programs since 2017, online students were in these programs by choice. Students in blended and face-to-face programs were therefore not ready to have full online sessions as the university was forced to go fully online as a result of the pandemic, as students preferred the modes of curriculum delivery they had signed up for. Online learning is complex in that it involves the use of internet networks for accessibility, connectivity, flexibility, and learning interactions (Moore et al., 2011). Thus, traditional face-to-face students were not ready or prepared for the emergence of remote teaching and learning necessitated by COVID-19. Participant 2's statement shows that even though he was a lecturer who taught in blended and online programs, he was not ready for the overnight need to teach all his courses online as he was satisfied with the gradual move towards online programs in the university network. Khlaif and Salha (2020) confirmed how so much pressure was put on educators and students as a result of the sudden and unforeseen switch to online learning due to COVID-19 as new technologies which students were unfamiliar with were imposed on their learning, as shared by this participant:

So, it's the problem that everything was coming just overnight and the students that we have in the postgraduate program, they are mature students and some of them they went to school up to university level, first a degree, they just used maybe the computer to type their dissertation and so on but not to work on the computer full time and mainly using that computer. So again, it's still a challenge because even connecting to Zoom even if you ask them to present their work, they have to upload that document and present it, he will take 10/15 minutes to upload the document. And then there will also be other complications of internet, their workplaces, there's no internet if they want to connect, they have to move to certain areas where there's internet. ***(Participant 6)***

Participant 6 reflects on the challenges that mature students in postgraduate programs faced as a result of the imposed remote teaching and learning. HEIs attract students from various demographic areas including those from rural and township areas, who might lack digital fluency as a result of a lack of prior exposure to ICTs in education (Mbodila et al., 2020). These students were not used to using technology at all and having to adapt to technology-enhanced learning was a huge problem. According to Shin & Hickey (2021) student motivation is of paramount importance for effective learning which leads to academic success in both online and face-to-face modes of delivery. Thus, the lack of technological competence would affect students' motivation thereby negatively impacting their learning.

8.3.2 Developing Contexts' Challenges for Students

Blended and online programs should be a choice that a student makes however such a choice was not available during COVID-19. These technology-enhanced flexible curriculum modes of delivery can be accessed by anyone from anywhere if they have resources that include a conducive learning environment, electricity, internet data, devices, and digital literacy skills (Duan et al., 2010; Du Preez and La Grange, 2020). In the developing context in most cases, these modes of delivery are not necessarily feasible due to the lack of resources, thus the emergence of remote teaching and learning was a huge disruption for students who would never consider technology-enhanced curriculum delivery, as the next two extracts show.

And then there will also be other complications of internet, their workplaces, or their homes there's no internet if they want to connect, they have to move to certain areas where there's the internet. Some are connecting using their cell phones and so on. So, at times you may find that someone will try to do a presentation using their cell phone and there are challenges here and there you won't be able to do the right thing. So, these are some of the challenges. ***(Participant 5)***

*So, the problem was, the challenges were Covid-19 is the environment, living conditions, and home, but in terms of devices to when I'm sure the student will have the smartphone, some student who has access to a computer but of course in terms of home environment yes, in Africa, it remains a problem, not every home is conducive for online learning. (**Participant 11)***

Participant 5 shows how traditional students faced challenges in remote teaching and learning as they had poor internet access and some of them did not have the appropriate devices for online learning. According to Adedoyin & Soykan (2020), there is a high chance of being cut off from learning for instructors and students with bad internet connections since online learning depends solely on technological devices and the internet. Participant 5 shows how students had to make an extra effort by moving to areas that had better internet connectivity to access the learning platforms, which might have been a challenge given the strict lockdown put in place by the Zimbabwean government for most of 2020. Whilst Participant 11 acknowledges the possibility of using either a cell phone or a laptop for learning, the environment of some students in the developing context might not be conducive to learning due to noise in the house and the need to do chores.

8.3.3 Translating the new actor

Translation in ANT entails that the relationship between actors does not intimate causality, but encourages actors into a co-existence, thus it caters to possible displacements among other actors where mediation is essential to the occurrence of any action (Latour, 2005). Thus, "instead of a rigid opposition between context and content, the translation chains refer to the work by which the actors change, displace and translate their several and contradictory interests" (Latour, 2001: 356). The actors in the university network, therefore, sought ways of progressing in the university network in face of possible displacements as a result of COVID-19 as an unexpected actor.

8.3.3.1 Technology's new role as an indispensable actor

Although technology had always been an important actor in the university network, COVID-19 re-emphasised this role as the actor became indispensable. The ICT department had to readjust its actions to propel the new role of technology in the network:

Our working times – we are always on standby. At present we have a team of six workers, this is including the director of ICT. We – you see, during this pandemic, we have actually seen that we needed more, and you see that because of relationships that you have you get issues that are both-sided, things that are specific to eLearning and then the things that are specific to ICT. But what we've been doing is, is we have continuously been called up, the internet is down, and we have to push because all our classes are happening online. So, the team has always been on standby, it's actually on a rotation basis, everyone is on standby, and we are on a rotation basis, so everyone has to come on campus to do the support. And in essence, we have equipped every ICT employee with a bit of internet so that we're continuous - are continuously

available. We have also created a platform a support platform which is now catering to all university processes where if a student is where they are at home and they've got an issue with their email because we use the majority of our classes, we use our Google Meeting so it means that the university emails should be operational. So, if they've got challenges with their email, we've got someone who's manning the help desk system which is now used university-wide where we are responding and assisting so that we reduce the downtime for all our stakeholders. ***(Participant 10)***

Participant 10 as a member of the ICT department describes the changes that had to be made in the department in order to ensure technology as an actor during the COVID-19-induced ERT is readily available to all the other actors in the university network. Special arrangements that included rotation of availability, provision of the Internet for staff, and a 24-hour helpdesk were made to sustain the learning process and support the university network. Raksmey & SARIK (2020) noted how the pandemic has foregrounded ICT as a major element of pedagogy in the 21st century, highlighting how technology has played an especially important role in promoting access to education as universities strived to advance students' progression and enhance the teaching and learning process. Whilst the institution had already established ways to provide data and internet for lecturers, in remote teaching and learning there were new challenges as students from traditional campus-based programs had to face the reality of the need for data and internet so that they can access the learning platforms, as the following quote shows.

The critical issue that we have found for the critical success factor is access to internet data by the learner. But the instructor, it's easy to provide that for example, the university provides internet data support to its teachers and other employees. Those who can't access Wi-Fi at our different centres, they can get that at home, and they teach from home. But the students because there are so many. So, there would really be a need for a massive program to ensure students have access, either too cheap data or to free data altogether. ***(Participant 5)***

Participant 5 points out the challenges of data for students in developing contexts. Whilst the university had devised various means to ensure that lecturers were connected, students were left out of such arrangements thereby creating problems for effective curriculum delivery during the pandemic. Dube (2020) noted that in developing contexts online learning during COVID-19 tended to favour urban and well-privileged learners at the expense of rural and/or underprivileged students. Thus, to ease the problem for students, as the university realised the highlighted importance of technology as an actor in the university network, they provided support:

So there are still challenges but the major ones students being able to access ummm data, the cost of data itself, so what we did is we waived the umm, students used to pay technology fees

*which is about zwl15000.00 and we have waived that so that students can use that money to buy data, but it's not enough because you find that on average students need about 8-10gig per week and 8-10gig per week that's about 2000ZWD and if you multiply that by I think our learning per semester is about 18 weeks excluding examination weeks 18week X2000 for an average family that's quite a lot so at the end of the day those are the challenges so the issue of equal access for both students and lecturers so who would assume you are teaching but maybe the person who is being taught is not even participating that`s the point and for us the biggest challenge is that we have got students scattered all over the Africa in some countries the networks there are not as good as here ummm so you find out the access level is almost 80 to 90 percent, so what happens with the 10%.... (**Participant 7)***

Participant 7 who is in management explains how the university has tried to assist students by removing the technology fee from the university fees during the pandemic. Whilst the amount might be very little in terms of the amount of data the students need for the whole semester of learning online, the act shows the university's commitment to ensuring that learning takes place during the pandemic. Participant 7 also highlights how the Pan-Africanism nature of the institution entailed more challenges for the university in terms of students' access as most African countries face different degrees of network challenges. According to the AAU (2020), the advancement of ICTs in sub-Saharan Africa over the past 20 years elevated the anticipation for a higher tech level which would encourage a cost-effective technique of resolving the challenges of access to education, however, the challenges presented by the inefficient use of ICT infrastructure has decelerated the process.

8.3.3.2 Online Professional Development

The COVID-19 pandemic may be credited to bring a change in the pattern and philosophy of organising professional development workshops (Misra & Tyagi, 2021). To support lecturers during the pandemic the e-learning department provided online training workshops.

*I must say because of the COVID-19, there was more capacity to building on the part of lecturers, the E-learning Department has had some online workshops with both lecturers to capacitate them to teach them on various things, and that I must say it has helped and it's still ongoing. **(Participant 4)***

*Right now, I can say there was an improvement. We started having some training online yes, on how to deliver lessons, online how to set your exams, your quiz, and so on, we are receiving those things online from the E-learning Department (**Participant 11)***

Although there was initial panic and uncertainty in the university network as COVID-19 necessitated ERT, the e-learning department found a way to enhance capacity building by adopting online training. Participant 11 shows there was an improvement in their offering in ERT as they started to receive

training that included how to run online examinations. As observed by Misra & Tyagi (2021) professional development engagement are an integral part of lecturers' lives as they need to continually participate in these activities. Thus, by having access to training during the pandemic lecturers found confidence in the new teaching and learning mode of delivery. So COVID-19 could be seen as a catalyst for many to embrace technology integration into curriculum delivery. Many lecturers were keen to be trained to teach using technology because that was the only way possible to teach during lockdown when face-to-face classes were not possible.

8.3.4 Inscription of e-learning in the university network as a result of the pandemic

"The concept of inscription describes a stable relationship between two (heterogeneous) actors in which their roles are clearly defined, their behaviours are attuned to each other, and their patterns of interactions are well established" (Montenegro & Bulgacov, 2014:115). Technology, lecturers, documents, management, and other actors were heterogenous and separate at the beginning of the translation process in the problematisation stage, however at this stage, their roles were defined, and they were now attuned to each other that even the pandemic could not separate them. Although Dell & Sawahel (2020) report that most Zimbabwean HEIs failed to adequately provide remote teaching and learning during the pandemic, with students calling for lecturers to be trained in e-learning and for guidance, the finding of this study proves otherwise.

> *AU moved 100% online our students have not missed a semester, they are on course to graduation at the time that they intended to graduate when they started their studies. But you can say the same about all the other universities, which means those students who are going to graduate on time, already are some steps ahead of those students who are then now going to take more, maybe where they were supposed to take four years, they're now going to take four a half, five, maybe even six years to graduate* ***(Participant 4).***

Participant 4 confirms that the university understudy was able to continue providing learning services online. It was the only institution in the country where academic progression was not disrupted by the pandemic. The success of the institution to survive in the pandemic despite contradictory contextual circumstances can be attributed to the concept of inscriptions in ANT. Inscriptions in the translation process show how technologies become part of everyday practices and how they can dominate the way that things are done (Bueger & Stockbruegger, 2019). Thus, because e-learning was already entrenched in the university network well before the COVID-19 pandemic, the institution was able to sustain teaching and learning:

> *Well, the first - everything is that I would like to say all above. There is that policy, which was there even before the pandemic you see, we're talking about 2016. So, we were already ahead as an institution and even before Covid, you remember when you were here, it was everybody must have at least a course on Moodle, which means when the pandemic came, it wasn't that*

much of a crisis for us. It was now a question of embracing this thing that is there and even for those ones who were resisting before, it was like now we have no choice. ***(Participant 7)***

Now when the eLearning started as I was saying at the beginning, we were prepared by you people, including our late vice chancellor. Many Zimbabweans did not take e-learning as seriously as they only be teaching face to face you see. But now the whole world is faced with this pandemic, including Zimbabwe and there are new realities that the world has to understand especially Zimbabwe has also to consider. ***(Participant 5)***

The participants attributed the ability of the university to run full online programs during the pandemic to the fact that e-learning was an already established practice and mode of delivery in the university context long before the pandemic. Lectures as actors in the university had to completely embrace e-learning, including the few cases of resistance that remained in the university network. As a result of the established policy and management initiatives and support the participants felt the institution was able to deal with emergency remote teaching and learning necessitated by COVID-19. Participant 5 shows that the majority of Zimbabwean universities had not taken e-learning seriously as they advocated for face-to-face provisions only. According to Magunje and Chigona (2021), Zimbabwe is a context where most universities still advocate for traditional modes of flexible learning a reason that led to the disruption of the studies of thousands of students as HEIs failed to integrate technology for ERT during the COVID-19 pandemic.

8.3. 5 Irreversibility of e-learning in the university network due to COVID-19

The pandemic has changed curriculum delivery as we know it with lecturers embracing technology in teaching and learning as shown in the extract:

So right now we saw that even if COVID goes away and we start doing face-to-face we don`t think we will completely going face-to- face we will maybe meet the students in the beginning face to face then meet them in the middle of the semester then later for revision but we think even with the students on campus we still are going using technology because we have to free our time for other things so the resistance was less because the gain that was making that type of saving in terms of time-saving and doing other things were much outweighing what will be experienced by doing face to face ***(Participant 4).***

According to Callon (1987), irreversibility defines how translations between actor networks are strengthened, and how they can fight attacks from rival translations, arguing that it is a level to which it is impossible to return to a point where the actor-network did not exist. Participant 4 who is a faculty leader refers to the way teaching and learning will never be the same after the pandemic. He shows that technology will always be part of curriculum delivery even for campus-based programs, inferring

possible blended modes of delivery that can be made within the faculty as the university network developed a new appreciation of e-learning especially in freeing up time. According to Pham and Ho (2020), technology-based educational modalities have received new appreciation and merits in universities as a result of the COVID-19 pandemic. The participant shows how permanence has been established as far as e-learning is concerned in the university network, highlighting the irreversibility of technology-enhanced curriculum delivery, were going back to strict face-to-face teaching and learning is impossible even after the pandemic. According to Pham and Ho (2020:1329) even after COVID-19 universities are most likely to settle into "a 'new normal, with flexible, updated, and reformed modes of teaching and learning."

8. 4 The Mobilisation Stage

According to Callon (1986), the final moment of translation is the amalgamation of the stabilisation of the network of alliances, as the proposed solution is accepted by most actors, and the spokesperson's legitimacy is established. Through translation, entities, human and non-human actors join together and connect, transforming one another to form links, at each of these connections, one entity has worked upon another to translate or transform it to become part of a network of coordinated things and actions (Latour, 1987). In the mobilisation stage online and blended learning is fully running with all the relevant actors in the university network connected and in agreement and other actors besides the network builder become spokespersons in the university network. Connections now exist between human and non-human actors. In this study, it entails links between management, policy, lecturers, technology, policy documents, support departments, and even COVID-19.

8.4.1 From learner to fully invested online facilitator

In the mobilisation stage, there is a considerable change from the problematisation stage as lecturers have acquired the pedagogical knowledge and skills to teach online. A lecturer who once struggled with e-learning now reflects that:

> *That's true 100% right, I've adopted some strategies, remember in those years as I said at the beginning, I was still a learner. Everything was still new to me as well as to the students but these years, this is my third year now that I'm fully – I'm teaching it from the beginning up until the end of the semester, even the exams and so on. I think I've much more invested in it than previously.* ***(Participant 5)***

The participant shows he has reached the mobilisation stage, he has formed a link with the technology as an actor within the university network and adopted strategies to strengthen that link. Lecturers have gained confidence as online facilitators who have taught in an online program for several years and considers the use of technology in curriculum delivery empowering, as they are now committed to technology-enhanced learning. According to Lederman (2019), the majority of lecturers who have facilitated online courses report that their teaching had improved as their pedagogical skills and

practices had been greatly developed. Participant 5's statement shows the irreversibility of e-learning within the university network since the lecturer is fully invested and dedicated to online learning.

8.4.2 Spokesperson Legitimacy

During the mobilisation stage, the network builder relies on the enrolled actors and allies to stabilise the university network by depending on their force as spokesmen of the solution to gain wider acceptance (Riviera and Cox, 2016). Another participant shows how he is now able to assist other lecturers in taking on the spokesperson legitimacy:

> *It helped me so when I completely switched onto Moodle learning for online learning, now I can assist people (other lecturers) who have some challenges, people come to me and say "Mr……. can you help us? How can we do this?" Because it is now easier for me because I am already used to it* ***(Participant 11)***

Participant 11 as a lecturer and an actor who has been enrolled in the university network shows that he has reached the mobilisation stage by the fact that he can now take the position of a trainer helping and supporting other lecturers within the university network. According to Finn & Sturmey (2009) peer to peer training, involves peers assisting each other instead of professional staff, leading to enhanced competency and dignity amongst the staff members. In ANT we can say the lecturer as an actor is now a spokesperson for e-learning in the university network. Through peer training, the lecturers reveal that they have gained confidence in technology-enhanced curriculum delivery.

8.4.3 The reality of a global campus

From the beginning of the actor-network, the network builder (management) inferred the possibility of a global campus through technology-enhanced curriculum delivery as restrictions such as those imposed by traditional modes of curriculum delivery would be completely removed. The fact that enrolled actors in the university network, such as lecturers can now speak of and comprehend the possibility of a global campus as a result of the solution, shows mobilisation has taken place in the university network, as the following extract shows:

> *…… by being Pan African, we also increased our reach and were able to get students from beyond the borders. I would say that.* ***(Participant 12)***

> *Yaa if you look at our initial class it was spread all over the country and now for the……. program it is spread over Africa, so we have been able to reach more people now that we have been able to do online learning, we also hope that more students will be enrolling online programs because what we are thinking is that we must create what we call a global campus****…… (Participant 3)***

> *So, we are thinking that we might have to have what we call our global campus which specifically deals with this group of students and where lectures are being done umm synchronously then even the students on campus can join that particular class (**Participant 7)***

The participants show the university has managed to increase access to the university programs by enrolling students from beyond Zimbabwe. Unlike traditional curriculum delivery where their programs were limited to a few towns in Zimbabwe and Mozambique, the university has managed to enrol students across Africa as a result of technology-enhanced flexible curriculum delivery. Participant 3 and Participant 4 show a state of stability within the university network as a result of the enablement provided by e-learning in terms of the increased university catchment area for potential student recruitment. Participant 7 shows how e-learning has become an immutable mobile by taking on a fixed form within the university network. The participant statement shows how the university has now embraced technology-enhanced learning as they now consider bringing both campus-based and online learners together in online synchronous sessions. For actors who were comfortable in their face-to-face status quo, the fact that they are considering online learning as the best way to engage even students who can teach face to face shows the inscription of technology in the university network. According to Chua (1995) inscriptions are immutable combinable mobiles, because they are translated into a stable form that can be brought together and be compared to other inscriptions, where they can be transferred from their original contexts to other applications. The fact that technology-enhanced curriculum delivery has now led to the possibility of a global campus shows that mobilisation has taken place in the university network.

8. 5 Chapter Summary

The enrolment and mobilisation stages of ANT's translation process show the entrenchment of innovation in an actor-network. In this study, the enrolment stage took place after a long process of the interessment stage that was characterised by negotiations between the heterogeneous actors in the university network. The enrolment stage started with the network builder's efforts to maintain stability in the face of threats in the university network by maintaining its firm position in the university network as well as the provision of continuous training by its ally, the e-learning department. The results were wide acceptance of technology-enhanced curriculum delivery by lecturers as indispensable actors as they identified the benefits of the solution in the university network. COVID-19 an unexpected actor joined the university network and caused unforeseen disruptions. Although the lecturers had been teaching online courses for more than 2 years, they were not prepared for the new demands of emergency remote teaching and learning. However, the university network sought to translate the new actor so that the actor network could still progress even during the pandemic. Actors attributed the success of surviving the pandemic to an already existing e-learning policy and practice, as a result, permanence of the innovation was established in the university network as irreversibility occurred.

Mobilisation, which is the stabilisation of the university network was realised by lecturers as actors could appreciate their growth from learners to invested online facilitators, and as they became spokespersons for the innovation as well as realising the possibility of a global campus as advocated for by the network builder during the problematisation stage in the university network. The next chapter, Chapter 9 will look at the Policy and Practice of the university network as the researcher concludes the study.

Chapter 9

Conclusions and Recommendations

9.0 Introduction

This study set out to trace the implementation of an e-learning policy in the trajectory of the integration of technology for flexible curriculum delivery in an African university in a developing context. Chapter 5 showed a critical discourse analysis of the e-learning policy documents of the university under study whilst Chapter 6, Chapter 7, and Chapter 8 discussed the findings of the trajectory of the institution in the integration of technology for flexible curriculum delivery through an ANT lens. In addition to drawing conclusions and providing recommendations, this chapter seeks to compare the statutes of the e-learning policy documents to the actual e-learning practice in the university context to highlight the alignments and contradictions between policy and practice in the university under study.

The chapter, therefore, foregrounds the conclusions that can be drawn from the study to highlight how the university in a developing context change, matures and steadies in the trajectory towards the integration of technology for flexible curriculum delivery. The first three secondary questions of the study are:

1. What are the roles of actors (human and non-human) in the integration of technology for flexible curriculum delivery in the university network?
2. How do various actors in the university network support or hinder the integration of technology in curriculum delivery as power is negotiated in the university context?
3. How do key/focal actors in the university network mitigate against resistance by various entities in the integration of technology for curriculum delivery?

The findings are presented in Section 9.1 where the researcher explores each actor identified in the study and highlights their roles or expected roles of e-learning actors in a university context and how in this study each actor hindered and/or supported the integration of technology for flexible curriculum delivery, and how management as the focal actor mitigated against resistance in the university context. The fourth secondary question of the study is:

4. What guidelines can be put in place to ensure the successful integration of technology in curriculum delivery in a university network?

The consolidated findings are presented in Section 9.2 of this chapter. The guidelines from the recommendations of this study are presented through the development of an ANT inspired Framework for Technology Integration (AFTI) which is the contribution of this study to the body of knowledge as it fulfils the topic of this study:

Towards a framework for the implementation of an e-learning policy at an African university: An Actor-Network Theory Perspective.

The overall conclusion derived from this study is that the embedding of innovation in HEIs in developing contexts, is not solely dependent on the implementation of a policy but rather it is a trajectory that involves deliberate, purposeful, contextualised, fluid, interconnected strategies and interventions and the adoption of radical flexibility in technology enhanced curriculum delivery that leads to quality, equitable and inclusive curriculum delivery.

This chapter will therefore highlight the role of actors in a university network, the study's contribution to the body of knowledge and recommendations of the study, the researchers personal reflections and finally possible areas of further research.

9.1 The roles of Actors in the University Network

The analysis of the policy documents in Chapter 5 and the findings from the interviews from Chapter 6 to Chapter 8 has shown that the main actors in the university network were management, lecturers, the ICT Department, the E-learning Department, technology which is comprised of ICT infrastructure, Data/Internet, Digital devices (computer, smartphone), e-learning policy documents and COVID-19. This section will therefore answer the first three research questions, which cover the actors and their roles in the implementation of an e-learning policy at a Zimbabwean higher education institution.

9.1.1 Management as an e-learning initiator

The role of management in technology-enhanced flexible curriculum delivery in developing contexts can never be overemphasized. As drivers of HEIs, university management can initiate e-learning projects as focal actors of e-learning adoption in a university context. The e-learning policy analysis of the university understudy showed a discourse of management buy-in where e-learning is viewed as a cost-effective mode of curriculum that would be a positive attribute for the wider accessibility of the quality programs offered by the university in the African context. In practice, however, the main motivation for the drive towards technology-enhanced flexible curriculum delivery that management as an initiator emphasised was the potential for financial benefits to be derived by the institution through the mode of delivery (see Chapter 6). Whilst financial viability is important for a university, the management of the university understudy had an erroneous view of technology-enhanced flexible curriculum delivery that could hinder the adoption and acceptance of the mode of delivery in the university context. In initiating e-learning, management in HEIs should be driven by student-centric motives that emphasise teaching and learning and the needs of the students before anything else. Developing contexts like Zimbabwe are characterised by huge socio-economic challenges therefore, as e-learning initiators in a university context, management should always take cognisance of the context in which the university is situated and strive to provide a flexible quality education that is responsive to the learner and societal needs (Veletsianos, 2020).

9.1.2 Creating the vision and direction of e-learning

Setting out the vision and direction of e-learning within a university context is another important management role for HEIs in the developing context. Similarly, Chikuni (2016) pointed out the importance of solid leadership in promoting and creating a common vision for e-learning as an internal factor that positively affect the development of e-learning policies in universities. The study indicated that one of the reasons for the resistance toward technology-enhanced flexible curriculum delivery in the university context was the lack of clarity and direction on the mode of delivery since the institution did not have an e-learning policy when e-learning was introduced. Correspondingly, Conole (2007) advocated for proactive e-learning policing as it allows policymakers to frame issues expansively to eliminate and reduce e-learning problems and concerns that might arise in the university context. Nonetheless, management then set up an E-learning Committee to bring together the various actors in the university and to develop a *reactive* e-learning policy to mitigate the challenges (mostly e-learning resistance) that were arising in the university context. However, the study highlighted the ineffectiveness and inefficiency of committee members in both faculties and support departments as there was no feedback on e-learning issues discussed in the committee and thus the contributions or issues of the larger university context in terms of e-learning vision and direction were not addressed in the policy.

Kramer (1991) confirms that dysfunction within sub-optimal committee composition can obstruct the overall objectives of the committee thereby negatively affecting the purpose of the committee and potentially the larger organisation. The dysfunction of the e-learning committee in the study hindered the effective integration of technology in the university context. This study shows that setting up an e-learning committee is not enough. Management should have identified e-learning champions in the university network that could have directed the formulation of the e-learning policy to ensure its effectiveness. The study revealed that in the interessment stage the e-learning department used the services of lecturers in the computer departments in running training workshops, who could be seen as e-learning champions in the university context (See Chapter 7). One of the recommendations from this study is that university management should include e-learning champions in e-learning committees as they are individuals who are already passionate about innovative pedagogy and whose positive contributions towards the integration of technology for flexible curriculum delivery can be beneficial to the institution. Farris, (2018) confirms the need to have committee members, who bring a positive input to the committee and the institution at large because they take initiative and are self-motivated to assume responsibility and address institutional needs as far as e-learning is concerned in the university context.

Furthermore, the study revealed another important gap: the e-learning committee entrusted by university management to develop the vision and direction of e-learning had no student representation. As a committee set out to promote the advancement of learning through technology-enabled curriculum

delivery, the voice of the students is crucial considering the mounting challenges that include poverty and infrastructural issues that characterize the developing context. The lack of student involvement led to a narrow view of flexibility in the university context, as elaborated in detail in section 9.1.1.4 of this chapter. Thus, it is the role of management to ensure an effective and well-represented committee as this would entail a wholesome well-informed, inclusive vision and direction of the university context.

9.1.3 Propelling universities into the 21st century

One of the roles of management of HEIs in the developing context that has been highlighted in the study is the need to push the institution towards the global discourse of technology-enhanced curriculum delivery. Most HEIs in Zimbabwe have made very elementary efforts to integrate technology for curriculum delivery. Eltahir (2019) observed how the use of ICTs for education is particularly in the embryonic stage in most of sub-Saharan Africa. The policy analysis highlighted a progressive discourse of ICTs in education as it referred to the changes in curriculum development and pedagogical practices of distance learning which is driven by ICTs. Nonetheless, the issue of the context always comes into play, more so for institutions in developing contexts as university management needs to consider issues such as scanty electricity supply and poor internet infrastructure associated with developing contexts when initiating e-learning projects (Sakala, 2019). These infrastructural issues can affect and hinder the effective delivery and access of curriculum for HEIs and online students wherever they may be. Thus, before management intentionally propels an HEI towards the 21st century innovative mode of delivery, they need to be satisfied that all e-learning actors would have the required infrastructure and technological devices among other things.

The study revealed that the university management provided support for technology-enhanced flexible curriculum delivery through the provision of the required resources in the university network including the provision of ICT infrastructure and other technological enabling resources, which are essential in the mode of delivery in the 21st century. Students who could enrol in blended and online programs were therefore those mostly based in major cities and towns, who had access to the internet, a level of stable electricity, and conducive learning environments. Thus, in propelling the institution into the 21st century management targeted and created an elite group of students who could learn in online programs (Magunje and Chigona, 2021). Thousands of potential students from poor backgrounds and remote places who did not have access to electricity, internet, technological devices, and a conducive environment were therefore excluded. In introducing technology enhanced flexible curriculum delivery the university heightened inequality in the developing context. If HEIs management is committed in widening access to education and social justice, they need to take into consideration the complex resource-challenged context in which they operate, as they propel institutions into the 21st century through technology-enhanced flexible curriculum delivery. Creating internal technological systems is not enough, especially if it's going to exclude the most important actor in any education system, the

student. Thus, management should come up with radical flexible learning strategies, connectivity, and inclusivity solutions that embrace the needs of all actors but most importantly all students to ensure that equity is achieved in the offering of technology-enhanced flexible curriculum delivery in developing contexts in the 21st century.

9.1.1.3 Establishing professional development structures

Another important management role that should be emphasised for HEIs in the developing context is the establishment of e-learning professional development structures. The e-learning policy stressed the role of the e-learning department in the university with the analysis, inferring a supportive and empowering discourse. The e-learning department was tasked with capacity building of lecturers in pedagogical knowledge and skills to enhance their roles as facilitators in technology-enhanced flexible curriculum delivery (See Chapter 5). The study, however, unveiled that one of the reasons for lecturers' resistance toward e-learning was the lack of pedagogical knowledge and skills in the mode of delivery because management had not set up a professional development department before introducing technology enhanced flexible curriculum delivery. However, management mitigated the resistance and supported e-learning through the establishment of an e-learning department.

The e-learning department led e-learning professional development in the university context, thereby emphasising the unique role of the department in e-learning capacity building leading to the consistency of practice and policy which resulted in the positive response to the department's efforts in the university context. Agyei (2021) confirmed that the success of implementation in an educational institution is dependent on the fact that the people who will use the innovation have the required skills and knowledge to carry out the expected tasks. Management, however, further hindered technology-enhanced curriculum delivery by failing to provide adequate personnel in the e-learning department to support the integration of technology for flexible curriculum delivery staff. Management of HEIs in a developing context should not, therefore, overlook the crucial role of an e-learning professional development department in facilitating professional development in a university context, rather it should be one of the first well-resourced structures put in place as an institution adopts technology for flexible curriculum delivery as it has the power to capacitate lecturers and give them the knowledge, skills, and confidence required to offer e-learning within a university.

9.1.1.4 Firm and consistent leadership style

The other role that management should emphasise in the integration of technology for curriculum delivery is the provision of the firm and consistent leadership. Similarly, Altunisik (2012) highlighted how a clear and resolute leadership style plays a critical role in the implementation of e-learning programs in universities. The e-learning policy depicted the role of management as one of support to faculties and the support departments in technology-enhanced curriculum delivery within the university. The policy analysis, however, showed a domineering discourse, with a top-down approach view of management in the adoption of technology for curriculum delivery within the university (Magunje and

Chigona, 2021). In practice, the study revealed that in their drive for technology-enhanced flexible curriculum delivery management portrayed a one-way, top-down form of communication characterised by a commanding and threatening leadership style. The consequence of the rigid top-down management approach was lecturers' resistance toward technology-enhanced curriculum delivery, which was a hindrance in the university context. Laurillard (2006) confirmed how a top-down management structure in the integration of technology for curriculum delivery is hostile to efficacious innovation because management lacks the required knowledge of the pedagogical practice.

On the other hand, a bottom-up approach to e-learning adoption tends to focus on the particular sections of the university that would benefit from innovations, for example, a section of lecturers who take interest in e-learning (Singh & Hardaker, 2017). As a result, bottom-up approaches are determined by individual motivation and self-drive, which with support from management, can spread among lecturers leading to the effective adoption of e-learning in a university context. Therefore, university management should adopt an open, firm, and consistent leadership style on e-learning that is backed by a bottom-up approach to e-learning to ensure the equal commitment of management and lecturers in the integration of technology for flexible curriculum delivery in the university context. Such a leadership style would also necessitate effective change management which is crucial for the adoption of technology-enhanced curriculum delivery since e-learning change management should be context-dependent.

9.1.1.5 Improving the flexibility and quality of education for adult learners

The improvement of the flexibility and quality of education for adult learners through technology-enhanced flexible curriculum delivery should be one of the major roles of university management in developing contexts. The policy analysis indicated a very narrow and limited understanding of flexibility in curriculum delivery in the policy as well as contradictions in the meanings attached to continuing education, online learning, and e-learning in the university context, a situation that can lead to confusion and hinder the effective offering of flexible learning for adult learners (see Chapter 5). On the other hand, the policy analysis identifies e-learning as an emancipatory tool in the Zimbabwean context that is meant to benefit non-traditional students through the removal of barriers and constraints such as place and time to improve the flexibility of learners through technology-enhanced flexible curriculum delivery.

In practice, the study showed that the need to increase the flexibility of adult learners was one of the reasons management advocated for technology enhanced flexible curriculum delivery in the university context although the underlying reason was mainly financial. As a result, management did not take into full consideration the challenges of potential adult learners in technology-enhanced flexible curriculum delivery in a developing context. This is a position that can lead to inequality and hinder the effective integration of technology-enhanced flexible curriculum delivery due to the fact that a number of potential students from poor socio-economic backgrounds would be left out. Unlike the practice on the

ground, the policy emphasised the pedagogical, accessibility, and cost-effectiveness of e-learning as a mode of delivery perceived from the vantage point of its capacity to reach out to more students in Africa. In the Zimbabwean context, adult learners have to travel long distances and find costly lodgings close to university campuses and sub-campuses where the block release and /or weekend programs would be offered. Furthermore, the programs are normally associated with poor pedagogy with very little or no interaction at all as students spend hours taking notes, as the lecturer is focused on finishing the syllabus so students can write exams. As confirmed by Snejana & Veselina (2018) and Sidhu & Gage (2021) through e-learning, these learners can gain good quality skills which are less costly knowledge, with increased interactivity, engagement, and flexibility, and obtain qualifications from where they are based without constant face-to-face classroom interaction. However, the fact that adult students travel long distances also implies they are coming from remote places with poor infrastructure in terms of electricity and internet thus they would not benefit from online learning, rather they would be eliminated from receiving education. Thus, in not foregrounding the needs of the students as they justified e-learning to increase accessibility and flexibility, the management of the university under study was even more exclusionary.

University management should therefore focus on the educational or pedagogical benefits when advocating for e-learning as an effective mode of flexible delivery. HEIs in developing contexts can develop ways that enhance technology-enhanced flexible curriculum delivery despite infrastructural challenges by designing inclusive contextualised comprehensive learner-centred e-learning interventions that cater for students from diverse socio-economic backgrounds. Veletsianos and Houlden (2020) equally advocated for the need for HEIs to emphasise the needs of a learner so they can develop a much broader definition of flexibility (radical flexibility) such as increased access through the provision of multiple modes of instruction, provision of blended learning modes, and online learning.

9.1.1.5 Understanding the culture of an organisation

Organisational culture is an important aspect that management should understand and be considerate of as leaders and focal actors in the integration of technology for flexible curriculum delivery. The study revealed management's initial efforts to encourage and even enforce the integration of technology for curriculum delivery in the university network were faced with resistance from lecturers. Resistance in the university context was attributed among other things to the lack of pedagogical knowledge discussed above as well as to the fact that the previous traditional flexible learning modes were financially beneficial to the lecturers. Birch & Burnett (2009) correspondingly suggested that the willingness to develop e-learning is inhibited when lecturers perceive that there would be neither reward nor recognition from management in adopting the mode of delivery. Management hindered the integration of technology for flexible curriculum delivery, because of their poor understanding or total disregard of the university's culture. Sukumaran (2019) also highlighted that the acceptance and willingness of

lecturers to adapt to change and culture determine the success of e-learning. Thus, had the university management been mindful of the culture of the institution, they would have:

a) Opened lines of communication and had conversations about e-learning in the university context when introducing the mode of delivery.
b) Formulated a pro-active e-learning policy and strategic documents that communicated early on the vision and direction of e-learning and how actors such as lecturers would be rewarded or incentivised in technology-enhanced flexible curriculum delivery.
c) Emphasised e-learning pedagogical knowledge and skills in preparation of blended and online programs.

Thus, to mitigate against resistance in the university context management, later on facilitated the development of a reactive e-learning policy and the set-up of an e-learning department which was especially useful for the integration of technology-enhanced curriculum delivery in the university context. Through the provision of technological devices and internet connectivity management was able to provide incentives to lecturers, which motivated the adoption of technology for flexible curriculum delivery in the university context. Cook (2009) also confirmed that technological support can be used as an incentive in technology-enhanced curriculum delivery. However, assuming that lecturers would adopt e-learning in response to threats and enforcement management showed a disillusionment of their power and a misunderstanding of the university culture. The study has shown that:

> *"*Power is always an illusion people get when they are obeyed…. people who are 'obeyed' discover what their power is really made of when they start to lose it. They realise, but too late that it was 'made of the wills of all other" (Latour, 1986:268).

Thus, management's inability to get lecturers to adopt e-learning shows that university leadership does not have the "perceived" power to enforce e-learning in a university context rather it is the understanding of the contextual and cultural issues of the institution and the provision of an enabling environment that leads to the acceptance of technology-enhanced curriculum delivery in a university context.

As confirmed by Aung and Khaing (2015) when it comes to the integration of technology for curriculum delivery, management should always strive to convince lecturers and students and transform their perception of e-learning. Understanding the organisational culture enables management to prepare for and manage the required change in the teaching and learning culture of technology-enhanced flexible curriculum delivery. The study indicated how lecturers were overwhelmed with the preparations and work associated with facilitating online courses. Martins and Nunes (2016) also emphasised the new tasks associated with e-learning are perceived to be time-consuming, as they bring a new set of responsibilities that goes beyond students' skills acquisition and construction of knowledge. Thus, in e-learning, management should provide an environment that fosters a cultural shift,

necessitating an accommodative and receptive organisational mindset that embraces change as actors share the required knowledge and skills institutions need to facilitate e-learning adoption.

9.1.2 The role of lecturers in the integration of technology for flexible curriculum delivery

Lecturers are the second most essential actor in the integration of technology for flexible curriculum delivery as they lead the operational task of facilitating teaching and learning and delivering the curriculum to the students. In the study, the policy analysis showed that the policy documents of the institution do not explicitly bring out the role of lecturers in the university context, rather their central role is implied by:

- their involvement in the e-learning committee, where each faculty had a representative.
- in the role of the e-learning department, where the policy emphasises training and support of lecturers

It is rather odd that the policy does not bring out the role of lecturers by having a specific section that addresses the expected role of lecturers in e-learning in the university context, yet they are crucial actors in the integration of technology for flexible curriculum delivery. Thus, the expectation would have been a thorough and detailed section of the role of lecturers in e-learning in the policy, much more so for a reactive policy.

9.1.2.1 Negotiating lecturers' position in e-learning

In practice, the study showed that the initial response of lecturers to technology-enhanced flexible curriculum delivery was resistance. As a result of their resistance lecturers hindered the integration of technology for flexible curriculum delivery in the university context. Tierney & Lanford, (2018) confirmed that lecturers are the actors who require a shift in the way they approach teaching and learning in online education in the university context and universities must change the way to think of this traditional community. However, in the study, management introduced e-learning without engaging lecturers on the new mode of delivery, and the expected changing roles in technology enhanced flexible curriculum delivery. Lecturers were expected to jump on to this new mode of delivery without the required pedagogical knowledge and skills, rewards and incentives, and adequate engagement and conversations with management. Lecturers, therefore, used resistance as power, as a result, management was forced to go back to the drawing board to meet the needs of lecturers and mitigate against resistance in the university context. Through the establishment of the e-learning committee, lecturers could contribute and take part in e-learning conversations and decision making, the e-learning department allowed lecturers to acquire the knowledge and skills to teach online and the provision of enabling technological devices and resources worked well as incentives for lecturers in technology enhanced flexible curriculum delivery. Negotiating for their new expected role in technology-enhanced curriculum delivery is important because it allows lecturers to lay down their needs and requirements as they prepare for transformative teaching and learning.

9.1.2.2 Embracing change and the transformative nature of technology enhanced flexible curriculum delivery

Lecturers are content experts and facilitators who provide the required guidance in the teaching and learning process which is a critical role in technology-enhanced flexible curriculum delivery. However, the effectiveness of e-learning is dependent upon the marriage of technology and pedagogy in curriculum delivery which means there is a need for proficiency in the use of ICTs by lecturers as well as their engagement with novel pedagogical paradigms and methodologies. The study however revealed that lecturers were sticking to their traditional face-to-face mode of delivery or transferring their traditional ways of teaching and generally resisting e-learning due to various reasons that mainly included technophobia and lack of the required knowledge and skills to teach online. Similarly, Bali and Caines (2018) noted how most lecturers lack experience as online facilitators leading to the perpetual application of ineffective traditional teaching approaches which are transferred to the online classroom.

The introduction of e-learning workshops and training changed the perception of lecturers on technology-enhanced curriculum delivery. The study showed lecturers were receptive to the new knowledge and skills that the e-learning department was imparting in the university context. Thus, real acceptance and transformation in the university context only occurred when lecturers began to appreciate technology-enhanced curriculum delivery through appropriate pedagogical and technological training. By embracing the new mode of curriculum delivery and innovative pedagogical and technological knowledge, lecturers were able to transform their teaching skills to become online facilitators who could effectively deliver online courses in the university context. It is therefore imperative that lecturers in developing contexts embrace the cultural shift and acknowledge the difference between traditional face-to-face and online facilitation and accept that receiving training on e-learning is of paramount importance. As lecturers become equipped for e-learning they become more adventurous in their teaching and seek out better innovations and strategies that are suitable for their specific disciplinary content.

9.1.3 E-learning Policy

The role of e-learning policy in the integration of technology for flexible curriculum delivery is to lay out and communicate a contextualised vision and direction and functions of various actors of e-learning in the university context. The document that addresses e-learning and that is regarded as an e-learning policy in this study, is the Continuing Education Policy which seems to cater to all non-traditional learning at the university under study. Of note is how the policy creates contradictions on important definitions such as continuing education and flexible learning, with continuing education defined mainly as online learning and flexible learning as traditional flexible curriculum delivery such as block release and weekend programs (See Chapter 5). The policy, therefore, reflects the confusion of the institution as it seeks to embrace technology-enhanced flexible curriculum delivery in the university

context. The contradiction of the policy shows the institution was trying to be accommodative to the non-traditional mode of curriculum delivery to eliminate resistance and conflict in the university context and as such the policy could be termed *reactive*. However, such double standards and a lack of decisiveness and clarity in policy documents hinder the integration of technology for flexible curriculum delivery in a university context. Furthermore, the general policy analysis showed the policy documents of the institution had a *neutral* discourse; in that, they did not take into consideration the contextual issues of the university, a condition that can easily render the policy ineffective (Magunje & Chigona, 2021).

According to Lambrechts et al. (2008) *reactionary* policies are introduced to respond to issues and problems arising in a context, whilst *proactive* policies are introduced to prevent the rising of issues and problems in a context. In the university context understudy, the formulation of the policy was in response to the negative attitude and resistance towards e-learning by actors. The study showed that management realised the challenges of introducing e-learning without a policy as an enforcing "instrument" in the university context, hence its introduction in the university context was more of a symbolic gesture since the policy was not available to various e-learning actors. The study indicates this had a negative effect on the university network as actors would only hear of a policy that was not available to them. UNESCO Statistics (2015) equally pointed out that policies can fail to succeed in university contexts if they are viewed as symbolic gestures. Knowledge of the policy documents and their contents provide clarity and direction on the expected roles of the various e-learning actors in a university context.

In the study, however, management used the "existence" of the policy as a means to enforce e-learning in the university context. It did not take into consideration the fact that there was a need for the policy to be readily available and usable by the various e-learning actors in the university network. Njenga (2011) similarly highlighted that without a policy a university lacks a favourable permissible framework for the support of technology use in curriculum delivery and research which can be viewed as a challenge and a hindrance in e-learning. Thus, the mere existence of a policy created a forceful channel that management used to drive e-learning in the university context. However, the strategy only created resentment among actors that threatened the integration of technology for flexible curriculum delivery. Therefore, to ensure effective change management, HEIs in developing context should promote the development of proactive well-informed contextualised policies with a clear vision, direction, and functions of various e-learning actors for e-learning initiatives in which the concerns of all actors are addressed before the actual integration of technology for curriculum delivery take-off in the university context. HEIs in developing context should also be cognisant of the fact that, whilst policies are essential for e-learning adoption, it is the realisation that institutions are different, and that the establishment of

technology-enhanced flexible curriculum delivery is dependent on the specific needs of a university and the provision of resources and an enabling environment that necessitate change.

9.1.4 E-learning Department

The e-learning department is an essential actor in the integration of technology for flexible curriculum delivery. The study showed how the establishment of the department changed the perception of e-learning in the university context. Correspondingly, Tshabalala et al. (2014) emphasised the need for HEIs in developing context to facilitate the establishment of a central unit to coordinate all e-learning efforts, the provision of professional development for academic staff and the provision of continuous technological and pedagogical support.

9.1.4.1 Creating a conducive e-learning development environment

To ensure the acceptance of e-learning in a university context, one of the major roles of an e-learning department is to create a conducive e-learning development environment. As highlighted by Gachago et al. (2021) the study revealed that lecturers come into universities as experts and leaders in their respective fields (See Chapter 6 to Chapter 8) and educational technologists and other staff in the departments ought to recognize this as they introduce e-learning in a university context. The interessment stage, Chapter 7 indicated how the e-learning department had to find tactful ways to engage lecturers as they introduced innovative pedagogical methods in the university context. Bali and Caines (2018) also highlighted how e-learning staff development entails a process of leading lecturers to question their assumptions on teaching and learning whilst they reflect on existing practices and become open to embracing alternatives to redirect their actions. The fact that e-learning training sometimes requires lecturers as content experts to reflect on and question their existing pedagogical knowledge can sometimes expose weaknesses in their pedagogical and technological knowledge and requires the e-learning department to be tactful and sensitive when working with lecturers. An e-learning department should therefore strive to find common ground with lecturers and give them room to take part in their growth and transformation as they adopt technology for curriculum delivery.

The policy documents emphasised a more supportive and recommendation orientation of the department rather than an imposing forceful orientation as it worked with lecturers. In practice, the study showed that as the department sought to find its foot in the university context, it engaged faculty management and lecturers and involved them from an early stage in developing a learning design intervention. It is important therefore that in the early stages, training and workshops be faculty or department based to ensure relevant content interventions as well as ensure the comfort of lecturers as they engage with novel pedagogical and technological skills and knowledge for their specific discipline and context. A conducive e-learning development environment, therefore, goes a long way in the acceptance of technology-enhanced curriculum delivery by lecturers.

9.1.4.2 Developing contextualised learning design interventions

To be fully effective in the integration of technology for flexible curriculum delivery e-learning departments should emphasise the role of developing and designing contextualised learning design interventions. The policy analysis showed that a contextualised realistic e-learning implementation framework is important for the successful integration of technology for flexible curriculum delivery. The study acknowledged that the e-learning department developed an intervention from an instrument that was acceptable and readily used in the university context, the course outline. The course outline is content based, therefore the lecturer as the content expert has power over it, and therefore it becomes a comfortable space to initiate the learning design process, without fear of undermining the lecturer. As a result, the intervention was based on the needs of the lecturers as far as e-learning pedagogical and technological knowledge and skills were concerned. Using the TPACK framework through the contextualised learning design intervention, the e-learning department was able to provide progressive and incremental training workshops that enhanced the integration of technology for flexible curriculum delivery in the university context.

Furthermore, the introduction of supportive templates, documents, and artifacts gave lecturers the basic required knowledge as they adapted e-learning as a delivery mode. The intervention provided by the department, especially the use of templates and other artifacts might however be considered too prescriptive in the university context, in that lecturers might have had minimal room to manoeuvre and adapt their courses as they saw fit. Nonetheless, the positive response of lecturers to the training and support provided by the e-learning department in the study shows the importance of developing and designing contextualised learning design interventions. Effective staff development is therefore fundamental to university functioning thus e-learning departments as professional development units should be central to the working of HEIs for the successful integration of technology for flexible curriculum delivery in the university context.

9.1.4.3 Adaptive and responsive to the needs of lecturers in cases of disruptions

Due to the pandemic technology enhanced flexible curriculum delivery became the dominant mode of delivery globally in higher education. According to Pham and Ho (2020: 1329), the COVID-19 pandemic in 2020 transformed the higher education sector into a huge sector ‘laboratory of e-learning’. The study showed that even lecturers who had taught for several years in online programs were disturbed and caught unaware by the need for emergency remote teaching and learning as a result of the pandemic. The study also showed how the e-learning department adapted to the needs of the lecturers and responded by providing continuous online training during the pandemic, thereby supporting the integration of technology for curriculum delivery in the university context. As a result, lecturers regained their confidence and the university was able to sustain teaching and learning throughout the pandemic unlike most institutions in developing contexts, especially in Zimbabwe. Thus,

being adaptive and responsive is an important role that e-learning departments in developing contexts should emphasise.

9.1.5 ICT Department

As custodians of technological infrastructure within an institution, the role of the ICT department is to ensure the provision, efficient and effective running of technology in a university context. The policy analysis does not emphasise the role of the ICT department in the integration of technology for flexible curriculum delivery although the policy stresses ICTs as central in e-learning as a mode of delivery. Of note is how the policy leaves out the department as it emphasises the role of management in creating synergy among actors in the university context (see Chapter 5). Furthermore, in practice actors on the ground and active in technology enhanced flexible curriculum delivery from the ICT department showed that they were not involved in the policy formulation, nor did they have access to the e-learning policy in the university context, despite their central role in the mode of delivery. Leaving out an integral e-learning actor in policy formulation could hinder the integration of technology for curriculum delivery in the university context.

Nonetheless, the department had always been in support of technology-enhanced curriculum delivery, even from the early phases of the problematisation stage as management introduced e-learning in the university context (see Chapter 6). The department undertook an active role in upgrading the technological infrastructure of the institution to ensure the effective delivery of online programs. In addition, the department sought to overcome internet connectivity issues associated with the developing contexts by providing various ways of access to lectures that included boosting bandwidth capacity on campus. Additionally, it sought to provide internet modems in lecturers' homes, providing data, and negotiating with internet and data providers for reduced data prices. The ICT department, therefore, supported the integration of technology for curriculum delivery in the university network, more so during the COVID-19 pandemic when the members of the department had to reschedule their working hours to ensure constant availability of the required technology and support for both staff and students. It is therefore imperative that universities in developing contexts capacitate ICT departments with the required funding to support technology investments as well as enough human resources to ensure efficient and effective support for technology-enhanced flexible curriculum delivery. Porte et al. (2014) also highlighted that HEIs in developing contexts should establish core technological infrastructure and resources to provide efficient and effective technology-enhanced flexible curriculum delivery.

9.1.6 Technology

The role of technology in the integration of technology for flexible curriculum delivery is to be a medium of delivery and an enabler of the efficient and effective delivery of the curriculum. In the study, technology covers ICT infrastructure such as the internet and technological devices as well as technology (digital literacy) as knowledge and skills that lecturers and students need to acquire to be successful facilitators and recipients of online learning.

9.1.6.1 Technology as Infrastructure, Connectivity, and Devices

Technology is the innovation in e-learning, the source of the transformation from a traditional to a flexible mode of delivery. The policy analysis however showed an over-emphasis on the ability of technology in the 21st century global discourse of innovative curriculum delivery. The techno-positivism discourse lacked a nuanced and contextual understanding of how technology can both include and exclude students. As a medium of delivery, the policy positioned technology as cost-effective despite the socio-economic challenges that affect technology investments and adoption in developing contexts (Magunje and Chigona, 2021). The university understudy created a technological system by investing heavily in technological infrastructure and devices for university staff, especially lecturers who taught in online programs (see Chapter 7). Although lecturers reported on infrastructural disturbances when teaching online, overall, the technological ecosystem created a bubble for the institution and protected them from the reality of challenges that are part of Zimbabwe as a developing context. Thus, when the university introduced blended and online programs the institution attracted an elitist group of students and excluded a large number of students who had no hope of enrolling in online programs, based on socio-economic limitations vis-à-vis access, connectivity, and a conducive learning environment.

However, the pandemic burst that bubble and brought the reality of the developing context to the fore, more so for the institution under study whose traditional students are derived from over 25 African countries (AU Website). The study showed that students faced challenges such as scanty or no electricity, poor connectivity, high cost of data, and unconducive learning environments among other things as they tried to learn through the pandemic induced ERT. The pandemic, therefore, revealed to the institution the need to be intentional about inclusion and hyperaware of the conditions of the majority of students in SSA when introducing technology-enhanced flexible curriculum delivery in developing contexts. To partially mitigate against the challenges of students, the university removed the Technology Fee from tuition so that students could use it to support their technological needs.

HEIs in developing contexts who are serious about widening access, need to be aware of who is included and who is excluded when introducing technology-enhanced flexible curriculum delivery. They should develop technological and flexible learning interventions that accommodate students from diverse backgrounds for equity and the provision of quality effective curriculum delivery. Such interventions might include partnering with mobile network providers for subsidised data, (the university understudy had such an arrangement for lecturers) or free access to educational platforms and working with local schools or other institutions so students can have access to conducive learning environments. Furthermore, the institution could emphasize the provision of more low-tech, asynchronous, text-based resources to reduce data consumption.

9.1.6.2 Technological Knowledge

In terms of technological knowledge required to ensure effective learning the policy emphasised the role of the e-learning department in providing the required knowledge and skills to lecturers. According to Mishra and Koehler (2006) Technological Knowledge demonstrates the knowledge of the technology required for lecturers to integrate technology in teaching and learning. In practice, the study showed an initial misunderstanding in the university context where management expected lecturers to start using the LMS and adapt e-learning without proper training. As a result, lecturers in the university context associated e-learning with Moodle, the institutional LMS, and the need to be able to upload course content, yet as we know, effective online facilitation goes beyond such technological skills. Such misunderstanding of technology in e-learning hindered the integration of technology for curriculum delivery as lecturers lacked knowledge on how to proceed with the new mode of delivery. The study showed, however, that it is not technological knowledge that leads to the effective integration of technology for effective curriculum delivery. Instead, it is the combination of technology, pedagogy, and content knowledge as espoused in the TPACK model by Kohler and Mishra (2009) as highlighted by the response to the learning design intervention in the university context (See Chapter 7).

9.1.7 COVID-19 as a System Disruptor

The COVID-19 pandemic that brought the world to a halt from early 2020 (WHO, 2020) wreaked havoc and caused a lot of sicknesses, pain, and death, but it changed the way society, business and education interact and has had a huge impact on technology enhanced flexible curriculum delivery. The role of the unexpected actor in the university network has been the creation of permanence of technology-enhanced curriculum delivery. The pandemic initially hindered the integration of technology for flexible curriculum delivery, mostly because although lecturers in this study had been teaching online for more than two years, they were not ready for the delivery of all their courses online. Furthermore, the pandemic created challenges for traditional students who were from poor socioeconomic backgrounds had poor or no internet connectivity or lacked suitable learning technological devices and conducive learning environments.

The pandemic however became a System Disruptor that created avenues for growth toward technology-enhanced curriculum delivery in the university context. Because of the pandemic, the e-learning department developed innovative ways of providing training and workshops online, allowing the lecturers to receive constant support as they sought to establish themselves in emergency remote teaching and learning. Lecturers also learned to lean on each other as they practiced peer-to-peer training and supported each other in the integration of technology for flexible curriculum delivery. The study also demonstrated that the university embraced the ‘new normal’ considering technology-enhanced flexible delivery that combines traditional and online students and the possibility of a parallel global online campus (see Chapter 8). Thus, COVID-19 created the permanence of technology-enhanced curriculum delivery in the university context.

After the detailed conclusions drawn from the study, the contribution of the study to the body of knowledge can be seen as follows.

9.2 The study's contribution to the body of knowledge

The main purpose of a research study is to contribute to a body of knowledge on a specific topic. For this study, the contribution to knowledge is both conceptual and practical through the development of a framework that can be used in the integration of technology-enhanced flexible curriculum delivery by HEIs in developing contexts as well as in theory. The conceptual contribution of the study is the use of ANT, a theory that is widely regarded as an information systems theory that emphasises the introduction of innovation into a social context through symmetrical analysis into an educational space. The successful application of ANT in the study, and linking it with TPACK a technology integration conceptual framework enables a comprehensive understanding of the relationship between symmetrical actors, content, technology, and pedagogy in the integration of technology for curriculum delivery. The framework developed in the study therefore presents possible ways in which ANT can be used in education contexts to facilitate the integration of technology for flexible curriculum delivery.

The review of literature in Chapter 2 showed the challenges of integrating technology for flexible curriculum in developing contexts, especially in Sub-Saharan Africa. Previous studies in the integration of technology for curriculum delivery in developing contexts revealed that when introducing e-learning in a university, technology (as an innovation) can be overlooked or downgraded to a role as a tool of control, meaning ICTs are viewed as an outsider in curriculum delivery. The notion is dispelled in ANT, however, as the theory offers equal value to non-human elements of a network as the social and human elements, meaning the elements are treated the same in an analysis. Because TPACK is pedagogy driven, the ANT-inspired Framework for Technology Integration (Fig. 9.1) developed in this study re-emphasises the role of technology in an educational setting as an important actor who can improve and/or enhance the quality of education and/or the education experience. Combining ANT and TPACK emphasises e-learning professional development and learning design initiatives and the importance of equipping lecturers with the knowledge and skills needed for the pedagogical transformation crucial for effective technology-enhanced flexible curriculum delivery in HEIs. ANT allows for a contextualised analysis, and the provision of contextualised strategies and interventions, enabled by the theory's translational stages that lead to effective integration of technology for HEIs in developing contexts

In practice, the contribution of the study extends itself through ANT's four translational processes: problematisation, interessment, enrolment, and mobilisation. The framework unpacks essential guidelines (recommendations) at every stage that can be adopted for the integration of technology for curriculum delivery by institutions in developing contexts as shown in Fig 9.1. Of importance is the emphasis on context, culture, power, and negotiations as a university undertakes the process of

integrating technology for flexible curriculum delivery. Current technology integration models are mostly applicable to developed contexts, or they might emphasize the technology or the need for pedagogical principles without highlighting the trajectory from the introduction to the establishment of innovation in an education setting in a developing context and the professional development transformation process that leads to the pedagogical cultural shift and e-learning permanence. In particular, there is a gap in how HEIs in SSA have to deal with compounding contextual challenges prone in developing contexts in addition to the expected challenges of introducing innovation in a university context. This study significantly adds to the body of knowledge in that it provides real-life strategies and interventions applied by an institution in a developing context as it sought to establish technology-enhanced flexible curriculum delivery as a mode of delivery in a university context.

9.2.1 ANT-inspired Framework for Technology Integration and Recommendations of the study

This section presents the ANT-inspired Framework for Technology Integration (AFTI) in fulfilling the goal of this study::

Towards a framework for the implementation of an e-learning policy at an African university: An Actor-Network Theory Perspective.

The fourth secondary research question of the study is:

What guidelines can be put in place to ensure the successful integration of technology in curriculum delivery in a university network?

It is also answered through an ANT-inspired Framework for Technology Integration, Fig 9.1, which is a model for the integration of technology for curriculum delivery for HEIs in developing contexts which is also the contribution of this study to the body of knowledge. The guidelines for the successful integration of technology in curriculum delivery are listed under each stage of the translation process. Although ANT as a theory has been used in various educational studies that include classrooms, workspaces, and community settings (Fenwick and Edwards, 2010), the theory has been largely used to study the embedding of technologies in businesses and governments in the information systems field (Tudor, 2011; Ogunleye, 2017; Chikerema, 2020). This study, therefore, sought to deliberately apply the theory in a university setting to explore the trajectory of the introduction of an innovation in a university context. Although business and governments are very different from educational settings, they are all environments where technology/innovation is introduced into a social context. The study, therefore, sought to explore the same principles of introducing innovation in an educational setting to develop guidelines and a framework of technology integration, especially for universities in developing contexts since e-learning is one of the most recent revolutions in education.

The framework will be explained stage by stage according to Fig 9.1 to provide the guidelines or recommendations for the integration of technology for flexible curriculum delivery for HEIs in a developing context.

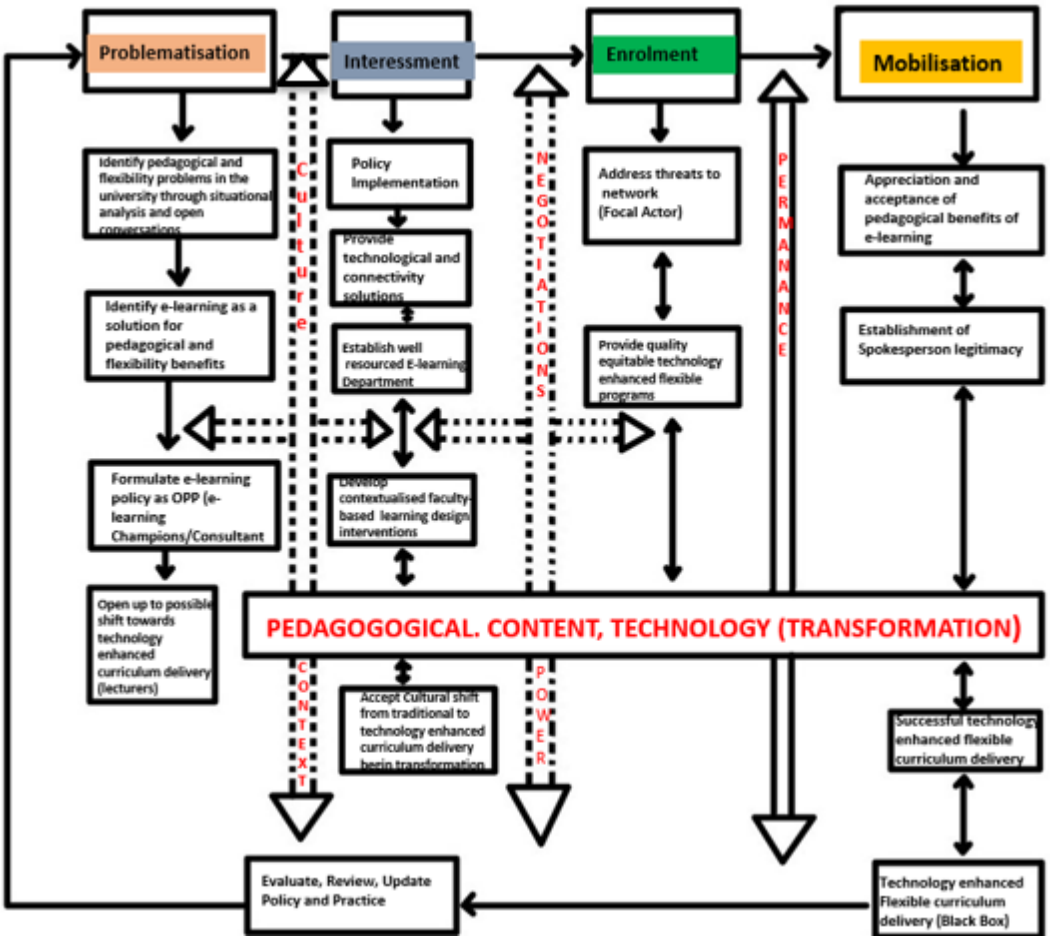


Fig 9.1 ANT inspired Framework for Technology Integration (AFTI)

The broken arrows within which Culture and Contexts as well as Negotiation and Power falls represents the need for agility in the interventions and strategies introduced to deal with these issues in the university network. Fluidity allows the network builder and allies to make the necessary changes to the introduced interventions and strategies, at every stage and level of the integration process according to the needs of all actors in the university network, including students. Rigid decision-making can lead to resistance and the adoption of exclusionary technology-enhanced curriculum delivery methods.

The small double arrows mainly found in the enrolment and mobilisation stages shows that those aspects can be experienced simultaneously in a university network.

The problematisation stage

1. During this stage the university focal actors create a platform that allows various actors of the university including management, faculty leadership, and lecturers to discuss the current methods of (flexible or not) delivery. Through open discussions, the various actors determine

the limitations of the existing mode of delivery in terms of pedagogy and/or flexibility within the university context.

2. E-learning is collectively being identified as a mode of delivery that has the potential to enhance pedagogy and/or flexibility in a university context.
3. E-learning policymakers who are knowledgeable and appreciate technology-enhanced curriculum policy are being identified and together with faculty, students, and support department representatives, tasked with the formulation of a contextualised e-learning policy.
4. Through open communication and engagement about technologically enhanced flexible curriculum delivery and e-learning policy documents, actors and especially lecturers are encouraged to open up to transformation and radical pedagogical shift.

At every point, the focal actor is always cognisant of the organisational culture of the institution as well as the context in which the institution is situated to ensure the provision of appropriate interventions at any phase. In line with the issues associated with developing contexts, the infrastructural and technological needs of the institution in terms of connectivity are discussed as well as how potential students from various social backgrounds are accommodated in the proposed technology-enhanced mode of delivery.

The Interessment Stage

1. Institution implements a proactive contextualised e-learning policy that provides clear vision, direction, and guidance for actors on the new mode of delivery
2. The focal actor facilitates the provision of required ICT infrastructure and devices for the institution, and create synergies with government, other institutions, or organisation to ensure all potential students have sufficient connectivity and technological devices
3. An E-learning Professional Development Department with qualified and experienced educational technologies is established and supports staff according to the needs of the institution
4. An E-learning department leads professional development and the design and development of contextualised learning design interventions to emphasise technology, pedagogy, and content linkages in technology-enhanced curriculum delivery (TPACK).

   To fully accommodate the needs of lecturers as they are being capacitated in the novel innovative pedagogy faculty-based support is being provided to eliminate threats such as technophobia and resistance to innovation in the university network.
5. Lecturers accept the pedagogical and cultural shift from traditional teaching to new innovative pedagogy

Power is exercised by various actors in the integration of technology for curriculum delivery and the focal actor is open to negotiations to provide timely interventions and drive the e-learning initiative forward. Culture and context continue to be important at all stages of the translation process and the focal actor needs to consider these two aspects at every stage. Leadership over e-learning is firm and consistent but recognises the importance of bottom-up interventions and support. E-learning professional development is constant and incremental according to the needs of lecturers.

Enrolment Stage

1. Threats to the e-learning interventions can occur at every stage of the implementation process, as a result of the combined issues of power, culture, and contexts. The focal actor and all allies are therefore prepared to deal with these issues at any stage, thereby necessitating the need for fluidity in the management of e-learning.
2. As the institution begins to run blended and online programs there is a need to continuously reinforce pedagogical transformation.

Mobilisation Stage

1. At the phase of acceptance and appreciation of technology-enhanced flexible curriculum delivery in the university context, actors in the university context place collective value and importance on the mode of delivery.
2. Enrolled actors in the network in this phase, advocate for technology-enhanced flexible curriculum delivery leading to a community of practices among lecturers.
3. Permanence of the mode of delivery is achieved in the university context, leading to possibilities for growth.

Due to the concept of irreversibility, technology-enhanced curriculum delivery becomes permanent in the university context although culture and context continue to be part of the innovation that should be accommodated and diligently addressed. The permanence of the mode of delivery is achieved in the university network. By this stage e-learning as a mode of delivery becomes a *black box* in the university context. In ANT a *black box* is a group of entities that work together so seamlessly that they seem like one entity and usually develop as a result of a group of actors coming together and affecting each other through actions and translations (Parnourgias, 2007). However, because all black boxes (See Chapter 3) are leaky, in addition to the fact that new advanced technologies are always being introduced in the 21st century, there will always be threats to e-learning in the university network. Thus, the policy needs to be periodically evaluated, reviewed, and updated to accommodate new changes and interventions that need to be applied in training and in practice, which entails always going back to the initial problematisation guideline to ensure the problems of pedagogy and flexibility that the innovation sought to solve are still being addressed. The arrow from the Black Box of the Mobilisation stage going back to the problematisation stage depicts the process.

9.2.1.1 System Disruptor

Globally, COVID-19 has acted as a disruptor and has accelerated educational innovation but has also revealed underlying inequalities and fault lines in the higher education system (Czerniewicz et al 2021). In this study, an occurrence that can change education and curriculum delivery as we know it necessitating the need to embrace technology enhanced curriculum delivery for the progression of the education system has been identified as a System Disruptor. A system disruption that occurs at an earlier stage for example during the Problematisation stage would have led to the failure of the actor-network as the heterogenous actors would have been too disconnected to cope with the demands of a disruption of such magnitude. The same can be said of the Interessment stage because a lot of resistance, power, and negotiations among actors occur in this stage, a system disruptor would be a huge threat and can easily cause the separation of the embryonic connections that would have been developing in the university network leading to the failure of the network**.**

In this study, such an emergent occurrence, the System Disruptor COVID-19, occurred in the Enrolment stage of ANT's translational process as shown in Fig 9.2. It is important to note that at this stage most actors in the university network had already enrolled in the actor-network and therefore it was easier to develop a uniform unit of purpose to capitalise on the established actor connections and enhance e-learning through ERT. In the mobilisation stage, the System Disruptor would have very few negative effects since the university network would have been fully functional. Thus, for a System Disruptor that occurs from the enrolment stage onwards, actors in the network have to work towards translating the new actor and making it part of the network. This happens through harnessing the power that comes from the roles of every actor, deliberately capitalising on beneficial aspects of culture and negotiations, and finding the most effective way to offer radical flexibility as demanded by the context, so that technology-enhanced flexible curriculum delivery becomes a permanent alternative mode of delivery.

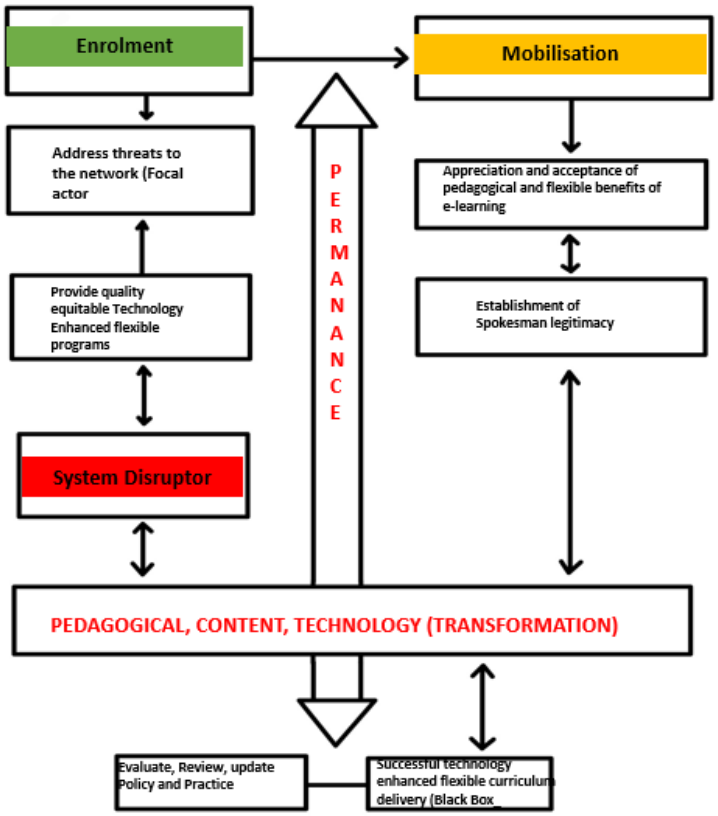


Fig 9.2 Partial ANT inspired Framework for Technology Integration (AFTI) with System Disruptor

9.3 Personal Reflections

At the time that the researcher started this study, traditional flexible curriculum delivery programs were the only alternative mode of programs offered by HEIs in Zimbabwe except for the university in this study, Africa University. The researcher's motivation to pursue this study stemmed from two very different experiences: her experiences as an educational technologist at the university under study, which managed to introduce and run blended and online programs and relatively successfully moved to fully online learning during COVID-19 and another university in the Zimbabwean context that was struggling to integrate technology for flexible curriculum delivery, pre-pandemic, and therefore stuck to block release and weekend programs. Questions around how HEIs in the country can improve the pedagogy and flexibility of adult learners in these traditional flexible programs and how HEIs can integrate technology for curriculum delivery given the complex socio-economic challenges of Zimbabwe as a country raised the researcher's interest in this study.

The researcher was involved in the journey to integrate technology for flexible curriculum delivery at Africa University and although it was a bumpy and gruesome trajectory the university was running blended and online programs by the time the researcher left the institution four years later. The researcher's interest was therefore to trace Africa University's journey, no matter how challenging it

was from a critical perspective to come up with a blueprint that can be used or adapted for the integration of technology for flexible curriculum delivery for HEIs in developing contexts. COVID-19 hit the institution amid the study, and the need for technology-enhanced flexible curriculum delivery became more pronounced for every HEIs in the globe, more so for most HEIs in SSA who had no infrastructural, technological, and let alone knowledge to run emergency remote teaching and learning, a situation that hindered the education of thousands of students in the region. The pandemic highlighted the fact that technology as innovation is unavoidable in the education fraternity and despite the challenges of a context institutions must strive to embrace e-learning as a mode of curriculum delivery.

Whilst the study first sought to trace the implementation of a policy in the integration of technology for flexible curriculum delivery, in practice the study showed that whilst an e-learning policy is important for HEIs in developing contexts, the effective embedding of innovation in a university context is a trajectory that involves the application of deliberate contextualised strategies and interventions to eliminate threats and challenges to the e-learning initiative. CDA was therefore an important analytical framework that allowed a deeper understanding of the policy documents of the institution whilst ANT provided a realistic analysis and view of the trajectory of an institution as it sought to entrench technology-enhanced curriculum delivery in the university context.

9.4 Areas of Further Research

The study sought to explore the trajectory of an institution in the integration of technology for flexible curriculum delivery. Whilst there have been several studies on the integration of technology by HEIs in SSA, very few have traced in-depth the ups and downs of the process and the contextual challenges of not only the region but the country and in particular, institutions to develop contextualised solutions. In consideration of the context of this research, the researcher makes the following suggestion for further research:

9.4.1 Different Research Design

The study used a single case study, future studies might use two or more case studies and employ a comparative study that explores the trajectory of the integration of technology for curriculum delivery for universities in developing contexts. A comparative study could allow for the exploration of the integration of technology across contexts. In addition, a comparative study could highlight issues of the integration of technology for flexible curriculum delivery in developing contexts that were not reflected in this study as the findings of this study are based on a single institution.

9.4.2 Students as research participants

The study used various actors of e-learning in the university context as research participants except for students. The researcher was denied access to students; hence they were not included in the study. Nonetheless, students are the most important factor in any educational setting and future studies should

include them as participants of the research to ensure a holistic and wholesome view of the issues affecting the integration of technology for flexible curriculum delivery in developing contexts.

9.4.3 Data Collection Methods

The study used data collection methods such as interviews and documents which are collective instruments that are commonly used in qualitative studies. Interviews were the main source of data, and the policy documents were effective for validation purposes. Although these methods provided rich data on the integration of technology for flexible curriculum delivery, the study showed that e-learning professional development played an important role in the acceptance of e-learning as a mode of delivery in the university context. Observing lecturers' use of the LMS and how they applied the TPACK framework, as well as the interaction of students with the educator, content, and each other would perhaps uncover the quality of pedagogy for students in technology-enhanced flexible curriculum delivery. This would be useful in balancing out any possible bias from lecturers as they reported in interviews.

9.4.4 Pilot investigation of ANT Inspired Framework for Technology Integration

The researcher recommends that future studies conduct a practical investigation on the ANT-inspired Framework for Technology Integration to evaluate its effectiveness. The framework was developed from a rich literature review and the gaps in the integration of technology for flexible curriculum delivery in a developing context as indicated in the findings of this study. The researcher, therefore, recommends empirical investigations of the effectiveness of the framework in different developing contexts.

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Appendices

Appendix A: CPUT Ethics Approval Letter

Private Bag X8, Wellington, 7654
Jan van Riebeeck Street, Wellington, 7654
Tel: +27 21 864 5200

P.O. Box 652, Cape Town, 8000
Highbury Road, Mowbray
Tel: +27 21 680 1500

FACULTY OF EDUCATION

On the **10/09/2020** the Chairperson of the Education Ethics Committee of the Cape Peninsula University of Technology granted ethics approval **EFEC 11-9/2020** to **C G N Magunje** for research activities related to the staff project at the Cape Peninsula University of Technology.

Title of thesis:	Towards a framework for flexible curriculum delivery at an African university: An Actor Network Theory Perspective

Comments:

Permission is granted to conduct research within the Faculty of Education only. Research activities are restricted to those details in the research project.

Date: 10 September 2020

Dr Candice Livingston

Research coordinator (Wellington) and Chair of the Education Faculty Ethics Committee ,Faculty of Education

Appendix B: Africa University Ethics Approval Letter

AFRICA UNIVERSITY
(A United Methodist-Related Institution)

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)

P.O. Box 1320 Mutare, Zimbabwe, Off Nyanga Road, Old Mutare-Tel (+263-20) 60075/60026/61611 Fax: (+263 20) 61785 website: www.africau.edu

Ref: AU1904/21 13 February 2021

Caroline Magunje C/O CBPLG

Africa University Box 1320

Mutare

RE: **Towards a framework for flexible curriculum delivery at an African university: An ActorNetwork Theory Perspective**

Thank you for the above titled proposal that you submitted to the Africa University ResearchEthics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following.

a) Research proposal
b) Data collection instruments
c) Informed consent guide

- **APPROVAL NUMBER** AUREC1904/21
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** **NA**
- **APPROVAL DATE** February 13, 2021
- **EXPIRATION DATE** February 13, 2022
- **TYPE OF MEETING** Expedited
  After the expiration date this research may only continue upon renewal. For purposes of renewal, aprogress report on a standard AUREC form should be submitted a month before expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must bereported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in theproposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted toAUREC.

Yours Faithfully

AFRICA UNIVERSITY
RESEARCH ETHICS COMMITTEE (AUREC)
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

MARY CHINZOU – A/AUREC ADMINISTRATORFOR CHAIRPERSON, AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE

Appendix C: Research Study Information Sheet
Information sheet for participants

Title of Research Study: Towards flexible curriculum delivery at an African university: An Actor Network Theory Perspective.

Dear Participant

Thank you for volunteering to participate in this research study aiming to document the role of various actors in the integration of technology for curriculum delivery in a university network

Please take time to read the following information that explains what participating in this research study involves. Participation is voluntary. Below is an explanation of what is involved in the research study. You are also being asked to sign a consent form if you still want to continue participating in this research study.
You are welcome to phone me if you would like any further information.

What you will be involved in;
The purpose of the research study is to examine the role of management, lecturers, and support staff in the integration of technology for curriculum delivery. In this research study if you will be asked to participate only in a one-on-one interview, to share with the researcher your role and experience in the integration of technology for curriculum delivery within the university.
The interview will take approximately (45 min). If you choose to take part, you can organise a time for the online interview convenient to you. The interviews will be recorded digitally, and interviewees will be provided with paper copies of the final transcripts (and, if desired, a softcopy of the audio recording). The verbose transcripts and sound files will be made available for member checking before the analysis. **Please note your names will note be used in this study as pseudonyms will be used. I addition, the course name and course code will also be hidden in the study for both the course outline and the Virtual course site.**
The information gained from this research will be used to create a localised framework that other institutions will use to develop strategies to enhance the integration of technology in curriculum. The results of this research study may also inform policy makers.

Time commitment
The research study online interviews using Zoom typically takes approximately 45 minutes.
The interview will be recorded on audio tape and then transcribed verbose onto a computer. The audio tapes will be stored in a locked secure place at all times and the computer data will be protected from intrusion also. Your response will be treated with full confidentiality and anyone who takes part in the research will be identified only by code numbers or pseudo names. A copy of the interview transcript

will be shared with you if you wish. At the end of the research, I will write a report and the results may be published in peer reviewed journals and conference presentations. Participant responses may be described in research reports; however, all possible precautions will be taken to disguise participants. This research study has been reviewed and approved by the Research Ethics Committee.

Please do not hesitate to contact me (cmagunje@gmail.com or (Whatsapp-0776 886 148/ +2761 063 1844) or my supervisors:

Professor Agnes Chigona on chigonaa@cput.ac.za or +2721 680 1689 or

Professor Daniela Gachago gachagod@cput.ac.za or + 2721 464-7246

if you need further information and clarifications.

Thanking you in anticipation,

Yours sincerely,

Caroline G.N. Magunje

Appendix D: Participant Consent Form

Participant's Consent form

I have read the Information Sheet and have had details of the research study explained to me. My questions have been answered to my satisfaction and I understand that I may ask further questions at any time.
I understand I have the right to withdraw from the research study at any time and to decline to answer any particular questions.
I agree to provide information to the researcher[s] on the understanding that my name will not be used without my permission. The information will only be used for this research and for publications that might arise from this research project.

I agree/do not agree to the interview being recorded [audio/visual].

I understand that I have the right to ask for the recording equipment to be turned off at any time during the interview.
I confirm I am over 16 years of age.
I agree to participate in this research study under the conditions set out in the Information Sheet.
By signing below, you are agreeing that:
(1) you have read and understood the Participant Information Sheet,
(2) questions about your participation in this research study have been answered satisfactorily,
(3) and you are taking part in this research study voluntarily (without coercion).

Name: _____ Signed: _____ Date: _____
This information will be confidentially used by researcher and kept under lock and key and will not be shared with anyone. Participant will be assigned codes during data cleaning. The information will be destroyed after successful completion of this research study.

Appendix E: Semi-structured one on one interview guides

Interview Guide

This is a guide for a semi-structured interview for a study entitled "Towards flexible curriculum delivery at an African university: An Actor Network Theory Perspective." The interview is part of a research study to pursue a Doctorate in Education at the Cape Peninsula University of Technology in South Africa. The aim of the study is to explore the implementation of an e-learning policy in the integration of technology for curriculum delivery and to illuminate the processes and actions of various entities (both human and non-human) in a higher education network in a developing context. A set of questions is presented below. The interviews will take between 60-80 minutes each. Based on the participants' responses, more exploratory questions not listed below could be added to better understand the issues raised. Handwritten notes and audio recordings will be used for recording the interviews. The audio recordings will be used for recording the interviews. The audio recording will be subject to authorization by the participation.

Management Guide

Problematization

1. What issues triggered the development of an e-learning policy at AU?
2. Describe the process that the University had to go through to formulate an e-learning policy?
3. Which actors in the university network were involved in the initiating of the implementation phase and what were their roles and interest in the process?

Interessment and Enrolment

4. What strategies have you used to ensure various actors are involved in the integration of technology in curriculum delivery?
5. How else have you enforced the integration of technology in teaching and learning?
6. How did you support actors to ensure integration of technology?
7. What challenges have you faced within the university network during the implementation phase of the e-learning policy?
8. How did you mitigate the challenges?
9. What problems have emerged from the offering of blended and online programs in the Zimbabwean context.
10. How have you mitigated the challenges?

Mobilisation

11. How have you maintained effective and efficient offering of blended and online programs?
12. How has the university benefitted from the integration of technology in curriculum delivery?
13. Are you satisfied with the role of the e-learning policy in the integration of technology in curriculum delivery?
14. What are the prospects of e-learning for HEIs especially in Zimbabwe?

Lecturer Guide

Problematization

1. How long have you been a lecturer? Had you ever used technology for curriculum before joining Africa University?
2. Were you or any of your colleagues in your department/faculty involved in the formulation of the e-learning policy?
3. Do you feel you voice was heard, and you contributed effectively to the policy?
4. What do you think of the way blended and online learning were introduced to the university? Where you involved in the decision-making process? Do you think your opinions were considered?

Interessment and Enrolment

5. How has it been for you to change from face to face to technology enhanced teaching and learning
6. What kind of technological and pedagogical support have you received to prepare for e-learning?
7. What challenges have you faced in online teaching?
8. Have all your concerns on e-learning been adequately addressed by the authorities or responsible departments/units? have you received adequate support from management in e-learning?
9. How has e-learning impacted other areas of your professional life? How have the problems if any been dealt with?
10. What changes have you made in your professional life as a result of e-learning? How has your role and identity as a lecturer changed in online learning?

Mobilisation

11. What strategies have you adopted to be an effective online facilitator?
12. Do you think the e-learning policy has been an effective tool in the integration of technology in curriculum delivery
13. How should HEIs improve the integration of technology in curriculum delivery

Faculty Dean/HOD	**Support Department Staff**
Problematisation 1. What role did you play in the formulation phase of the e-learning policy? 2. What was the role of the faculty/department in the initiating phase of blended and online programs? **Interessment and Enrolment** 3. How did you ensure effective participation of staff in your department in e-learning? 4. Which other departments have you worked with in the implementation phase of the policy? 5. What inter departmental challenges have you faced in the implementation process? How did you mitigate the challenges? 6. What challenges have you faced as a faculty/department in the integration of technology for teaching and learning? How have you solved the challenges? 7. Did you face any resistance from your staff in the integration of technology in teaching and learning? How did you mitigate the resistance? 8. How has the faculty/department supported lecturers in the integration of technology for teaching and learning? 9. Are there any other strategies besides those laid down in policies that you have adopted at faculty and departmental level to ensure effective integration of technology in teaching and learning **Mobilisation** 10. How many blended and full online programs are you currently running in your faculty/department? 11. What have been the benefits of blended and online programs in your faculty? 12. In your opinion, has the e-learning policy been effective at AU? 13. How should HEIs improve the integration of technology in curriculum delivery?	**Problematisation** 1. What was the role of your department in the implementation phase of the e-learning policy? 2. What was your role in the originating phase of e-learning project? 3. What challenges did you face when e-learning was made mandatory at AU? **Interessment and enrolment** 4. How has your role in the university changed as a result of e-learning? 5. What kind of technological support do you provide for lectures? / What kind of pedagogical support do you provide for lectures? 6. What challenges have you faced as you provide support in the integration of technology in teaching and learning and how have you resolved these challenges? 7. What challenges have arisen as a result of inter departmental associating? How have you resolved these challenges? 8. Have you faced any resource related issues or problems? How has it been resolved with other departments and with management? 9. How has the role of the LMS, internet, and other technological tools changed as a result of e-learning? How have you ensured adequate and effective use of these technologies? 10. What technological challenges have you faced in blended and online programs? 11. What other strategies have you used to fully support lecturers in e-learning? **Mobilisation** 12. What do you think are the most important factors for effective e-learning for support departments? 13. Was the role of the support departments clearly elaborated in the policy and its implementation? 14. What else can be done to ensure effective integration of technology in HEIs in the Zimbabwean context

Appendix F: Course Outline Template

College of ……..……..

Department of

Course name and Course Code

Day and Time of Class Session

Semester 1 or 2

Lecturer Details: Prof/Dr/Mr. /Mrs.: ……

Office Location: …… ….

Office Hours/Consultation Times: ……

Phone number (Office): ……. Cell: …… (Optional)

Email: …….

1.0 Course Description

This course is aimed at improving your proficiency in ----------
---

2.0 Prerequisites

---

e.g. Research Methods 1 or None

3.0 Course Objectives (Optional?)

---.

4. 0 Course Intended Learning Outcomes or Learning goals

Use verbs to describe what students will be able to do after completing the Course

After successfully completing the course, students will be able to:

Explain----------
-
Identify----------
Apply----------

Analyse ----------

Evaluate----------

5.0 Methods and Strategies of Teaching and Learning

6.0 Assessment

Assessment of students will be through coursework and examinations

Coursework:

e.g. Essay	10
Quiz	10
Midterm Exam	20
Discussion Forum	20
Total Course work	60
Final Exam	40
Total	**100**

7.0 Course Content

The following course content will be covered in this course:

Example:
1. Introduction to Population
1.1 Definition of Population
1.2 The scope of Population Geography
1.3 History of World Population

Topic 1

Subtopic 1.1

Subtopic 1.2

Subtopic 1.3

Topic 2

Topic 3 (etc)

8.0 Academic Integrity

Students are expected to abide by the University regulations on Academic Integrity

9.0 Course Schedule

A course schedule gives details about each and every topic for example, the week the topic will be covered, the sub-topics for that particular week, the resources to be used, and the activities that the students will engage in. A lecturer can use a table

Instead of having a table as Course schedule (7.0), the elements mentioned above can be added on the Course Content Section

Week	Topic	Subtopics	Readings /eResources	Activities
e.g Week1	Introduction to Population	Definition of Population The scope of Population Geography History of World Population	Population and Development Handbook http://www.unfpa.org Video	Quiz Discussion Forum In Class Test 1
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				
Week 7				
Week 8				
Week 9				
Week 10				
Week 11				
Week 12				

Use Topics and Subtopics in section 7.0 as shown in the example below

9.0 Essential Readings

Appendix G: Course Site Fact Sheet

AFRICA UNIVERSITY
(A United Methodist-Related Institution)

Continuing Education Department

We have designed a sample Course page template on Moodle for your convenience. The site has different tools and activities that are meant to make your blended teaching engaging and interesting.

Navigating and Editing your Course Page

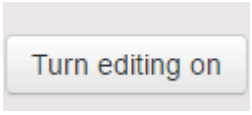
To access the Continuing education site go to aucce.net

- After logging in you will find yourself on the aucce.net home page
- To the right of the site you will see a list of your courses under 

- Click on the course that you want to work on,
- On the Course page you will find a number of tools and activities that have already been added on the page for you.
- All you need to do is to edit them to meet your own requirements or to add additional tools and activities.

Working on your Site

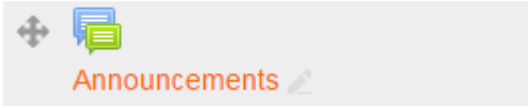
To add, remove and edit resources and activities on your Course Page:

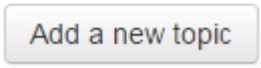
- Click 

to the top right of your Course page.
- Your Course page is now active with icons that will allow you to manipulate it e.g 

a. The Announcement tool

This tool allows you to post announcements to your students on your Course page which they will access online. To post an announcement:

- Click on the Announcement icon 

- Click 

- A new page will open, Add the Subject/Title of the announcement then the Announcement in the text boxes

- Scroll to the bottom of the page and Click

To go back to your Course page click on the Course page to the top left side of your course page

Note: The Lecturer is the only person who can post Announcements on the Course Page

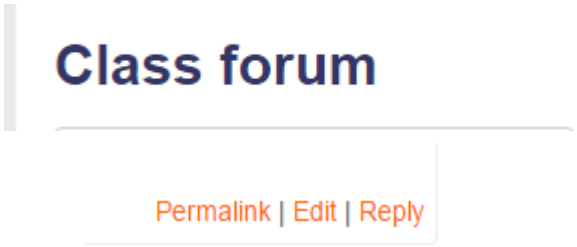
b. <u>The Class Forum</u>

This is a general discussion forum where students can post any questions, queries or issues for the whole class. As a lecturer you can respond to the issues raised by the students for everyone tosee.

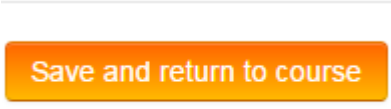
You are free to edit the contents of this forum to suit your own requirements.

Editing the Class Forum:

- Click on 

- On the 

page at the bottom of the text box Click Edit
- On the Updating Forum page edit the text as required.



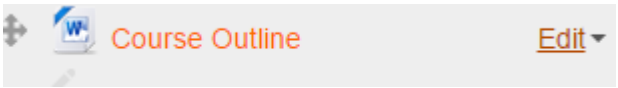
- Scroll to the bottom of the page and Click

#Do the same to edit the Online Discussion Forum

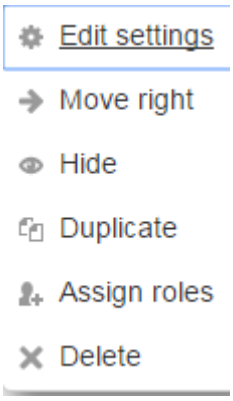
c. <u>Course Outline</u>

We have uploaded a dummy Course Outline as a sample.

To remove the dummy Course outline, Click on the arrow next to the Edit button



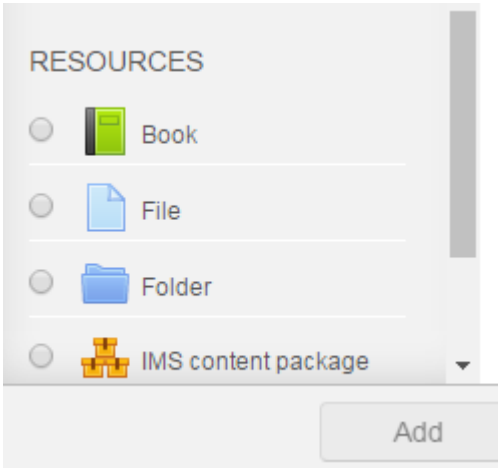
a drop down menu will appear



Click Delete

Uploading your Course Outline:

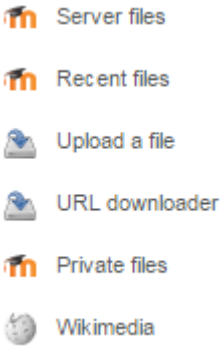
- To the bottom right of the Welcome section click
- A new window will open with a list of all Activity and resource tools on Moodle.
- Scroll towards the bottom of the window. Under Resources Choose File then Click Add



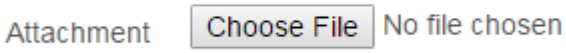
- On the Add a New File Page, type in the name of the file: Course Outline

Select files

- In the Select files text box, click on the icon the extreme left corner  on



the File picker window Click Upload Files a window will open which will allow you to browse for your Course Outline



after Clicking Choose File. The system will allow you to browse for your file.

- After uploading click .

Use the File tool and the same procedure to upload notes, power points, articles etc… to your Course Site.

Message from your facilitator

The Message from the facilitator is important in your course as it adds a personal touch to an online environment.

To edit the message to:

- Click Edit settings on the Edit drop down menu to the right of the Message from the Facilitator tool
- Under the Administration block to the bottom right of the page click Edit settings, you will be able to make changes as required in the Page Content text box.
- To insert your picture, Click the Insert image icon  and follow the instructions as given by the System.

Before you Start the Course

The tool allows student to prepare in advance for the various forms of resources that will be used in the course.

To edit the tool (Lesson Tool) …

- Click on the Before you start tool

- On the new page click Edit and icons will become active that will allow you to manipulate the different pages of the Lesson such as moving the page, updating (editing) the page, duplicating the page, preview or deleting the page.

 # Use the same process to edit the Lesson tools.

Initial Course Survey

The Course survey is built on the quiz tool. The quiz activity enables a lecturer to create quizzes comprising questions of various types, including multiple choice, matching, short-answer and numerical.

To edit …

- Click on the Initial Course Survey link
- On the Initial Course Survey page, to the bottom right under the Administration Block, choose Questions
- A page will open that allows you to Add and/or manage questions
- There are icons on each question that allows you to move, edit or delete the question

To Add a question

- Under the Add a Question Section, click on the arrow next to Page Break and a drop-down Menu, Choose the required type of question
- Click Add Selected Question Type
- Fill in the required information
- Click Save Changes

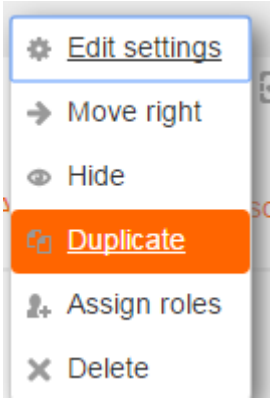
 # Do this to edit all Quiz tools (Sample Quiz and End of Course Survey)

Sample Assignment.

The assignment activity module enables a Lecturer to communicate tasks, collect work and provide grades and feedback.

To edit…….

- Click on the Edit arrow, from the drop-down menu, choose Edit Settings
- Change the name of the Assignment in the Assignment name box
- Change the content in the description box, (type in your own question)
- Edit the Submission dates as necessary.
- Ensure the Enable boxes are ticked to activate the deadlines and cut off dates for submission
- Scroll to the bottom of the page, click save and return to course

To set up any of the above tools , Click the arrow next to Edit, on the Drop down menu choose Duplicate, 

an additional tool will be added.

To move resources and tools to different sections of your course page, click on the icon to the left of the resource or tool and drag it to your selected section.

Happy Moodling!

Email elearning@africau.edu Call: ext 1088

for queries, questions and assistance

APPENDIX H: E-LEARNING STRATEGIC PLAN (EXTRACTS)

Introduction

Extract 7

Online learning is a mode of delivery that falls within the broader concept of Continuing Education in which teaching and learning focus on increased access to education and training where barriers caused by time, place and pace of learning are eliminated. The rise of the internet has brought about an academic revolution through online learning, where higher education institutions are enrolling massive numbers of students scattered around the globe in various courses and programmes.

Extract 10

The ultimate focus of online learning at Africa University (AU) is based on fifth generation distance learning in which curriculum development and pedagogical practices become drivers of new approaches to teaching and learning through advances in information communication technologies (ICTs) which have created space for these developments. ICTs, therefore, affords AU a cost-effective way to offer flexible learning to progressively more dispersed students across Africa and beyond, leading to increased enrolments

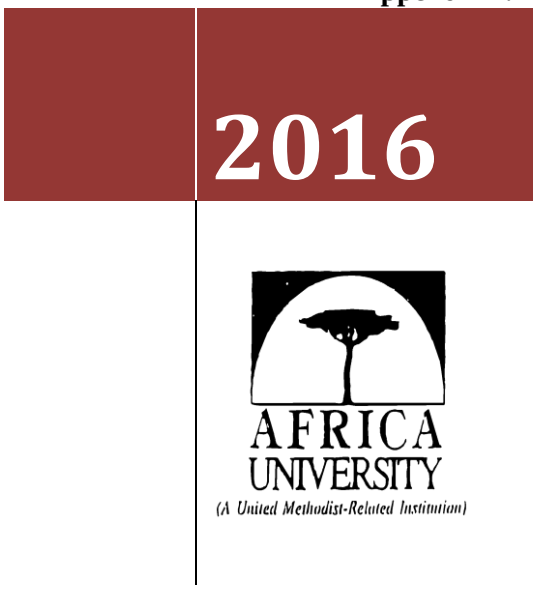
Extract 13

Strategic Objectives

The following strategic objectives are built on the strengths of Salmon's innovative and successful framework for the implementation of e-learning in Higher Education. When adopted at University, faculty and departmental level, they will provide a robust basis for implementation of the University's e-learning strategy over the next crucial academic year:

i. *Promote creativity and innovation in learning and teaching*
ii. *Support and promote use of technology in assessment*
iii. *Support flexible delivery*
iv. *Increase access to AU programmes in Africa by reaching large numbers of students and professionals*
v. *Support institutional strategies in learning and teaching, and inform e-learning developments in faculties/institute*
vi. *Develop capacity for provision of e-learning and related support*
vii. *Provide student support*

Appendix 1: E-learning Policy Extracts



Key Definitions

Extract 1

Continuing Education*- the primary acquisition of knowledge and skill through instruction delivered using emerging technologies outside traditional learning hours and/ or semesters. Programmes offered include degrees, professional development courses, short courses and/or training courses.*

Extract 2

Online learning and e-Learning*- terms that have emerged to describe the application of information and communication technologies (ICTs) to enhance distance education, implement open learning policies, make learning activities more flexible and enable those learning activities to be distributed many learning venues*

Extract 3

Flexible Learning *- the provision of learning in a flexible manner; learning is built around the geographical, social and time constraints of individual learners, rather than those of an educational institution. Flexible learning includes delivering face to face training in the workplace or opening the*

campus longer hours, or organising weekend or long breaks or offering block release and parallel programmes

Extract 4

Preamble

Higher education institutions are increasingly adopting non-traditional modes of delivery that focus on opening access to education and training for a large segment of society, which cannot afford to take opportunity of traditional modes of learning. Africa University (AU) offers the highest quality educational experience to all of its students, whether in the traditional mode of classroom instruction or in alternative teaching methodologies, such as online learning, flexible learning and open learning that release learners from the constraints of time and place.

Extract 5

Vision

The vision for Continuing Education at AU is to be the premier provider of high-quality education courses and programmes, using flexible learning modes to train and empower its students to become the future leaders of Africa in particular and the world in general.

Extract 6

Mission

The mission of Continuing Education is to increase access to high-quality university courses to its customers by utilising flexible learning modes, educational technologies and emerging content delivery methods that reduce, and in some cases eliminate, the need for students to be in particular locations at set times to receive instruction.

Extract 8

DIRECTORATE OF CONTINUING AT AFRICA UNIVERSITY

Working under the supervision of the Office of the Deputy Vice Chancellor, the DCE shall exercise the following core functions:

i. *champion the development of improved student administration systems and other aspects of the University's online learning infrastructure, including the support provided by the staff to enhance Continuing Education production.*
ii. *identify eLearning technologies and pedagogy and recommend for implementation.*

iii. *assist academic staff with course design and course development for online and web-assisted courses.*
iv. *offer state of the art courses in collaboration with Faculties/Institute(s) to meet the needs of the community.*

Extract 11

The Deputy Vice Chancellor shall be responsible for overseeing the implementation of all policies approved by the Board and Senate for CE. The DVC, as the Chairperson for the Committee for Continuing Education, shall ensure that all programmes are guided by the relevant Senate approved policies regarding undergraduate and graduate programmes and as enshrined in the University Prospectus.

The DVC shall be responsible for the following:

i. *Working with faculties, institute(s) and the CE to promote innovative ideas to improve CE programme delivery.*
ii. *Promoting the desirable synergy among faculties/institutes, the Business Office, Registry and the CE.*
iii. *Ensure academic credibility of programmes;*

Extract 12

E-learning Committee

The Committee shall comprise the following:

- *DVC-Chair*
- *DCE Director: Secretariat*
- *Director Research*
- *Director ICT or nominee*
- *1 member representing each Faculty/Institute*
- *Registrar*
- *1 representative from the Business Office*
- *University Librarian or nominee*
- *Quality Assurance Director or nominee*

The Committees functions shall include to:

i. *Collaborate with other University-wide units and committees to*

ii. *facilitate the development and promotion of e-learning. Support regular research on, and review of issues, challenges and opportunities that might arise with respect to new and changing learning technologies or modes of delivery, with a goal of making appropriate recommendations to the University with respect to these opportunities and challenges.*

Appendix J: Language Editing Certificate

GRAMMARIAN CERTIFICATE

MELKOZAH CONSULTING PTY LTD

11 October 2022Dear

Sir/ Madam

Re: Confirmation of proof reading of dissertation for Caroline Magunje, StudentNumber 220611025.

This confirms that I have proof read and edited the dissertation titled, "**Towards a framework for the implementation of an e-learning policy at an African university: An Actor Network Theory Perspective**" and that I have advised the candidate to make the required changes before submission.

Yours faithfully

MELODY RUMBIDZAI KOZAH

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