

**ACADEMIC PROFESSIONAL DEVELOPMENT AND SUPPORT OF ACADEMICS FOR  
DIGITAL TRANSFORMATION IN AFRICAN LARGE SCALE OPEN AND DISTANCE  
EDUCATION INSTITUTIONS**

by

**MPHO-ENTLE PULENG MODISE**

submitted in accordance with the requirements  
for the degree of

**DOCTOR OF PHILOSOPHY**

in the subject

**EDUCATION**

at the

**UNIVERSITY OF SOUTH AFRICA**

**SUPERVISOR: PROF G VAN DEN BERG**

**CO-SUPERVISOR: PROF O ZAWACKI-RICHTER**

**JANUARY 2022**

## DECLARATION BY STUDENT

**Name:** Mpho-Entle Puleng Modise

**Student number:** 33904324

**Degree:** PhD (EDUCATION)

I declare that "***Academic professional development and support of academics for digital transformation in African large-scale open and distance education institutions***" is my work. All the sources used and quoted have been indicated and acknowledged using a complete list of references.

I further declare that I submitted the thesis to Turnitin for originality checking and that it falls within the University's accepted requirements for originality (Annexure 5.8).

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.



24 Janaury 2022

---

Signature

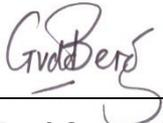
---

Date

## DECLARATION BY SUPERVISORS

I, Prof Geesje Van Den Berg, declare that the thesis has been submitted to originality checking software (Annexure 5.8).

This dissertation was submitted with my approval.



---

Prof G van den Berg

## CO-SUPERVISOR STATEMENT

This dissertation was submitted with my approval.



---

Prof. Dr. Olaf Zawacki-Richter

## ABSTRACT

To address educational imperatives such as improving the capacity of the education and training systems to meet the pressing needs in Africa, countries such as South Africa, Nigeria, Botswana, Kenya, Namibia and Tanzania have embarked on a journey to implement digital transformation policies and educational innovations such as online teaching and learning. However, research shows a high failure rate of e-learning initiatives in these contexts due to the lack of the right skill sets and expertise. Academics from higher education institutions face the challenge of facilitating and supporting learning using emerging educational technologies without proper preparation and training. Therefore, they struggle to adopt the new e-learning innovations due to a lack of relevant skills and the perceived difficulty attaining the necessary skills. The Covid-19 pandemic also forced many higher education institutions to continue offering education in online spaces, thus affirming the need for distance education and e-learning in the education sector while at the same time revealing the skill gaps required for e-learning.

This study was driven by the need to investigate how academics are trained, developed and supported for online teaching in large-scale open and distance education (ODE) institutions in Africa and other developing countries. Twenty participants were interviewed, including academics and other staff members at the University of South Africa (UNISA) and the National University of Nigeria (NOUN), Africa's two largest distance learning institutions. Through a multiple case study research design lens, this study used a qualitative approach through a configurative systematic review, semi-structured interviews, and document analysis to collect data. Thematic analysis was used to analyse the data. Technological pedagogical content knowledge (TPACK) theory and the unified theory of acceptance and use of technology (UTAUT) were used to support and guide this research study.

Consistent with previous research, the findings in this study showed that higher education institutions in Africa and other developing countries did not adequately plan and manage their e-learning implementation projects. This study also found that a lack of proper understanding of e-learning and appropriate digital skills were some of the significant reasons for reported failures of e-learning initiatives. The findings further revealed that the universities under study implemented e-learning without a comprehensive e-learning policy and related policy that drives and guides the e-learning implementation process. Consequently, this study positioned e-learning policy and academic professional development as integral to e-learning innovation initiatives.

**Keywords:** academic professional development, blended learning, digital transformation, e-learning readiness, e-learning policy, open and distance education, e-learning, ODeL, TPACK, UTAUT

## OPSOMMING

### **Titel: Akademies-professionele ontwikkeling en ondersteuning van akademiëci ten opsigte van digitale transformasie in grootskaalse oop- en afstandsonderriginstellings in Afrika**

Ten einde aandag aan onderrigimperatiewe te gee soos om die kapasiteit van die onderrig- en opleidingstelsels te verbeter om aan die dringende behoeftes van Afrika te voldoen, het lande soos Suid-Afrika, Nigerië, Botswana, Kenia, Namibië en Tanzanië 'n reis aangepak om digitale transformasiebeleide en onderriginnoverings soos e-leer te implementeer. Navorsing toon egter 'n hoë druipeyfer ten opsigte van e-leerinisiatiewe in hierdie kontekste vanweë 'n gebrek aan die regte vaardighede en kundigheid van akademiëci. Akademiëci van hoër onderwysinstellings kom voor die uitdaging te staan om leer te fasiliteer en te ondersteun deur die ontlukende onderrigtegnologieë sonder behoorlike voorbereiding en opleiding te gebruik. Hulle sukkel dus om die nuwe e-leerinnoverings onder die knie te kry as gevolg van 'n gebrek aan toepaslike vaardighede en/of die waargenome moeilikheidsgraad om die nodige vaardighede te bekom. Die Covid-19-pandemie het ook heelwat hoër onderwysinstellings gedwing om onderrig in aanlyn ruimtes aan te bied en het derhalwe die behoefte aan afstandsonderrig en e-leer in die onderwyssektor bevestig, terwyl dit terselfdertyd die vaardigheidsgaping, bloot gelê het.

Hierdie studie is gemotiveer deur die behoefte om ondersoek in te stel na hoe akademiëci opgelei en ontwikkel is en ondersteun word wat betref e-leer by grootskaalse oop- en afstandsonderriginstellings in Afrika en ander ontwikkelende lande. Onderhoude is met altesaam 20 deelnemers gevoer, insluitend akademiëci en ander lede van die Universiteit van Suid-Afrika (UNISA) en die Nasionale Universiteit van Nigerië (NOUN), Afrika se twee grootste leerinstellings. Deur die lens van veelvuldige gevallestudienavorsingsontwerp het hierdie studie 'n kwalitatiewe benadering gevolg deur middel van 'n konfiguratiewe sistemiese oorsig, semigestruktureerde onderhoude en dokumentontleding om data in te samel. Tematiese ontleding is gebruik om die data te ontleed. Tegologies-pedagogiese inhoudskennis (TPACK) en die saambindende teorie van aanvaarding en die gebruik van tegnologieraamwerke (UTAUT) is ingespan om hierdie navorsingstudie te ondersteun en te rig.

In ooreenstemming met vorige navorsing het die bevindings van hierdie studie getoon dat hoër onderwysinstellings in Afrika en ander ontwikkelende lande nie hulle e-leerimplementeringsplanne voldoende beplan en bestuur nie. Hierdie studie het ook tot die

gevolgtrekking gekom dat 'n gebrek aan behoorlike begrip van e-leer en behoorlike digitale vaardighede van die grootste redes was vir aangemelde mislukkings van e-leeriniisiatiewe. Die bevindings het ook aan die lig gebring dat die universiteite wat aan die studie deelgeneem het, e-leer implementeer sonder 'n omvattende e-leerbeleid en/of verwante beleid wat die e-leerimplementeringsproses aandryf en rig. As gevolg hiervan beskou hierdie studie e-leerbeleid en akademiese, professionele ontwikkeling as 'n belangrike deel van e-leerinnoveringsiniisiatiewe.

**Sleutelwoorde:** akademies-professionele ontwikkeling, gemengde leer, digitale transformasie, e-leergereedheid, e-leerbeleid, oop- en afstandsonderrig, e-leer, ODeL, TPACK, UTAUT

## TSHOBOKANYO

### **Setlhogo: Tlhabololo ya baporofesene ba thuto le tshegetso ya barutegi malebana le kgabaganyo go ya kwa dijitaleng mo ditheong tsa thuto e e buletsweng botlhe le e go ithutiwang motho a le kgakala mo Aforika**

Go samagana le dintlha tsa botlhokwa tsa thuto di tshwana le go tokafatsa bokgoni jwa dithulaganyo tsa thuto le katiso go fitlhelela ditlhokego tsa botlhokwa mo Aforika, dinaga di tshwana le Aforikaborwa, Nigeria, Botswana, Kenya, Namibia le Tanzania di tsene mo leetong la go tsenya tirisong dipholisi tsa go fetogela mo dijitaleng le maitshimololelo a thuto a tshwana le go ithuta ka tsela ya eleketroniki. Fela dipatlisiso di bontsha seelo se se kwa godimo sa go retelwa ga maitshimololelo ano a go ithuta ka tsela ya eleketroniki ka ntlha ya tlhalelo ya dikgono le boitseanape jo bo maleba jwa batlhatlheledi. Batlhatlheledi go tswa kwa ditheong tsa thuto e kgolwane ba le bana le dikgwetlho tsa go bebofatsa le go tshegetsa go ithuta ka go dirisa dithekenoloji tse di tlhagelelang tsa thuto kwa ntle ga ipaakanyo e e siameng le katiso. Ka jalo, ba sokola go dirisa maitshimololelo a mantšhwa a go ithuta ka tsela ya eleketroniki ka ntlha ya tlhalelo ya dikgono tse di maleba le/gongwe go dumela gore go boima go bona dikgono tse di tlhokegang. Leroborobo la Covid-19 le lona le pateleditse ditheo tse dintsi tsa thuto e kgolwane go tswela go tlamela ka thuto mo maranyaneng, mme ka go rialo di tlhomamisa botlhokwa jwa thuto ya o le kwa kgakala le go ithuta ka tsela ya eleketroniki mo lephateng la thuto, mme gape di senola tlhalelo ya dikgono tse di tlhokegang mo tlamelong ya go ithuta ka tsela ya eleketroniki.

Thutopatlisiso e tlhotlheleditswe ke tlhokego ya go tlhotlhomisa ka moo batlhatlheledi ba katisiwang ka gona, ba godisiwang le go tshegediwa ka gona malebana le go ithuta ka tsela ya eleketroniki mo ditheong tsa thuto e e buletsweng botlhe le e go ithutiwang motho a le kgakala (ODE) mo Aforika le mo dinageng tse di tlhabologang. Go botsoloditswe palogotlhe ya banni-le-seabe ba le 20, go akarediwa batlhatlheledi le ditokololo tse dingwe tsa Yunibesithi ya Aforikaborwa (UNISA) le Yunibesithi ya Bosetšhaba ya Nigeria (NOUN), ditheo tse pedi tse dikgolokgolo tsa thuto ya o le kgakala mo Aforika. Ka tiriso ya leitlho la thadiso ya dithutopatlisiso tsa tobiso, thutopatlisiso eno e dirisitse molebo o o lebelelang mabaka ka tshekatsheko e e rulaganeng go sekaseka motswako wa *data*, dipotsolotso tse di batlileng di rulagane le tokololo ya dikwalo go kokoanya *data*. Go dirisitswe tokololo ya meono go lokolola *data*. Go dirisitswe matlhomeso a kitso ya diteng tsa thuto ya thekenoloji (technological pedagogical content knowledge (TPACK) le tiori e e kopantsweng ya kamogelo le tiriso ya thekenoloji (the unified theory of acceptance and use of technology (UTAUT) go tshegetsa le go kaela thutopatlisiso eno. Go tsamaelana le patlisiso e e fetileng, diphitlhelole tsa

thutopatlisiso eno di bontshitse gore ditheo tsa thuto e kgolwane mo Aforika le mo dinageng tse dingwe tse di tlabologang ga di dire dithulaganyo tse di lekaneng le go tsamaisa tsenyotirisong ya diporojeke tsa go ithuta ka tsela ya eleketoroniki sentle. Thutopatlisiso eno gape e fitlhetse gore tlaelo ya go tthalogangwa sentle ga go ithuta ka tsela ya eleketoroniki le dikgono tse di maleba tsa dijitala ke mangwe a mabaka a magolo a go retelelwa go go begilweng ga maitshimololelo a go ithuta ka tsela ya eleketoroniki. Gape diphithelolelo di senotse gore diyunibesithi tse di neng di batlisisiwa di tsentse tirisong go ithuta ka tsela ya eleketoroniki kwa ntle ga pholisi e e akaretsang ya go ithuta ka tsela ya eleketoroniki le/gongwe dipholisi tse di amanang le tseo tse di tsamaisang le go kaela tirego ya go tsenya tirisong go ithuta ka tsela ya eleketoroniki. Ka ntlha ya seo, thutopatlisiso eno e beile pholisi ya go ithuta ka tsela ya eleketoroniki le tlabololo ya baporofešenale ba thuto jaaka karolo ya bothokwa ya maitshimololelo a go ithuta ka tsela ya eleketoroniki

**Keywords:** tlabololo ya baporofešenale ba thuto, go ithuta go go kopantsweng, diphetogo go ya kwa dijitaleng, go siamela go ithuta ka tsela ya eleketoroniki, pholisi ya go ithuta ka tsela ya eleketoroniki, thuto e e buletsweng botlhe le go ithuta o le kwa kgakala, go ithuta ka tsela ya eleketoroniki, ODeL, TPACK, UTAUT

## **DEDICATION**

I dedicate this achievement to my husband, Nolan, and three beautiful daughters, my greatest blessings, Itebogeng, Galaletsang and Judah. Their sacrifice and support I will forever appreciate.

I also dedicate the achievement to my forebears, my grandparents, Rebecca and Thomas Buyeye, my mother, Sarah, and my aunt, Lizah, who believed in me and were my biggest cheerleaders.

## ACKNOWLEDGEMENTS

To my God, the Father, the Son and the Holy Spirit, blessing, honour, glory, and power, be unto Him, now and forever. Thank you, Father, for always showing Yourself worthy of all praise and worship. You are indeed the Author and Orchestrator of my life.

My sincerest heartfelt thanks and gratitude goes to those individuals who selflessly set time aside to generously help and support me, without whom the completion of this research could not have been possible:

- The University of South Africa for the support and making this possible for me.
- Prof. Geesje Van Den Berg and Prof. Olaf Zawacki-Richter, my supervisors, THANK YOU for your selflessness, guidance, and wisdom. Thank you for your speedy and excellent feedback that motivated and encouraged me, for putting up with hundreds of emails from me that invaded your mailboxes any time of the day and night! Thank you for your thoroughness! You are remarkable.
- All the participants who took part in this research study for sharing their experiences honestly and openly without which this study would have been impossible.
- Prof Chiedu F. Mafiana and Prof Christine I. Ofulue who introduced me to the National University of Nigeria (NOUN) participants, who also received many emails and WhatsApp messages from me asking for many things.
- UNISA Librarians for their help and support, especially for imparting skills on finding resources from the library without hassles.
- Dr Cilla Dowse's excellent critical reading and language editing, Mrs Magda Botha for meticulously aligning and making this thesis look professional and Nolan Naicker for creating such high quality and professional graphics for me.
- Ditsele and Rasebopela families for their most excellent gift of love towards me. When I was homeless, they took me into their homes, they believed in me and my passion love for education, and without their support and obedience to God, I would probably not have made it this far! I thank God for putting them in the path of my life.

## TABLE OF CONTENTS

DECLARATION BY STUDENT.....	i
DECLARATION BY SUPERVISORS.....	ii
ABSTRACT.....	iii
DEDICATION.....	ix
ACKNOWLEDGEMENTS.....	x
ACRONYMS AND ABBREVIATIONS USED IN THE STUDY.....	xviii
LIST OF FIGURES.....	xxi
LIST OF TABLES.....	xxii
LIST OF ANNEXURES.....	xxiii

### CHAPTER 1

#### ORIENTATION AND BACKGROUND OF THE STUDY

1.1	INTRODUCTION.....	1
1.2	BACKGROUND TO THE STUDY.....	2
1.2.1	Distinguishing between e-learning, blended learning and distance education.....	4
1.2.2	The response to the e-learning demands and opportunities in Africa.....	4
1.2.3	The implementation of e-learning initiatives and e-learning readiness in higher education.....	7
1.2.4	Background information on the two universities.....	9
1.3	RATIONALE AND MOTIVATION FOR THE STUDY.....	10
1.4	PROBLEM STATEMENT.....	13
1.5	THE RESEARCH QUESTIONS.....	14
1.6	THE AIM OF THE RESEARCH.....	15
1.7	RESEARCH DESIGN AND METHODS.....	15
1.7.1	Research Paradigm.....	16
1.7.2	Research Approach.....	16
1.7.3	Research Type.....	17
1.8	RESEARCH METHODS.....	17
1.8.1	Phase 1: The Pilot Study.....	18
1.8.2	Phase 2: Data Collection.....	18
1.8.2.1	<i>Semi-structured interviews</i> .....	18
1.8.2.2	<i>Configurative Systematic Review</i> .....	19
1.8.2.3	<i>Document Analysis</i> .....	21
1.8.3	Selection of participants and relevant literature.....	21

1.8.3.1	<i>Sampling of participants for the interviews</i> .....	22
1.8.3.2	<i>Configurative systematic review</i> .....	22
1.8.3.3	<i>Selection of policies for document analysis</i> .....	23
1.8.4	Phase 3: Data Analysis.....	24
1.8.4.1	<i>Thematic analysis (interviews and document analysis)</i> .....	24
1.8.4.2	<i>Configurative systematic synthesis</i> .....	24
1.9	TRUSTWORTHINESS .....	25
1.10	TRIANGULATION.....	26
1.11	ETHICAL MEASURES .....	26
1.12	CLARIFICATION OF CONCEPTS .....	27
1.13	DIVISION OF CHAPTERS .....	29
1.14	CONCLUSION.....	30

CHAPTER 2  
THEORETICAL FRAMEWORK

2.1	INTRODUCTION .....	32
2.2	THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT) .....	32
2.2.1	A brief history of the Unified Theory of Acceptance and Use of Technology and motivation for the use of its original version.....	33
2.2.2.	The Components of the Unified Theory of Acceptance and Use of Technology ...	34
2.2.2.1	<i>Performance expectancy</i> .....	35
2.2.2.2	<i>Effort Expectancy</i> .....	35
2.2.2.3	<i>Social Influence</i> .....	35
2.2.2.4	<i>Facilitating Conditions</i> .....	35
2.2.3	Relevancy of UTAUT theory for this study.....	36
2.2.4	Limitations of UTAUT theory for this study .....	37
2.3	TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) FRAMEWORK.....	39
2.3.1	A Brief History of the Technological Pedagogical Content Knowledge .....	39
2.3.2	The key components of Technological Pedagogical Content Knowledge .....	40
2.3.2.1	<i>Content Knowledge (CK)</i> .....	42
2.3.2.2	<i>Pedagogical Knowledge (PK)</i> .....	42
2.3.2.3	<i>Technology Knowledge (TK)</i> .....	42
2.3.2.4	<i>Pedagogical Content Knowledge (PCK)</i> .....	42
2.3.2.5	<i>Technological Pedagogical Knowledge (TPK)</i> .....	43

2.3.2.6	<i>Technological Content Knowledge (TCK)</i> .....	43
2.3.2.7	<i>Technological Pedagogical Content Knowledge (TPACK)</i> .....	43
2.3.3	Relevancy of the TPACK framework to this study .....	44
2.3.4	Limitations to the theory.....	46
2.4	THE THEORETICAL FRAMEWORK UNDERPINNING THE STUDY.....	47
2.5	CONCLUSION .....	48

### CHAPTER 3

#### KEY ISSUES AND TRENDS IN DIGITAL TRANSFORMATION IN AFRICA AND GLOBALLY

3.1	INTRODUCTION .....	49
3.2	DIGITAL TRANSFORMATION IN HIGHER EDUCATION AND DISTANCE EDUCATION INSTITUTIONS.....	49
3.2.1	Defining digital transformation .....	51
3.3	E-LEARNING DEVELOPMENTS IN AFRICA .....	52
3.4	THE ESSENCE OF TECHNOLOGY IN HIGHER EDUCATION AND DISTANCE EDUCATION.....	54
3.4.1	Defining distance education.....	56
3.4.2	Electronic learning and distance education .....	59
3.5	DIGITAL LITERACY AND RELEVANT COMPETENCIES IN HIGHER EDUCATION AND DISTANCE EDUCATION.....	62
3.5.1	The need for digital competencies in higher education and distance education .....	66
3.6	ACADEMIC PROFESSIONAL DEVELOPMENT OF ACADEMICS IN HIGHER EDUCATION.....	68
3.6.1	Defining academic professional development in higher education .....	69
3.6.2	The necessity for continuous academic professional development in higher education and distance education .....	70
3.6.3	Benefits of academic professional development for the e-learning era .....	72
3.6.4	The impact of the Covid-19 pandemic on the future of e-learning, academic professional development and support in and distance higher education .....	74
3.6.5	The future of professional development of faculty in e-learning environments in higher education .....	76
3.7	E-LEARNING READINESS IN HIGHER EDUCATION AND DISTANCE EDUCATION.....	79

3.8	INSTITUTIONAL LEADERSHIP AND E-LEARNING POLICY IN HIGHER EDUCATION AND DISTANCE EDUCATION.....	83
3.8.1	Role of Institutional leadership in the successful implementation of e-learning.....	83
3.8.2	E-learning policy in higher education and distance education.....	85
3.9	CONCLUSION.....	87

## CHAPTER 4 RESEARCH METHODOLOGY

4.1	INTRODUCTION .....	89
4.2	RATIONALE FOR EMPIRICAL RESEARCH .....	89
4.3	RESEARCH DESIGN .....	91
4.3.1	Research Paradigm .....	92
4.3.1.1	<i>The ontological, axiological and epistemological assumptions.....</i>	<i>94</i>
4.3.2	Research Approach .....	95
4.3.3	Research Type .....	96
4.4	RESEARCH METHODS.....	99
4.4.1	Research site.....	99
4.4.2	Selection of participants.....	100
4.4.2.1	<i>Purposive sampling .....</i>	<i>100</i>
4.4.2.2	<i>Snowballing .....</i>	<i>100</i>
4.4.2.3	<i>The sample for the interview.....</i>	<i>101</i>
4.4.3	Selection of sources for the configurative systematic review .....	102
4.4.4	Selection of policies for the document analysis .....	104
4.5	DATA COLLECTION .....	105
4.5.1	The Pilot Study .....	106
4.5.2	Semi-structured Interviews .....	107
4.5.2.1	<i>The process of inviting the participants .....</i>	<i>108</i>
4.5.2.2	<i>Gatekeeping in qualitative research .....</i>	<i>109</i>
4.5.2.3	<i>The interview instrument.....</i>	<i>109</i>
4.5.2.4	<i>The Semi-structured interviews .....</i>	<i>109</i>
4.5.2.5	<i>Saturation .....</i>	<i>111</i>
4.5.3	A configurative systematic review.....	112
4.5.3.1	<i>Eligibility criteria .....</i>	<i>114</i>
4.5.3.2	<i>Search strategy.....</i>	<i>115</i>
4.5.3.3	<i>The systematic search process .....</i>	<i>117</i>
4.5.4	Document analysis .....	120

4.6	DATA ANALYSIS.....	121
4.6.1	Analysing data from the interviews .....	122
4.6.2	Analysing data from the systematic review.....	123
4.6.3	Analysing data from the document analysis .....	124
4.7	MEASURES FOR TRUSTWORTHINESS.....	125
4.7.1	Credibility .....	126
4.7.2	Dependability .....	126
4.7.3	Confirmability .....	127
4.7.4	Transferability .....	127
4.8	TRIANGULATION.....	128
4.9	ETHICAL CONSIDERATIONS .....	129
4.9.1	Ethical clearance and access to participants.....	129
4.9.2	Informed consent.....	129
4.9.3	Confidentiality and anonymity.....	130
4.10	CHAPTER SUMMARY .....	130

## CHAPTER 5

### FINDINGS AND DISCUSSION OF EMPIRICAL RESEARCH

5.1	INTRODUCTION .....	131
5.2	ORGANISATION OF THE DATA .....	132
5.3	FINDINGS EMANATING FROM SYSTEMATIC REVIEW (DATA SET A) .....	132
5.3.1	Characteristics of studies.....	134
5.3.2	Findings from the systematic review data set.....	142
5.3.2.1	<i>Theme 1: Competencies and skills identified in studies as needed for online teaching/e-learning in distance education and blended learning institutions.....</i>	<i>142</i>
5.3.2.2	<i>Theme 2: The preparedness of lecturers for e-learning in African large-scale open and distance education (ODE) institutions.....</i>	<i>144</i>
5.3.2.3	<i>Theme 3: The preparedness and support of lecturers for e-learning in African large-scale open and distance education (ODE) institutions .....</i>	<i>147</i>
5.3.2.4	<i>Theme 4: The critical factors that affect the successful implementation of e-learning in open and distance education (ODE) and e-learning institutions .....</i>	<i>149</i>
5.4	FINDINGS OF THE INTERVIEWS (DATA SET B).....	154
5.4.1	Review of research participants and demographics .....	154
5.4.2	Overview of the Atlas.ti codes and categories emerging from the interviews.....	156
5.4.3	Themes emanating from the interviews (Data set A).....	160

5.4.3.1	<i>Theme 1: E-learning competencies and teaching with technology in higher education institutions in ODeL contexts</i> .....	160
5.4.3.2	<i>Theme 2: Academic support and training in higher education in ODeL contexts</i> .....	170
5.4.3.3	<i>Theme 3: Academics' e-learning readiness and technology adoption</i> .....	183
5.4.3.4	<i>Theme 4: Impact of Covid-19 on academic's professional development, e-learning readiness and technology adoption in African higher education and ODeL institutions</i> .....	204
5.5	FINDINGS FROM DOCUMENT ANALYSIS (DATA SET C) .....	206
5.5.1	Characteristics and overview of the selected policies .....	206
5.5.2	Theme 1: The development of a comprehensive e-learning policy in higher education and open and distance e-learning .....	207
5.6	REFLECTION ON THE OVERALL FINDINGS AND TRIANGULATION OF DATA .....	209
5.7	CONCLUSION.....	214

## CHAPTER 6

### DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

6.1	INTRODUCTION .....	215
6.2	SUMMARY OF LITERATURE REVIEW.....	215
6.3	SUMMARY OF EMPIRICAL STUDY.....	217
6.3.1	Reflection on Research Methodology.....	219
6.4	SYNTHESIS OF RESEARCH FINDINGS .....	220
6.4.1	Academic professional development in HE and ODeL institutions in Africa and other developing countries.....	221
6.4.2	E-learning competencies relevant for teaching in higher education and ODeL institution in Africa and other developing countries .....	222
6.4.3	E-learning readiness of academics in higher education and ODeL institution in Africa and other developing countries .....	223
6.4.4	Technology adoption of academics in higher education and ODeL institution in Africa and other developing countries .....	223
6.5	THE RESEARCH CONCLUSIONS .....	224
6.5.1	Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?.....	225
6.5.2	How prepared are lecturers for online teaching/e-learning in African large-scale open and distance education (ODE) institutions?.....	225

6.5.3	How are academics professionally prepared and supported for e-learning in African large-scale open and distance education (ODE) institutions? .....	226
6.5.4	What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions? .....	226
6.5.5	How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?.....	227
6.5.5.1	<i>Overview of the model</i> .....	228
6.5.5.2	<i>Skills audit and skills gap analysis</i> .....	229
6.5.5.3	<i>Training intervention and skill development</i> .....	230
6.5.5.4	<i>E-learning implementation</i> .....	230
6.5.5.5	<i>Monitoring and Evaluation</i> .....	231
6.5.5.6	<i>Macro-level elements of e-learning implementation</i> .....	231
6.6	LIMITATIONS OF THE STUDY .....	232
6.7	RECOMMENDATIONS .....	232
6.7.1	Recommendations at the governmental level.....	233
6.7.2	Recommendations at the institutional level.....	233
6.7.3	Recommendations at the lecturers' level.....	234
6.8	SUGGESTIONS FOR FURTHER RESEARCH.....	235
6.9	CONCLUDING REMARKS.....	235
	REFERENCES .....	237

## ACRONYMS AND ABBREVIATIONS USED IN THE STUDY

4IR	-	Fourth Industrial Revolution
APD	-	Academic Professional Development
A&HCI	-	Arts & Humanities Citation Index
BKCI-S	-	Book Citation Index--Science
BKCI-SSH	-	Book Citation Index—Social Sciences & Humanities
BOCODOL	-	Botswana College of Distance and Open Learning
COD	-	Chair of Department
C-TAM-TPB	-	combined TAM and TPB
CeLIM	-	Centre for e-learning and Interactive Multimedia
CES	-	Centre for External Studies
CET	-	Community Education and Training
CHE	-	Council on Higher Education
CMS	-	Course Management System
CODeL	-	Centre for Open, Distance and e-Learning
COL	-	Commonwealth of Learning
COVID-19	-	Coronavirus Disease 2019
CPD	-	Continuous Professional Development
CPD	-	Centre for Professional Development
CPCI-S	-	Conference Proceedings Citation Index - Science
CPCI-SSH	-	CPCI - Social Sciences & Humanities
CVL	-	Centre for Virtual Learning
DE	-	Distance Education
DHET	-	Department of Higher Education and Training
DISS	-	Directorate of Instructional Support and Services
DRAA	-	Directorate of Research Administration and Advancement
DTSFL	-	Department of Tuition Support and Facilitation of Learning
DUTLD	-	Directorate of University Teaching and Learning
ELR	-	E-learning Readiness
ERIC	-	Education Resources Information Centre
ESCI	-	Emerging Sources Citation Index
GIBS	-	Gordon Institute of Business Science
HE	-	Higher Education
HEI	-	Higher Education Institution
HR	-	Human Resources

ICDE	-	International Council for Open and Distance Education
ICT	-	Information Communication Technologies
IDT	-	Innovation Diffusion Theory
IPMS	-	Integrated Performance Management System
IS	-	Information Systems
LASO	-	Leadership, Academic and Student Ownership
LCS	-	Lecture Capture System
LMS	-	Learning Management System
MM	-	Motivational Model
MOOCs	-	Massive Open Online Courses
MPCU	-	Model of PC Utilisation
NOUN	-	National Open University of Nigeria
ODE	-	Open and Distance Education
ODeL	-	Open distance e-learning
ODHE	-	Open and Distance Higher Education
ODHEI	-	Open and distance higher education institution
ODL	-	Open distance learning
OER	-	Open Educational Resources
OU	-	Open University
OUT	-	Open University of Tanzania
PICO	-	Population, Intervention, Comparison and Outcomes
PRISMA	-	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PwC	-	Pricewaterhouse Coopers
RETRIDAL	-	Regional Training and Research Institute for Open and Distance Learning
ROI	-	Return On Investment
RQ	-	Research Question
SACE	-	South African Council for Educators
SADC	-	Southern African Development Community
SR	-	Systematic Review
SCI-EXP	-	Science Citation Index Expanded
SCT	-	Social Cognitive Theory
SDL	-	Self-Directed Learning
SR	-	Systematic Review
SSCI	-	Social Sciences Citation Index
TAM	-	Technology Acceptance Model
TPACK	-	Technological Pedagogical and Content Knowledge
TPB	-	Theory of Planned Behaviour
TRA	-	Theory of Reasoned Action
TS	-	Tuition Support
TVET	-	Technical and Vocational Education and Training
UB	-	University of Botswana
UK	-	United Kingdom
UMGC	-	University of Maryland Global Campus
UNAM	-	University of Namibia

UNCTAD	-	United Nations Conference on Trade and Development
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UNISA	-	University of South Africa
UNISA	-	University of South Africa
UP	-	University of Pretoria
USC	-	University of Southern California
UTAUT	-	The Unified Theory of Acceptance and Use of Technology
VLE	-	Virtual Learning Environment
WWW	-	World Wide Web

## LIST OF FIGURES

Figure 2.1 The Unified Theory of Acceptance and Use of Technology (UTAUT) .....	34
Figure 2.2 Technological Pedagogical and Content Knowledge (TPACK) Framework .....	42
Figure 3.1 Five generations of distance education .....	56
Figure 3.2 A conceptual model of distance education .....	58
Figure 3.3 The continuum of technology-based learning .....	62
Figure 3.4 Pyramid of digital skills .....	65
Figure 3.5 Areas of digital competence: experts' collective view .....	66
Figure 3.6 A framework for policy intervention.....	87
Figure 4.1: Contextualising the data collection and analysis processes .....	93
Figure 4.2 The research 'onion' .....	98
Figure 4.3 The systematic review process.....	118
Figure 4.4 PRISMA flow diagram.....	120
Figure 4.5 EPPI Reviewer Coding Assignments.....	121
Figure 5.1 Contextualising data collection and analysis processes.....	132
Figure 5.2 Screening of titles and abstracts.....	134
Figure 5.3 Number of publications per year .....	136
Figure 5.4 Number of studies per country.....	139
Figure 5.5 Different research approaches .....	140
Figure 5.6 Different data collection tools (per country) .....	140
Figure 5.7 Sankey Diagram (categories) .....	161
Figure 5.8 Coding word cloud with description for coding .....	163
Figure 5.9 Atlas.ti Word Cloud for descriptor for tools and systems .....	173
Figure 5.10 Word Cloud with descriptors for the 'challenges of e-learning' code .....	197
Figure 6.1 Contextualization of the research findings.....	227
Figure 6.2 Proposed e-learning readiness model for preparing lecturers for e-learning in higher education and ODeL institutions .....	235

## LIST OF TABLES

Table 2.1 Summary of the theoretical frameworks in this study .....	48
Table 3.1 Comparison of factors related to e-learning readiness .....	82
Table 4.1 Databases included in the systematic review .....	102
Table 4.2 Inclusion and exclusion criteria .....	115
Table 4.3 Search terms.....	116
Table 4.4 Database search timelines.....	117
Table 5.1 Overview of organisation of data .....	133
Table 5.2 List of studies included in the systematic review .....	135
Table 5.3 Characteristics of included studies .....	137
Table 5.4 Theoretical frameworks used in the reviewed studies .....	141
Table 5.5 Skills and competencies needed for teaching in ODeL .....	145
Table 5.6 Factors affecting HE academics' e-learning readiness and adoption of e-learning .....	147
Table 5.7 Technologies identified in the reviewed studies.....	149
Table 5.8 Challenges affecting academic professional development .....	151
Table 5.9 Factors affecting development of successful e-learning implementation.....	153
Table 5.10 Challenges affecting the successful adoption of e-learning .....	156
Table 5.11 Profiles of participants.....	157
Table 5.12 Code Groups/Categories .....	159
Table 5.13 Frequency of the top 15 codes .....	160
Table 5.14 Example of frequency of words in the Atlas.ti word cloud (at code group level) .....	162
Table 5.15 Themes and subthemes from the interviews (Data set B) .....	164
Table 5.16 Technological tools used by lecturers .....	172
Table 5.17 Identified benefits of APD in Africa ODeL institutions .....	179
Table 5.18 Perceived e-learning preparedness of lecturers (according to participants' rating).....	191
Table 5.19 Identified benefits of e-learning in Africa ODeL institutions .....	194
Table 5.20 Comparison and overview of major themes originating from interview data and systematic review.....	215

## LIST OF ANNEXURES

Annexure 2.1 EPPI-Reviewer Report with the Protocol (PICO Framework).....	295
Annexure 2.2 PRISMA 2020 Checklist .....	303
Annexure 2.3 Interview Schedule Instrument .....	306
Annexure 2.4 Participants email invitation letter .....	308
Annexure 2.5 Ethical Clearance Certificate .....	310
Annexure 2.6 Letters to request permission to conduct research at NOUN .....	311
Annexure 2.7 Consent Form.....	313
Annexure 2.8 Example of transcribed interview .....	315
Annexure 3.1 Checklist of Steps to Take Before, During and After Training .....	326
Annexure 3.2 Twelve digital competence areas .....	329
Annexure 3.3 Best e-learning practices .....	330
Annexure 4.1 Ten steps for conducting a case study .....	331
Annexure 4.2 Pilot Study Email Invite.....	333
Annexure 4.3 Data Extraction Tool .....	334
Annexure 4.4 Qualitative systematic reviews .....	336
Annexure 4.5 Pilot Interview Questions .....	338
Annexure 5.1 Overview of the included articles.....	340
Annexure 5.2 Identified e-learning challenges.....	341
Annexure 5.3 Included Study and their characteristics.....	342
Annexure 5.4 Emergent themes and subthemes from the interviews .....	345
Annexure 5.5 A sample of codes and categories .....	347
Annexure 5.6 Frequency of codes .....	349
Annexure 5.7 Proof of editing .....	350
Annexure 5.8 Turnitin Report.....	351

## CHAPTER 1

### ORIENTATION AND BACKGROUND OF THE STUDY

*"To learn is also to learn to learn, and learning to learn is thus, often to change how we go about changing". Jon Dron*

#### 1.1 INTRODUCTION

Digital transformation has become one of the critical strategies dramatically changing business models, governments and educational institutions. For decades technology has been at the helm of changes, challenges and opportunities in higher education. The growing interest in and discourse on more flexible learning and teaching modes have seen institutions and organisations adopting new modes of education delivery such as blended learning and e-learning. Digital technology transforms organisations' core businesses to "better meet customer needs by leveraging technology and data" (Clark, 2018, para. 3). In education, the ultimate target customer is always students, with the faculty and staff often being the drivers of the technology for teaching, learning and support.

An explosive, unprecedented and disruptive technological revolution has inevitably been taking place in higher education for decades (Garrison et al., 2003). Technological advances promise to transform societies and improve lives. According to Davis (2016, para. 1), we are in an era "that builds and extends the impact of digitisation in unanticipated ways". The Indeed Editorial Team (2021, para. 3) defines *disruptive technology* as "any innovation that dramatically changes the way consumers, businesses and industries operate". Disruptive technology is an innovation that ultimately has a significant impact on industries and alters the ways things are done – in this case, a radical change to the teaching and learning process. Disruptive technologies are generally believed to improve performance, "typically cheaper, or more convenient than those established on the dominant technology" (Tellis, 2006, p. 34). Global trends are exponentiating the disruptive technology revolution in education, such as the national development goals, pressures from local educational imperatives, shifts in technology, demand and need for enhanced pedagogical practices and policy climate changes in higher education (Department of Higher Education and Training [DHET], 2013; Ng'ambi et al., 2016).

It is the belief of the Gordon Institute of Business Science (GIBS), a subsidiary of the University of Pretoria (UP) (Gordon Institute of Business Science, 2018), that necessity and survival are among the reasons that African governments are quickly adopting digitised solutions.

The pressure on higher education institutions to produce graduates who are equipped for the 21st century is becoming a primary concern for many stakeholders in the education and development arenas. With digital transformation, the introduction of e-learning in higher education has emerged, among other things. E-learning seems to be the answer to the sought-after efficiency and flexibility for higher education institutions (HEIs) in open and distance learning (ODL) environments around the world and has excellent benefits (Zaineb, 2016, para. 3). The fourth industrial revolution (4IR), described by Davis (2016, para. 4) "as the advent of "cyber-physical systems involving entirely new capabilities for people and machines", is one of the outcomes of digitisation faced by HEIs.

With the introduction of e-learning, HEIs in South Africa, Africa and the world are faced with the need to continuously equip themselves with the required skills to optimally facilitate learning using open, distance and e-learning approaches and relevant technologies. In addition, academics in HEIs are constantly needed to support and satisfy the needs and demands of learners effectively and competently participate in the relevant scholarship and discussions around emerging technologies and e-learning. Several authors (Chetty, 2012; Du Plessis, 2012, 2017; Holomisa & Dube, 2014; Modise, 2016; Van den Berg et al., 2016) indicate that distance education institutions where e-learning initiatives are underway are still grappling with the effective adoption, adaptation and implementation of technology-enabled education. Tait (2018) maintains that although there is an increase in online education delivery, there are still challenges to overcome. Tait (2018) has identified some of the challenges related to policy and quality assurance for online and distance programmes.

Therefore, this study was driven by the need to investigate how academics are professionally developed and supported for digital educational transformation in Africa's large-scale open and distance education institutions. The discussion that follows covers the backdrop against which this study was anchored.

## **1.2 BACKGROUND TO THE STUDY**

To address the educational imperatives such as improving the capacity of the *education and training* systems to meet the pressing needs in Africa, countries such as South Africa, Nigeria, Botswana, Kenya, Namibia and Tanzania have embarked on digital transformation policies and educational innovations such as e-learning. E-learning has brought about an

unprecedented and disruptive revolution in higher education (Garrison et al., 2003). The United Nations Educational, Scientific and Cultural Organization's (UNESCO) Millennium Development Goals of 'Education for all for the 21st Century' of expanding access to education has driven the adoption and usage of information communications technologies (ICTs) in education to address and fast-track the much-needed radical transformation of the education systems in Africa (Aderinoye & Ojokheta, 2004; Pandor, 2009; Tarimo, 2013, ). Some of the goals include eliminating poverty by providing knowledge and skills and sustainable development of education (Aderinoye & Ojokheta, 2004; Komba, 2009).

Countries have been mandated to make education accessible to all qualifying citizens, especially for out-of-school youth and adults using open distance learning (ODL) and e-learning (DHET, 2013; Komba, 2009). The heart of open distance education (ODE) and e-learning seek to break down the barriers to skill development by "providing flexible learning environments that are relevant and engaging" (Singh & Hassan, 2017, p. 5) and "enabling people to study what is relevant to their needs, at a time and place convenient to them" (International Council for Open and Distance Education [ICDE], nd, para. 4). The need to expand access to quality education has led institutions in many African countries to implement enhanced learning modes such as e-learning, massive online open courses (MOOCs), ubiquitous, and mobile learning (Singh & Hassan, 2017, p. 6). However, e-learning has been identified as the vehicle with the most significant "potential to improve education systems in African countries and if implemented well with strategies that focus on overcoming key challenges" (Nhando, 2015, para. 8).

In 2013, the Department of Higher Education and Training (DHET) passed the '*White paper for post-school education and training*, which required the higher education system in South Africa to almost double in size (Department of Higher Education and Training, 2013). Unfortunately, the South African university sector infrastructure, like many institutions of higher education in other African countries (Thurab-Nkhosi et al., 2005), was not equipped and sufficiently prepared to accommodate the required expansion (University of South Africa, 2014). Chetty et al. (2015, p. 1) reported that the overall expansion of the higher education system in South Africa "has not made a definite impact on participation rates" it is evident that the implementation of e-learning has not been smooth sailing for many universities in the developing world (International Council for Open and Distance Education, nd). The significant challenges recorded in the literature include infrastructure, limited financial resources (eLearning Africa, 2008; Mtebe & Raphael, 2013, p. 127), which seem to create more challenges, and lack of appropriate quality study material, faculty's unwillingness to participate

in instructional design training (Masalela, 2011), preparation of relevant stakeholders (lecturers, students, non-teaching staff), and leadership.

Education institutions are pursuing digitised solutions such as e-learning innovations to deal with these compounding challenges affecting the delivery of education and reaching the masses with quality education. Since the conception of e-learning, few definitions have surfaced, and there seems to be no common definition of e-learning (Moore et al., 2011; Oye et al., 2012). It is, therefore, imperative that a distinction is made between concepts such as e-learning, blended learning and distance education, which are key for discussions in this study (see Chapter 3, Section 3.4.1 and 3.4.2) for a detailed discussion around the issue of definitions.

### **1.2.1 Distinguishing between e-learning, blended learning and distance education**

Sangrà et al. (2012) studied e-learning definitions used in literature and found that they focus on different elements of e-learning. Sangrà et al. identified four general categories of e-learning definitions: 1) technology-driven, 2) delivery-system-oriented, 3) communication-oriented, and 4) educational-paradigm-oriented. This makes it challenging to have a common understanding of what e-learning in higher education entails. However, e-learning in higher education is more than just technology; it encompasses all these categories, communication, system delivery and the teaching and learning approaches. The lack of a shared understanding of e-learning may compound the challenge of universities in Africa not being able to fully realise the potential of e-learning as observed by Bagarukayo and Kalema (2015) and Moakofhi et al. (2017).

For this study, the following e-learning definition was adopted: "e-learning is the use of information and communication technologies to support teaching and *learning in distance education*" (Pavel et al., 2015, p. 707). This definition speaks to the nature of teaching and how ICTs can be used to 'support' teaching and learning, especially in distance education. The definition insinuates that a distinction exists between e-learning and distance education, and the two cannot be used, even loosely, as if they have the same meaning.

E-learning comes in several variations and forms, including electronic learning, hybrid learning, distance education, flipped learning, online learning, flexible learning, blended learning, and open learning (Ayers, 2018; Bates, 2019; Alqahtani & Rajkhan, 2020). The basis of e-learning, according to Ayers (2018), is the opportunity for learners to access traditional classroom tuition entirely online to which they otherwise would not have access. It is also

necessary to define distance education to distinguish between e-learning and distance education as they are usually used interchangeably in literature (Bates, 2019, p. 523).

The University of South Africa's (UNISA) open and distance learning (ODL) Policy (University of South Africa, 2008, pp. 1-2) defines *distance education* (DE) as "a set of methods or processes for teaching a diverse range of students located at different places and physically separated from the learning institution, their tutors/teachers as well as other students". This definition of DE underpinned this study. The cases under study are also relevant to the ODL and e-learning contexts at UNISA and the National Open University of Nigeria (NOUN) (see Section 1.2.4). How institutions define specific terms helps understand the strategies and technologies they choose and implement e-learning.

A definition of *blended learning* was also crucial to help distinguish it from e-learning and position UNISA's and NOUN's current mode within the correct space. Thus, it is beneficial to state the distinction between these key terms according to the two institutions' definitions within open distance learning. UNISA's ODL Policy (University of South Africa, 2008, p. 1) defines blended learning as "accomplished by using multiple teaching and learning strategies, a range of technologies in combination with face-to-face interaction and the deployment of physical and virtual resources". The National Open University of Nigeria 2005 Draft eLearning Strategy and Policy defines blended learning as the new medium of education (e-learning) used alongside the traditional mediums of education (p. 2). Central to the definitions of e-learning and blended learning that have been offered is "the use of digital technology and media in education" (Moakofhi et al., 2017, p. 4). The National Open University of Nigeria 2005 Draft eLearning Strategy and Policy defines e-learning simply as "the use of technology to enable the learning process" (p. 2).

Although there is a lack of a common definition of e-learning, as indicated by Moore et al. (2011), Oye et al. (2012, p. 48) point out that "e-learning is not only about training and instruction but also about learning that is tailored to individuals". Hinojo-Lucena et al. (2019, p. 116) argue that although open universities (OUs) aim to 'facilitate access to education for a large group of people, they can and should adapt to students' work schedules and their personal preferences and needs. E-learning innovation promises to equip and empower open universities to achieve both goals of reaching the masses (Hinojo-Lucena et al., 2019) while being able to design and deliver individualised and personalised quality education (O'Donnell et al., 2015). It is no surprise when educational institutions and governments respectfully seek digital transformation for their students and citizens. Respectively, distance education (DE) and e-learning are viable options in terms of the required growth in the sector and as the only viable option to meet such demands (Komba, 2004; Nhando, 2015; UNISA, 2014).

### **1.2.2 The response to the e-learning demands and opportunities in Africa**

E-learning is driven by the emerging educational technologies used in higher education, especially in distance education and has the potential to increase institutions and instructors' effectiveness and efficiency (Moakofhi et al., 2017). Although DE was designed to compensate for the insufficiency of traditional education (Sadeghi, 2019), e-learning innovation has become a requirement for many institutions to support their teaching and learning activities (Adiyarta et al., 2018). This is evident even in traditional universities that increasingly offer tuition online or e-learning technologies. However, the advent of the Covid-19 pandemic in early 2020 (Deslandes & Coutinho, 2020; Modise & Van Den Berg, 2021) has accelerated the requirement for e-learning innovation in higher education.

Digital transformation and innovation have enabled education institutions in Africa to offer e-learning education nationally and across borders (Komba, 2004). For example, the Open University of Tanzania (OUT) became operational in 1993 and moved to blended learning around 2013 (Tarimo, 2013, Mhache, 2013). Botswana adopted information technology and e-learning through its Botswana College of Distance, and Open Learning (BOCODOL), established in 1998 (International Council for Open and Distance Education, nd). UNISA officially implemented the e-learning mode of delivery in 2013 (University of South Africa, 2018; Baijnath, 2014), and the federal government of Nigeria recently endorsed the National Open University of Nigeria's (NOUN) pilot e-Learning initiative (Economic Confidential, 2016).

The Open University of Tanzania (OUT) introduced the Blackboard system in 1998 to complement on-campus face-to-face teaching and learning (Mtebe & Raphael, 2013), and the Centre for Virtual Learning (CVL) was established in 2005 to facilitate the development and delivery of blended learning programmes (Mtebe & Raphael, 2013). However, due to a limited budget, the Open-Source Moodle system was adopted in 2008 (Mtebe & Raphael, 2013). Although UNISA has been using the learning management system (LMS) for years, the new e-learning model was introduced in response to the country's socio-economic needs and policy imperatives in 2013. According to a report on UNISA's Executive Deans Conceptual Understanding of ODeL (University of South Africa, 2015), UNISA decided to adopt new technology innovations and move toward a blended-teaching and e-learning mode of operation. Van Zyl and Liebenberg (2017) reported that academic staff at UNISA were moving to a more "digitised" teaching environment supporting this transition.

Educational challenges and opportunities on the African continent have consequences in neighbouring countries within the continent; for example, UNISA, being one of Africa's largest open and distance learning (ODL) institutions (UNISA, 2018; Tait, 2013), tapped into various

markets within the continent such as Tanzania (Komba, 2009) and Botswana (Mutula, 2002). This move increased competition and motivation for several universities to offer distance education through the Internet. This change saw traditional educational institutions establish a distance education department or facility to offer distance education (Khvilon & Patru, 2002) using available technologies. However, according to the Council on Higher Education (CHE) (2014), as most traditional, contact-based institutions in South Africa had already reached their capacity to support full-time students, they embarked on distance education and e-learning. Examples of such in South Africa are the University of Pretoria, Stellenbosch University, the University of Cape Town and the University of the Witwatersrand.

Shelly et al. (2013) assert that it is vital that educators willingly embrace new teaching and learning opportunities. Educational research shows that technology may support learning in many ways (Clark, 1994; Komza, 2003; Shelly et al., 2013). Although it has been well documented that e-learning may assist universities in advancing their academic tuition goals (Abdullah & Toygan, 2018; Moakofhi et al., 2017; The & Usagawa, 2018), these goals may be influenced by many factors, including the lecturers' attitudes and behavioural intentions towards e-learning. It is, thus, imperative that institutions prepare well for the e-learning initiative. Therefore, the lecturers need to be equipped with the necessary skills to successfully use any new educational technology implemented in their work environment. Pangrazio (2016, p. 163) believes that "the notion of 'critical digital literacy' requires rethinking in light of the fast-changing nature of young people's digital practices". Although technology is constantly, almost instantaneously changing how business is conducted with the target audiences, it is incumbent on academics to stay abreast of new technological developments (Modise, 2016).

### **1.2.3 The implementation of e-learning initiatives and e-learning readiness in higher education**

In 2011, Roger Mills from Cambridge University cautioned that UNISA may not yet be ready for e-learning or ODeL. Mills (2011) believed that UNISA was not yet able to function in the same way as ODeL universities such as Athabasca in Canada or Phoenix in Arizona, United States of America (USA). Ng'ambi et al. (2016) also pointed out that, by 2016, South Africa still lacked a coherent national policy on the role of ICTs in higher education teaching and learning. Ng'ambi et al. (2016) warned that the developing countries needed to take their lead in planning and predict change in technology-enhanced learning.

*Ngengebule et al. (2007) warned that successful e-learning models depend not only on the information communication technologies (ICTs) infrastructures within the institution but also on maximising the satisfaction of the students and the successful completion of their studies.*

For this reason, educators are required to continuously equip themselves with the necessary skills required to have a practical impact on today's learners. McPhee (2014) echoed the sentiments of Zawacki-Richter (2004) that e-learning requires new skills, particularly skills on how to use technology to teach and learn. McPhee (2014) suggested that effective e-learning goes beyond creating good learning content. However, intentional investment in educators "as facilitators rather than as lecturers, or deliverers, of content" needs to be made by those wishing to realise the real benefits of e-learning initiatives.

However, the implementation of e-learning initiatives in higher education has seen many challenges, as Masalela (2011, p. 1) warned. The e-learning implementation failures in organisations do not seem to be the result of the e-learning itself but rather the way organisations are implementing e-learning. This is supported by Masalela's (2011) findings in her research into the case of the University of Botswana (UB), where she found that the e-learning pilot project failed due to a "top-bottom" approach and "lack of a comprehensive institutional strategy based on the shared vision" (p. 1). In the case of Nigeria, Aderinoye and Ojokheta (2004) and Adamu (2018) cited the leadership and cooperation of the students and lecturers as the key to the success of e-learning transformation.

Therefore, it is important that institutions properly prepare themselves to realise the real benefits of e-learning initiatives. The and Usagawa (2018, p. 1277) pointed out the reasons behind the increasing integration of e-learning into traditional education systems by the universities from the developing world, such as cost and unlimited time and place.

Nhando (2015) points out that one of the challenges facing the African continent in successfully implementing e-learning initiatives is lecturers' training and professional development. Van Zyl and Liebenberg (2017) also emphasised the benefits that technology affords HEIs, making the interaction between lecturers and students easy and convenient. However, The and Usagawa (2018) warn that a readiness assessment must be done before e-learning is implemented.

Academic professional development (APD) is used in this thesis to refer to all the training, development and support given to academics in higher education. According to Frick and Kapp (2009, p. 256), APD looks at academics as professionals and how they transition from novices to experts through intentional, self-directed learning and informal learning experiences and formal, non-formal learning. This term is relevant in the context of higher education, and especially in open distance education, as it speaks to the heart of the academics' multifaced nature of work. Technological advances and changes, socio-economic imperatives, student demographics, and politics constantly impact the environment within which academics

function. Institutions must meet these challenges and inevitable, necessary changes with the same vigour and thoroughness.

Frick and Kapp (2009) assert that the phenomenon of "professional development stretches beyond knowledge and skills to the values and attitudes that define an individual's professional identity as a scholar" and see APD as rather more appropriate in the higher education context due to its "holistic approach to learning, transformation and application that takes place within the total context of academics' professional practice" (p. 257). They argue that APD encompasses all of an institution's intentions, actions, activities, policies and procedures that are designed and implemented to ensure the continuous professional growth and development "of its most expensive and precious commodity, namely its academic staff" (Frick & Kapp, 2009, p. 257). The United Nations Development Programme (2010, p. 1) also believes that "People are the real wealth of a nation", not just the technology".

This study seeks to explore how large-scale higher education institutions such as UNISA and NOUN, as large-scale open universities in Africa, prepare their academics to implement the e-learning innovation. This study focused on the preparedness, training and support of academics in higher education for the e-learning initiative and to create some context. The following section discusses the background information of the two ODeL universities under study.

#### **1.2.4 Background information on the two universities**

The two universities under study are situated in developing country contexts. They are both public institutions, but most importantly, they are large-scale in terms of student numbers and operations with open access policies. At the beginning of this study in 2019, the two universities were still running in blended learning modes to fully digitise education and offer courses online. However, the emergence of the Covid-19 pandemic and subsequent world lockdown shut down many HEIs (Alqahtani & Rajkhan, 2020) and forced many universities to continue offering education to the masses using distance education and an e-learning mode (Deslandes & Coutinho, 2020). Covid-19 has proven to be one of the major forces influencing future adoption approaches of e-learning innovation by HEIs in African and other developing countries.

##### ***The University of South Africa (UNISA)***

The innovative establishment of open universities has not been without challenges. The University of South Africa (UNISA) started as a correspondence university with three core business areas: teaching, research, and community engagement. The institution became the

"first public university in the world to teach exclusively by means of distance education in 1946" (University of South Africa, 2021, para. 1). This university has survived all five generations of distance education, as outlined by Moore and Kearsley (2011) (see Figure 3.1), from correspondence, broadcast radio, open and distance learning (ODL), teleconferencing, and the Internet, and currently with e-learning. UNISA's history spans from colonial years to the current democracy, yet again surviving the four periods, the imperial era, the federal period, the apartheid years and the democratic era (University of South Africa, nd). UNISA had been operating in a blended learning approach for years before officially launching the open and distance e-learning (ODEL) mode in 2013. With the introduction of full-online courses, the university started using online tutors and teaching assistants to assist students (Bajinath, 2014).

### ***The National Open University of Nigeria (NOUN)***

Although the National Open University of Nigeria (NOUN) was established in 2002, it is also not a new entrant in the African distance education market. The idea of an autonomous open university for the country was first heard in 1976. The University of Nigeria Bill was finally approved and signed into Law in 1983, only to be suspended in 1984.

A decade later, the country was faced with the need to provide wider access to higher education, and NOUN was finally resuscitated and reactivated in 2002. Like UNISA, the National Open University of Nigeria is the first federal university in Nigeria dedicated to providing distance education (Adu et al., 2013). NOUN was also operating in blended learning mode until fully incorporating e-learning in 2014, deploying iLearn portal technology to enhance student learning experiences (National Open University of Nigeria, 2021; Gbenga, 2019). In 2008, Ajadi, Salawu and Adeoye reported e-learning in Nigeria Universities and educational institutions as a dream due to poor ICT infrastructure and other socio-economic reasons. NOUN's goal is to incorporate e-learning fully. However, they continue to offer printed materials as a "major instructional mode until such a time that the infrastructure for total online teaching will become available" (National Open University of Nigeria, 2021, para, 5). However, the Covid-19 pandemic has forced many DE institutions to migrate teaching and learning fully online.

### **1.3 RATIONALE AND MOTIVATION FOR THE STUDY**

Research supports staff development as an important consideration when implementing an innovation, including technology initiatives (Bates, 1997; Cresswell et al., 2013; Levy, 2003; Zawacki-Richter, 2005). Recently Nhando (2015, para. 1) reported that Africa is an emerging

market for e-learning. Nhando (2015, para. 7) emphasises the need to train teachers on the African continent, first to understand and embrace technology as an enabler that will enhance their work, and secondly to invest in training and developing skills necessary to use technology to teach and to learn. With the burgeoning developments in distance education and e-learning in developing countries, Anderson and Garrison (1998, p. 109) believe that "obviously new technical skills are required". Academics must be digitally literate to be able to handle e-learning. Zawacki-Richter (2004, p. 56) predicted that technical competencies and digital literacy would become a basic qualifications for faculty. Boyd-Dimock and McGree (1995) argue that new skills and knowledge will lead to increased confidence among teachers and a more substantial commitment to teaching than may otherwise have been the case.

Commitment to adjusting and flexibility are paramount in transforming educational approaches (Oliver, 2014). In her research on the integration of technology into theological education at UNISA, Oliver (2014, pp. 2–3) found that it was necessary to continuously train staff and students to use technology and conduct research on using technology in a pedagogically viable manner.

Schäfer (2002, as cited in Zawacki-Richter, 2004, p. 55) warns that the development of new emerging teaching technologies in higher education demands the "ongoing updating and supplementing of the knowledge and skills of people in the work process throughout their lifetimes" – a requirement for lifelong learning and learning-on-demand. Teaching and learning online requires the intentional preparation and planning and the training and development of the lecturers and their teaching agents, such as e-tutors and teaching assistants.

E-learning has become mandatory in South Africa since the passing of the Higher Education (HE) policy framework in 2013 (Department of Higher Education and Training, 2013), with the higher education system required to almost double in size in order to address the educational imperatives and meet the country's educational needs. An increasing number of educational institutions in Africa, including private and public businesses, are adopting the e-learning mode of teaching and learning (eLearning Africa, 2008; Masalela, 2011; Thurab-Nkhosi et al., 2005; Venkatesh et al., 2003). Therefore, professional learning is an important process in enabling teachers both to update their pedagogical knowledge and practice and use the available educational technology tools.

The effects of the Covid-19 pandemic on e-learning in higher education and open and distance education institutions worldwide, especially in developing countries such as African countries, have made it even more urgent for institutions to prepare their teaching staff adequately. Covid-19 caused disruptive changes in many countries, making e-learning mandatory for all

educational institutions (Radha et al., 2020). Staff at many institutions operated from their homes for an extended period, requiring more than just basic computer skills. Ali (2020) stated that such exceptional times require that the teaching staff effectively and competently use technology and technological gadgets to enhance teaching and learning. Tejedor et al. (2020, p. 48) revealed an increased necessity to enhance teachers' digital skills and teaching methodologies appropriate to the current context. Ali's (2020) study revealed that staff readiness and confidence play an important role in ICT integrated learning apart from resources. Ali (2020) argued that "society needs flexible and resilient education systems as we face unpredictable futures" (p. 16). It has long been prophesied and argued that teachers and learners need to acquire 21st Century digital skills (Trilling & Fadel, 2009; United Nations Educational, Scientific and Cultural Organization, 2011). It should be noted that lecturers cannot transfer the relevant critical digital skills to learners if they do not possess the relevant skills (Modise, 2020). Covid-19 has highlighted this fact unprecedentedly (Modise & Van den Berg, 2021).

Therefore, due to these e-learning developments in South Africa, Africa and the world, this research seeks to study how Africa's large-scale higher education open distance education (ODE) institutions prepare their academics for the implementation of the e-learning teaching and learning models. The focus of the study is, thus, on the training and support required by the lecturers in the face of technology innovations and on how an institution equips its lecturers for the effective and quality teaching needed for this era. Frick and Kapp (2009) argue that an integrated model of academic professional practice which integrates the lecturer's scholarly roles of teaching, research, engagement, integration and administration in higher education is necessary. Frick and Kapp (2009, p. 257) also define academic professional development (APD) as the "enhancement of professional competence and expertise to the benefit of the individual professional, the organisation, its clients and society".

It is crucial to record and share lessons learnt from top large open universities in Africa. Those seeking digitised educational solutions can learn from these experiences and lessons and thus increase e-learning innovations' success in higher education in Africa. The National Open University of Nigeria (NOUN) and the University of South Africa (UNISA) are two of the 11 largest distance learning institutions in the world, making them Africa's top two largest distance learning institutions (Tait, 2013), and thus, leaders in ODeL. In seeking further to outline the rationale and motivation of this study, the problem statement is formulated and discussed in the following section.

## 1.4 PROBLEM STATEMENT

At the heart of open distance education (ODE) and e-learning is the desire to improve the quality of education (Rohayani et al., 2015) for the development and widening of access to higher education (Tait, 2018). ODE and e-learning institutions seek to provide flexible learning environments relevant to their countries' needs (Singh & Hassan, 2017, p. 5). They also seek to enrich the students' learning experiences and offer more accessible, affordable, and flexible education in terms of time and space (Zawacki-Richter; 2005, p. 3). ODE and e-learning undoubtedly have the "potential to improve education systems in African countries if implemented well with strategies that focus on overcoming key challenges" (Nhando, 2015, para. 8).

However, the concern is that the academics in educational institutions continuously face the challenge of facilitating and supporting students' learning using the emerging educational technologies without adequate preparation and training. Both Isabirye and Dlodlo (2014) and Bagarukayo and Kalema (2015) warn that academic staff members often find themselves burdened and frustrated due to the haphazard nature of e-learning innovations implementation. Mtebe and Raisamo (2014a) and Alhazmi and Rahman (2012, p. 1) report a high level of criticism directed at the failure of e-learning initiatives, such as how some "LMS implementations fail to create the sought-after interactive learning environment and to improve learning outcomes".

Rohayani et al. (2015, p. 232) argue that the adoption of e-learning should, ideally, be initiated by measuring the readiness of e-learning and that "knowledge, skills and experience are very important in the acceptance and implementation of e-learning". It is imperative and worthwhile for researchers, ODE institutions and governments to thoroughly evaluate existing e-learning initiatives, identify key critical success factors and address critical issues in strategic planning processes to implement e-learning (Engelbrecht, 2003, p. 38). However, many e-learning initiatives are implemented haphazardly, as warns Isabirye and Dlodlo (2014) and Bagarukayo and Kalema (2015). Doug Woolley, general manager of Dell EMC South Africa, identified the top five barriers to digital transformation, one of which was the lack of the right in-house skill sets and expertise (Staff Writer, 2018; Linington, 2018). Academics may struggle to adopt new e-learning innovations due to a lack of relevant skills or the perceived difficulty of attaining the necessary skills. Tait (2013, para. 3) emphasises that "development activity should seek to support capabilities in people to be and to do".

In order to achieve successful and sustainable e-learning programmes in higher education, it is imperative that lecturers are well prepared, that they understand e-learning and possess

the ability to navigate its landscape. Ng'ambi et al. (2016) warn that developing countries need to take their own lead in planning and appropriately predicting and managing change in technology-enhanced learning. Institutions need to effectively respond to the global pressures of digital transformation and address the continental educational imperatives. Pangrazio (2016, p. 163) believes that "the notion of 'critical digital literacy' requires rethinking in light of the fast-changing nature of young people's digital practices". However, despite the exponential growth of students within the online environments (Bissessar et al., 2021), research shows that most HEI lecturers do not possess the necessary skills relevant for e-learning (Modise, 2020; Tejedor et al., 2020; Staff Writer, 2018).

To positively impact each other, educators and learners alike are expected and required to learn to use the available technologies to complete higher education studies successfully. However, HEIs in Africa and other developing countries continue to incorrectly implement e-learning without adequately preparing the teaching staff (Ncube et al., 2014). Therefore, based on the discussed scenario, this study seeks to understand the e-learning implementation processes undertaken by the two mega universities under study in order to document and highlight the factors for effectively preparing, developing and supporting academics for the implementation of e-learning in open and distance education (ODE) and e-learning institutions. Therefore, the findings of this study are aimed at shedding light on the critical success factors for preparing academics for e-learning within ODeL HEI in African and developing countries contexts. The following section presents the research questions that drove and guided this research study based on the above background.

## **1.5 THE RESEARCH QUESTIONS**

Technology is continuously and almost instantaneously changing the higher education landscape. With the advent of the fourth industrial revolution (4IR), the higher education sector in Africa cannot afford to fall behind industry and the rest of the world. It is, thus, vital that HEIs prepare themselves to teach in the fast-moving digital environment. Based on the research problem, as stated above, the main research question that guided this research is: *"How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?"* In seeking to answer this question, the study explored the following research sub-questions:

1. Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?
2. How prepared are lecturers for online teaching in African large-scale open and distance education (ODE) institutions?

3. How are academics professionally prepared and supported for online teaching in African large-scale open and distance education (ODE) institutions?
4. What are the critical factors that affect the successful implementation of online teaching in open and distance education (ODE) institutions?

The aim and objectives of the research are discussed in the next section.

## **1.6 THE AIM OF THE RESEARCH**

In an open distance education environment in which a large-scale institution embarked on a new teaching technology moving from traditional open distance education (ODL) to e-learning, it is crucial that the teaching staff are well prepared and equipped with the relevant knowledge and skills. Rohayani et al. (2015) argue that it is essentially important that the training takes place before implementing the new model or, at least, as soon as possible.

This study interrogated the process undertaken by ODeL universities in Africa during the implementation of their e-learning, focusing on the e-learning preparedness of the teaching staff. Thus, this study aimed to explore how academics are professionally prepared and supported for e-learning in large-scale African open and distance education institutions. To realise this aim, the study was driven by the following research objectives:

1. To investigate which competencies are needed for online teaching in African large-scale open and distance education (ODE) institutions.
2. To determine how prepared academics are for online teaching in African large-scale open and distance education (ODE) institutions.
3. To determine how African large-scale open and distance education (ODE) institutions professionally develop and support their academics for online teaching.
4. To explore the critical factors for the successful implementation of e-learning in African open and distance education (ODE) institutions.

To ensure the quality and relevancy of the data collected for this study, a specific research design and methods were used to collect and analyse the data comprehensively and are unpacked and briefly presented in the following sections and further discussed in detail in Chapter 4.

## **1.7 RESEARCH DESIGN AND METHODS**

It is crucial to obtain information relevant to the research problem in social sciences research. This generally entails specifying the evidence needed to effectively answer the research

questions (Creswell & Creswell, 2018). Kivunja and Kuyini (2017, p. 9) argue that "social research needs a design or a structure before data is collected or analysed", which will ensure that the researcher obtains relevant evidence. This section outlines the research paradigms and approaches that guided this study. Additionally, the section briefly discusses the research type and methods employed in this study and concludes with a discussion on how the researcher dealt with ethical and trustworthiness issues. This discussion is further presented in detailed descriptions and discussions in Chapter 4 of this study.

### **1.7.1 Research Paradigm**

A research paradigm means "a world-view or a set of assumptions and understandings about key aspects of the research" (Ling, 2017, p. 19). The interpretivist research paradigm was chosen to guide how specific sets of data were collected and analysed in this study. The interpretivist research paradigm is best suited to qualitative research (Creswell and Creswell, 2017), using data collection methods such as interviews, as is the case in this study, as discussed in detail in Chapter 4, Section 4.3.1) of this thesis. This paradigm was appropriately positioned to help understand and gain insight into how African ODE and e-learning institutions prepare, develop and support their lecturers for e-learning innovation. This philosophical approach allows adequate interaction with the subject matter, as experienced in its natural setting (De Vos et al., 2011, p 309) and guides the research approach discussed below.

### **1.7.2 Research Approach**

Social science research is known for its extensive use of qualitative research methods, often starting with a research question, which sometimes determines the methods used to collect and analyse data (Panke, 2018). There are three types of research approaches in social sciences research - qualitative, quantitative and mixed methods (Creswell & Creswell, 2017). This study followed a qualitative research approach, defined as an "approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (Creswell & Creswell, 2017, p. 4). Research approaches help the researcher plan the procedures for research in detail, including choosing methods of data collection, analysis and interpretation. The qualitative research chosen for this study is relevant as it helped the researcher explore the research questions and interact with the participants through sharing their real-life experiences and meanings in their natural settings. According to Divan et al. (2017, p. 18), the qualitative approach "explores a central phenomenon without assigning a quantifiable attribute, permitting a broad view of the participant's experiences".

The fundamental principle guiding qualitative analysis is that data collected were expressed in words and numbers, like quantitative research. The research approach is further explained and discussed in Chapter 4 (Section 4.4.2) of this study.

### **1.7.3 Research Type**

To thoroughly interrogate the study findings and reality, the research process involved a qualitative multiple-case study approach. Case study research designs have been used extensively in qualitative studies. They are also commended (Creswell, 2013; Erickson, 1985) for their key advantages, such as giving the researchers the opportunity to immerse themselves in the dynamics of a case to uncover events that can easily be missed with superficial methods. Multiple case study was deemed appropriate for this study as it also allows for a better understanding of e-learning and academic professional development through the participants' interpretation of their experiences within their context (Gray, 2021; Runeson & Höst, 2009). Multiple case studies also "offer a dichotomy of approaches – inductive or deductive", which makes it easy to choose and use research methods appropriate for different research questions (triangulation) (Gray, 2021, p. 37).

It was essential to spend time and interact with the academics to develop an extensive understanding of what meaning they derive from their experiences of e-learning implementation in their work environments.

## **1.8 RESEARCH METHODS**

This section discusses the research methods used to collect and produce data in this study. As indicated in the preceding section (Section 1.7.2), various research methods were used in line with qualitative research, namely the systematic review, interviews, and document analysis. Although interviews would have sufficed for this type of study, a systematic review and document analysis enabled the researcher to investigate the phenomenon under study further. Using these data collection methods allowed the researcher to incorporate a broader view of how other developing countries outside of Africa prepare their teaching staff for the implementation of e-learning, giving this research richness of context and generalisability (see Sections 1.7.2 and 4.7).

The research study used both primary and secondary data. The primary data were collected through semi-structured interviews, and the secondary data through a configurative systematic review and document analysis as schematically illustrated in Figure 4.1 (see Section 4.3). Data were collected using multiple methods compatible with qualitative research

using multiple case studies (Yin, 2009). Although the collection and production of data are discussed in detail in Chapter 4 (Section 4.4), a brief description and rationale for each method are laid out in this section.

### **1.8.1 Phase 1: The Pilot Study**

The first phase of data collection in this study involved a pilot study, regarded by Hassan et al. (2006) as one of the essential stages in a research project. A pilot study is a small feasibility study or pilot trial designed to test various aspects of the methods planned for a more extensive study (Arain et al., 2010; Lowe, 2019), essentially to prevent mistakes in the main study (Polit & Beck, 2017). Research shows that pilot study results can positively impact the substantive study, informing its feasibility and assessing whether the research instrument is realistic and workable (Gudmundsdottir & Brock-Utne, 2010; Mikuska, 2018; Van Teijlingen & Hundley, 2010). Pilot studies also assist in identifying necessary modifications in the design of a more extensive study (Leon et al., 2011). Arnold et al. (2009, p. S69) define a pilot study as "any background research that informs a future study". Junyong In (2017) explains that pilot studies are instrumental in obtaining high-quality outcomes.

In (2017) further argue that pilot studies help the researcher to ask important questions regarding the feasibility of the study and provide necessary information for assessing all aspects of the major research study. This pilot study aimed to improve the quality of the research questions, ensure that they capture the study's objective, and adequately answer the research questions. The pilot study (see Annexure 4.5) significantly improved the interview schedule instrument (see Annexure 2.3). Due to logistical reasons and the availability of participants, only participants from the University of South Africa were invited to participate in the pilot study. More details on this pilot study are discussed in Section 4.5.1.

### **1.8.2 Phase 2: Data Collection**

Phase two of this study involved collecting data using three methods (interview, systematic review and document analysis) and data collection tools (semi-structured interview schedule and database searching). The study thus involved methodological triangulation (Sections 1.10 and 4.8). The following discussions present steps and procedures followed to ensure that quality data effectively answered the research questions was collected.

#### **1.8.2.1 *Semi-structured interviews***

The interview is a valuable method in qualitative research used extensively to gain insight into various phenomena. According to Ryan et al. (2009), interviews are used to understand the

experiences of a given phenomenon and can contribute to the collection of in-depth data. Semi-structured interviews were employed to collect the requisite data. A semi-structured interview involves open-ended questions that allow for in-depth and unrestricted responses from interviewees (Baumbusch, 2010) and allow for high engagement of participants. Another advantage of semi-structured interviews is that questions are designed to encourage the participants to engage freely while also guided by the researcher "to avoid omissions and digressions" (Millwood & Heath, 2000, p. 26). Semi-structured interviews also allow unrestricted exploration and probing of issues under investigation.

According to Ryan et al. (2009), the sub-questions in semi-structured interviews encourage the participant to expand upon an answer, allowing the researcher to redirect participants to the main topic if they get side-tracked. The interview schedule instrument in this study was designed according to the research questions (see Annexure 2.3).

Although I planned and preferred to conduct face-to-face interviews, the Covid-19 pandemic and subsequent world lockdown (Panganayi, 2020) affected the planning and data collection, and online interviews were subsequently conducted. Therefore, the interviews were conducted and recorded via Microsoft Teams and ZOOM applications (see Section 4.5.2). As Mishra et al. (2020, p. 16) put it, "the whole educational system from elementary to tertiary level collapsed during the lockdown period of the novel coronavirus disease 2019 (COVID-19)" across the globe. However, the online meeting technology tools used in this research study would have been well suited even in the absence of the Covid-19 pandemic, given the topic under consideration.

A researcher in a study of this nature should be able to use communication tools to connect with lecturers wherever they are, who are also supposed to know how to use mediated technologies to teach and communicate with their globally dispersed stakeholders. I chose to transcribe the interviews to fully immerse myself in the data and ensure that participants' anonymity and confidentiality were secured (see Section 4.6.1).

### ***1.8.2.2 Configurative Systematic Review***

Definitions point out key characteristics of a phenomenon and outline of contexts within which they occur. Gough et al. (2017, p. 4) define systematic review as "a review of existing research using explicit, accountable rigorous research methods". A configurative systematic review, on the other hand, is defined by Boland et al. (2017) as a review of the literature "that is designed to locate, appraise and synthesise the best available evidence relating to a specific research question to provide informative and evidence-based answers" (p. 3). Unlike aggregative

reviews, which, according to Gough et al. (2017), often answer tight questions specifically for quantitative methods, configurative reviews are more likely to ask more open questions that are answered with qualitative data to address questions about experiences and meaning (see Section 4.5.3). Gough et al. (2012, p. 4) also explain that configurative reviews are "more likely to be interested in identifying patterns provided by heterogeneity" and identify themes within narrative data.

### ***The rationale for a systematic review***

To mitigate the increasing concerns about methodological and contextual limitations of research methods in education (Nelson & Campbell, 2017), especially with doctoral studies (Pyhältö et al., 2012; Sutrisna, 2009; Thani, 2009), a systematic review research method was chosen for this study, together with interviews and document analysis. A systematic review was chosen for its application of systematic, transparent, rigorous, reproducible and accountable research (Gough et al., 2017; Gough & Richardson, 2018; Newman & Gough, 2020; Nelson & Campbell, 2017; Torgerson et al., 2012;) to find relevant answers to the research questions. Another distinct feature of SR is its ability to provide answers to research questions that existing research does not clearly provide or completely answer (Newman & Gough, 2020). According to Crompton and Burke (2020), the configurative systematic approach involves going beyond aggregating data to analysing and developing new findings from that data.

Literature reviews are either scholastic (traditional) or interventionist (systematic) in nature (Hart, 2018), and each brings distinct challenges and advantages. There are many types of literature reviews available in research; however, Hart (2018) suggests that the kind of literature review needed and chosen often depends on the purpose of the research. Hammersley (2020) argues that systematic reviews can give researchers useful contextual information on phenomena experienced in the real world. It is crucial for this study to systematically review the documented lessons for African ODE institutions that are seeking digitised solutions to expand quality education in their countries, as recorded in the existing literature. A systematic review is also relevant for this study because of the impact of policy and decisions (Levinsson & Prøitz, 2017) on e-learning, digital transformation, academic professional development, academic support and student support in ODE contexts.

Unlike other types of literature reviews, such as a scoping review, which is typically used to understand the existence of many studies in the literature (Pigott, 2019), or merely reiterate what is in the literature, a systematic review takes research literature synthesis further to unpack the academics' professional development and e-learning preparedness. Most

unsystematic methods are believed to be prone to bias as they often leave out relevant literature (Gough & Thomas, 2016; Gough et al., 2012; Hammersley, 2020; Torgerson et al., 2012); they are also seen as subjective (Hammersley, 2020) and not as comprehensive as systematic reviews (Petticrew, 2015). Cipriani and Geddes (2003) also argue that traditional reviews do not describe the methods used to collect and analyse data in the study in the same way that a systematic review does. They are generally based on the experience and subjectivity of the author.

A systematic review was therefore chosen for this study. The SR question(s) were based on the study's overall research questions, as stated in Section 1.5 of this chapter. The configurative review approach was also incorporated into the methodology because it was relevant to the qualitative nature of this study. The EPPI-Reviewer Report (Annexure 2.1), which includes the inclusion and exclusion criteria together with the search string, were used to collect the relevant data. The PRISMA 2020 Checklist (Annexure 2.2) was also used to ensure appropriate steps were taken to guard the data collection and synthesis quality. More details on a systematic review of literature are further presented in Chapter 4 (Section 4.5.3). Document analysis was included in the data collection process, discussed in the next section, and was conducted on relevant policies.

### **1.8.2.3 Document Analysis**

When working with educational institutions, an analysis of selected institutional policies forms an integral part of the qualitative research, guided by the research questions. Bowen (2009) warns that when evaluating documents, it is essential that researchers establish whether the documents are related to the research problem and the research aim of the study. Documents are a source of records of the realities and practices (Flick, 2009). Document analysis is one of the "most commonly used and powerful methods" in policy research (Dalglish et al., 2020). In this study, some institutional policies that guide the e-learning implementation in the two case studies (NOUN and UNISA) were selected, studied and analysed in line with the research questions and objectives (See Section 4.5.4). Bowen (2009) argues that the rationale for using document analysis is triangulation, which allows for combining methodologies in research projects that investigate the same phenomenon to strengthen research rigour. Sections 1.10 and 4.8 discuss how data were triangulated in this study.

### **1.8.3 Selection of participants and relevant literature**

This section presents the processes and strategies used to select participants and the selection of literature for configurative systematic review and policies for document analysis.

### **1.8.3.1 Sampling of participants for the interviews**

*Purposive sampling* ensured that only individuals directly linked to the research questions were invited to participate in this study. The aim was to "purposefully choose data that fit the parameters" of the research questions, goals and objectives (Tracy, 2013, p. 4). The *snowballing* technique, compatible with purposive sampling, was used during the interviews to help to refine and further identify further participants who were deemed relevant for inclusion in the study, as suggested by Cohen et al. (2011). The semi-structured interview schedule instrument is attached in Annexure 2.3.

The selection was limited to academics and participants involved in the implementation of e-learning at the University of South Africa (UNISA) and the National Open University of Nigeria (NOUN). These institutions are listed in the top 11 largest open and distance education institutions globally (Tait, 2013) and thus the top two ODE institutions in Africa. Participation was therefore limited to the following:

1. Academics – lecturers involved in online teaching and teach at least one or two modules offered in an online approach at the University of South Africa and the National Open University of Nigeria.
2. Any person who has participated in tasks related to e-learning and digital transformation implementation from both universities, including individuals from management.
3. Individuals who play an essential role in induction, continuous professional training and development of staff and tutors/e-tutors and teaching assistants from both universities.

### **1.8.3.2 Configurative systematic review**

A configurative systematic review of literature involves a rigorous and systematic research process of information searching (Newman & Gough, 2020). The selection of literature for review in this study focused on the four databases - Scopus, Web of Science and EBSCOHost and Sabinet (previously known as African Digital Repository). The databases were chosen based on the quality of research articles published and their coverage (Boland, Cherry, & Dickson, 2017). The use of "explicit methods to locate, appraise the quality of and synthesise the results of relevant research" (Coe et al., 2012, p. 176) is one of the critical features of a systematic review. Bedenlier et al. (2020, p. 82) and Gough and Richardson (2018, p. 67) point out that in some cases, a systematic review may require the involvement of information specialists.

Petticrew (2015, p. 3) asserts that information specialists or systematic reviewers may be needed to "conduct comprehensive literature searches in order to reduce the risk of missing key studies". For this study, the help of my supervisors and two personal librarians at UNISA was sought for the development of a suitable search strategy. The following is a sample example of the search strings for data collection using a configurative systematic literature review:

(training OR "professional development" OR "faculty NEAR/3 support" OR "lecturer NEAR/3 support") **AND** (online\* OR distanc\* OR blend\* OR mobile OR technology-enhanced\*) NEAR/3 (learn\* OR teach\* OR study OR studie\* OR education OR e-learning) **AND** ("higher education" OR universit\* OR college\* OR "postsecondary education" OR "tertiary education" OR undergraduate\* OR postgraduate\*) **AND** (Africa OR "global south" OR "developing countr\*" OR "sub-Saharan countr\*")

The sources from the databases were taken from peer-reviewed journals. The systematic review protocol with data extraction processes and searches logs (see Annexure 2.1) and data extraction tool (see Annexure 4.3) are discussed in detail in the Methodology Chapter (Chapter 4).

### ***1.8.3.3 Selection of policies for document analysis***

Document analysis is believed to be "one of the most commonly used and powerful methods in policy research" (Dalglish et al., 2020, p. 1424). It has been used in educational research for many decades, where various documents are studied. Policy documents related to e-learning were selected and included for analysis in this study, namely:

- UNISA's 2018 Open and Distance eLearning (ODeL) policy, and
- NOUN's 2005 Draft eLearning Strategy and Policy for National Open University of Nigeria (NOUN)

Salajan and Roumell (2016) believe in a need for a coherent and formal approach to supporting e-learning initiatives. De Freitas and Oliver (2005) strongly believe that an e-learning policy drives change in HE, both organisational and organisational pedagogical. As a result of the e-learning implementation within these two institutions, the identified policy documents were specifically selected for their relevance to digital transformation in HE and ODeL contexts. The study focused on how the policies specifically addressed academic professional development for online teaching, academics' e-learning readiness and technology adoption. More details are presented in Chapter 4, Section 4.4.4. The following

section discusses how data were analysed and interpreted according to the research questions and objectives.

### **1.8.4 Phase 3: Data Analysis**

The process of research data analysis is to bring order to the mass of collected data by structuring it, making sense of it and giving meaning to it (De Vos et al., 2011). One of qualitative research projects' key characteristics is to present masses of data in a way that can be easily understood and appreciated by targeted audiences. To make sense of the collected data, various data analysis techniques were employed for the various types of data. Each set of collected data - literature from the systematic review, sampled documents and data from the interviews was processed and analysed using suitable and appropriate methods and are briefly discussed in the next section and in detail in Chapter 4.

#### ***1.8.4.1 Thematic analysis (interviews and document analysis)***

Thematic analysis was used to code and analyse interviews and policy documents in this study. According to Braun and Clarke (2006), thematic analysis is a "method for identifying, analysing, organising, describing, and reporting themes found within a data set" and with the "ability to produce trustworthy and insightful findings" (p. 80). The themes highlight essential elements in the data about the research questions. King (2004, as cited in Nowell et al., 2017, p. 2) believes that "thematic analysis is useful for summarising key features of a large data set". King also argues that thematic analysis forces the researcher to adopt a well-structured approach to handling the data and producing a clear and organised final qualitative report.

The transcribed interviews and policy documents were exported to Microsoft Word for ease of analysis. These were then transferred to the ATLAS.ti software package for in-depth analysis (See Section 4.6). However, manual coding was used for the policies as the only two chosen policies. Saldaña (2021) explains that manual coding depends on many factors. In this case, the size of the data and the flexibility and control of documents motivated the manual coding for the selected policies (see Section 4.6.3).

#### ***1.8.4.2 Configurative systematic synthesis***

This study followed a configurative systematic review that was narrative. Snilstveit et al. (2012) explain that narrative approaches can be used to synthesise both qualitative and quantitative studies. This means that narrative analysis can be used to synthesise qualitative data narratively within a systematic review. Carroll et al. (2013), Levinsson and Prøitz (2017) and Hong et al. (2017) further identify a thematic analysis as a befitting method of data analysis in

configurative review studies (see Annexure 4.4). In this study, thematic analysis was used as one of the methods of analysing data derived from the SR. It was appropriate and relevant for unpacking and interpreting configurative systematic review data. This ensured continuity in the data analysis process, and one method of data analysis was coherent for all data sets in the study. Using EPPI-Reviewer software (EPPI-Centre 2021) (see Chapter 4, Section 4.5.3) and an extensive coding system (Bond, 2020), themes were identified, with findings discussed in Chapter 5.

Every research study must prove its trustworthiness, and the next section briefly discusses how trustworthiness was ensured for this study. The Preferred Reporting Items for the Systematic Reviews and Meta-Analyses (PRISMA) Statement and guidelines (Moher et al., 2009; Page et al., 2021) guided the systematic review data collection and analysis. Thematic analysis is further discussed in Chapter 4, Section 4.6.

## **1.9 TRUSTWORTHINESS**

Trustworthiness or rigour of a study is the degree of confidence in data, interpretation and methods used to ensure the quality of a research project (Pilot & Beck, 2014). Lincoln and Guba (1985) (as cited in Amankwaa, 2016, p. 121) believe "all research must have 'truth value', 'applicability', 'consistency', and 'neutrality'" to be considered worthwhile and trustworthy. In this study, to ensure the quality and credibility of the data and the study results, triangulation (Lincoln & Guba, 1985) was used to collect the requisite data using various tools and techniques such as interviews and systematic review. The pragmatic steps observed and taken toward the trustworthiness of this research, together with the principles of trustworthiness (transferability, credibility, dependability and confirmability) by Amankwaa (2016), are discussed in detail in Chapter 4 (see Section 4.7) of this thesis.

Amankwaa (2016) maintains that each research study should establish and thoroughly document protocols and procedures necessary for a study to be considered worthwhile by peers and other readers. The success and credibility of the study depend on the researcher observing and taking cognisance of all relevant ethical and methodological issues and implications. Although this is a case study involving two ODeL universities in Africa, it is hoped that the results and dialogues emanating from the research may resonate with other institutions. The lessons documented here may also be valuable and helpful to other cases in similar situations.

## **1.10 TRIANGULATION**

Triangulation is "a method that involves the careful reviewing of the data collected through different methods in order to achieve a more accurate and valid estimate of the qualitative results in relation to a particular construct" (Oliver-Hoyo & Allen, 2006, p. 42). Triangulation was employed in this study to strengthen the study's trustworthiness (see Sections 1.10 and 4.8). However, the aim of the study was not necessarily to compare the two universities under study but rather to understand how African ODE institutions prepare their academics for e-learning innovation and how this affects their teaching and learning. Although case studies are known to lack "generalizability" (Thomas, 2015), the triangulation in this study was used to strengthen the authenticity of this research and gain deep insights into the academics' professional development and e-learning preparedness.

Triangulation allows a researcher to gain more reliable answers to research questions by integrating results from several different approaches, as argued by Lawlor et al. (2016, p. 1866), and it also improves the quality of data (Turner, 2015) and mitigates possible bias (Fusch et al., 2018). Methodological triangulation was used in this study through a systematic review of the literature, document analysis and interviews. De Vos et al. (2011) point out that each type of data used in triangulation may be collected and analysed independently. All three data sets in this study were analysed independently (see Sections 4.6). The research findings are also presented independently; Chapter 5 and Section 5.6 discuss the reflection on all the data sets and how they converge or diverge.

## **1.11 ETHICAL MEASURES**

McMillan and Schumacher (2010, pp. 338-339) state that ethical considerations such as confidentiality, anonymity and informed consent need to be observed when conducting research. The participants were informed of the purpose of the study and their rights within this study. They were also assured that their responses and the information shared during the study would be kept private, with the results being presented anonymously to protect their identities.

Regarding the confidentiality of the study results and findings, Burns (2000) warns that both the researcher and the participants must have a clear understanding of their rights and conditions of the research. All the participants in this study were informed about the details of the study to enable them to decide whether to participate in the study or continue to participate in the study once it had commenced.

In addition to the ethical aspects discussed above, the entire study was conducted according to the Ethics and Research Standards as set out by the UNISA Research Ethics Committee. Ethical clearance was obtained from the relevant committees at UNISA and NOUN, from which data were collected for this study (see Annexure 2.5). Permission was also granted to contact the identified participants from the National Open University of Nigeria (NOUN). The imperatives of the ethical considerations that were observed and applied in this study are also discussed in Chapter 4 (see Section 4.9) of this study.

## 1.12 CLARIFICATION OF CONCEPTS

It is important to give meaning and understanding to specific terms used within this study. The following section presents relevant definitions of the concepts that guided the data collection, analysis and discussions.

**Digital transformation:** Westerman et al. (2014) define digital transformation as "the use of technology to radically improve performance or reach of enterprises". The technology may include anything from software applications, systems and programs to hardware items such as a new laboratory or computers or even providing students with learning digital devices such as laptops or tablets. The magnitude and level of digital transformation differ from one organisation/institution to another, and this is affected by several varying factors and contexts within which HEIs operate.

**Distance education (DE):** Moore (1973, p. 664) defines *distance teaching* as "the family of instructional methods in which the teaching behaviours are executed apart from the learning behaviours, including those that in a contiguous situation would be performed in the learner's presence so that communication between the teacher and the learner must be facilitated by print, electronic, mechanical or other devices". UNISA ODL Policy (University of South Africa, 2008, pp. 1-2) defines distance education as a "set of methods or processes for teaching a diverse range of students located at different places and physically separated from the learning institution, their tutors/teachers as well as other students". Distance education has seen many changes, opportunities and challenges, and technology brings both; however, it is up to governments and HEIs to choose how they deal with the challenges and take advantage of the opportunities brought about by emerging technologies in education.

**Open distance learning (ODL):** UNISA's ODL policy (University of South Africa, 2008, p. 2) explains ODL as a multi-dimensional concept aimed at bridging the time, geographical, economic, social, educational and communication distance between student and institution, student and academics, student and courseware and student and peers. Open distance

learning focuses on removing barriers to access learning, the flexibility of learning provision, student-centredness, supporting students and constructing learning programmes with the expectation that students can succeed.

**Emerging technologies:** Veletsianos (2010a, p. 17) defines emerging technologies as the "tools, technologies, innovations, and advancements utilised in diverse educational settings to serve varied education-related purposes". Over the years, technology has enabled and helped advance the visions and mission of ODE institutions in Africa and globally.

**Blended learning:** *Blended learning* refers to the effective integration of various learning techniques, technologies and delivery modalities to meet specific communication, knowledge sharing and informational needs (Finn & Bucci, 2006). UNISA defines *blended learning* as "accomplished by using multiple teaching and learning strategies, a range of technologies in combination with face-to-face interaction and the deployment of both physical and virtual resources" (University of South Africa ODL Policy, 2008, pp. 1-2). Some institutions may first conduct their education in a blended learning model before fully adopting e-learning, whereas some institutions may implement courses that fully run online. In some cases, blended learning may even be mistaken for e-learning or vice versa.

**E-learning:** There is no one common e-learning definition; however, for this study, the following e-learning definition was adopted: "e-learning is the use of information and communication technologies to support teaching and *learning in distance education*" (Pavel et al., 2015, p. 707). E-learning is used interchangeably with terms such as online teaching to refer to a teaching approach that uses online and digital technologies and approaches for teaching and learning.

**E-learning Readiness:** Borotis and Poulymenakou (2004) define e-learning readiness (ELR) as "the mental or physical readiness of an organisation for some e-learning experience or action". This definition seems to be the most cited definition of e-learning readiness in the field (Adiyarta et al., 2018; Rohayani et al., 2015). Other authors, such as Lopes (2007, p. 1), defined e-learning readiness as the ability of an organisation or individual "to take advantage of e-learning". Lopes' definition readily highlights the aspect of individual and organisational factors that affect the adoption of e-learning; however, "to take advantage of e-learning" is vague and not explicit for application in open distance education.

Accordingly, this study adopted the above definition of eLearning reading/preparedness, but with an adaptation. Thus, this study adopted a new e-learning readiness (ELR) definition: "*e-learning readiness (ELR) is the mental or physical readiness of an organisation with the*

*relevant and available technological and digital skills and knowledge for the meaningful e-learning experience*". This proposed e-learning readiness definition was adapted from Borotis and Poulymenakou (2004), from literature and from the synthesis of interviews, document analysis of e-learning policies and systematic review data in this study (see Section 5.6).

**Academic professional development (APD)** is defined by Frick and Kapp (2009, p. 257) as "any formal, non-formal or informal initiative beyond initial training whereby the lecturer as a professional practitioner obtains knowledge and/or skills that can transform professional practice and/or professional identity." To successfully benefit from the e-learning innovations, HEIs may need to intentionally invest a sizable amount in support of those supposed to teach using e-learning technologies and pedagogies, the academic staff. With the changing roles of both lecturers and students, lecturers must lead the way in continuously developing their professional skills in an integrative manner – 'the lecturer's scholarly roles of teaching, research, engagement, integration and administration" (p. 258).

**Professional Development:** Hilty et al. (2019, p. 337) define professional development as "training, formal education, and/or advanced professional learning intended to help clinicians, teachers, researchers, and administrators improve their professional knowledge and effectiveness". They further explain that "professional development may be contextualised using adult development, educational, and organisational perspectives, and most best practices overlap" (p. 337). Professional development should ideally incorporate an evaluation of the training intervention.

### 1.13 DIVISION OF CHAPTERS

The study consists of a collection of six chapters, outlined as follows:

**Chapter 1** outlined an **overview and background** to the research – including the research problem, rationale for the study and research design. The problem statement, research questions, aims and objectives also laid the foundation of this study and were discussed in this first chapter. The chapter closed by defining key operational terms and concepts relevant to this study.

**Chapter 2** presents the **theoretical framework** that underpins this study. By reviewing the existing literature theories and concepts relevant to digital transformation, specifically professional development and e-learning adoption by academics in open and distance education, I found the Unified Theory Acceptance and Use of Technology (UTAUT) suitable to frame this study. There are a few variations of this theory, UTAUT, UTAUT2 and UTAUT3,

and probably more versions will surface in the future; however, this study found the original version of UTAUT to be relevant for this study, and justification for its use is given in Chapter 2 of this thesis.

**Chapter 3** reviews *relevant literature* on existing research, trends and policy. It is in this chapter that operational vital terms and concepts are unpacked. The chapter presents discussions and debates on issues around professional learning and the development of academics in ODE. The chapter concludes by making a case for the development, training and support of academics in the face of new technological innovations in ODE institutions, focusing on two African large-scale ODeL institutions and other HEIs in developing countries.

**Chapter 4** provides an in-depth perspective of the constructs of the *research design, paradigm, approach and methods* used in the study. This chapter discusses the methodological considerations and the justification for the choice of such methods, that is, a configurative systematic review, semi-structured interviews, and document analysis in line with the qualitative multiple case study deemed appropriate for this study. This chapter details how data were collected and analysed, and which tools were used. Ethical considerations observed in this study and the establishment of the study's trustworthiness are also clearly explained and discussed.

**Chapter 5** presents and discusses an interpretation of the *findings* produced from various data collected via systematic review, interviews and document analysis. This chapter concludes with a reflection on the consolidated findings and what role each set of data played in answering the research question.

**Chapter 6** concludes the thesis with a *summary of the thesis and conclusions* of the study and makes recommendations for higher education institutions offering open and distance education in African and developing countries contexts. Based on the study's findings, Chapter 6 also presents the author's 'proposed e-learning readiness model for preparing lecturers for e-learning in higher education and ODeL institutions'. Suggestions for future research work are also offered in this chapter.

## **1.14 CONCLUSION**

This chapter presented the background and critical issues that make up the backbone of this research and the reason, amongst others, why this research is significant. The methodological principles that guided the study were presented, ethical considerations were outlined, and clarification of concepts that underpin this study was offered. This chapter also discussed how

participants were sampled and selected and how relevant data were collected and interpreted to answer the research question. In any society, educators can make a significant contribution to shaping learners' futures. With technology constantly, almost instantaneously changing how business is conducted with the target audiences also changing, educators must willingly embrace new teaching and learning opportunities.

The advent of chaos caused by the Covid-19 pandemic has highlighted the necessity of digital teaching skills among higher education practitioners. Consequently, academics need to successfully respond to the current challenges and opportunities, relevant training, development and support needed. It is, thus, imperative that institutions invest in vigorous training programmes and support facilities for their lecturers as they are critical to the success of any educational innovation. Every research study draws on and is supported by theory. The next chapter discusses the theoretical frameworks that underpinned this study, selected for their relevancy in guiding e-learning readiness, academic professional development and technology adoption in higher education and distance education.

## CHAPTER 2

### THEORETICAL FRAMEWORK

*“Never abandon a theory that explains something until you have a theory that explains more.” John McCarthy*

#### 2.1 INTRODUCTION

This chapter aims to present the theoretical framework underpinning this study. The theoretical framework comprises two theories, namely the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) together with the Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006). This study employs two theories pertinent to the phenomenon under investigation and served as a guide in identifying the relevant and appropriate data collection and analysis tools. It is important to highlight the impact of theory on practice and research and, where possible, how theory may improve the way lecturers do things and how we learn from each other.

The theoretical framework in this study is purposely selected to strengthen (Abend, 2008) and guide (Adom et al., 2018; Osanloo & Grant, 2016) the research process. Theoretical frameworks also make research findings more meaningful and enhance the empiricism and rigour of research (Adom et al., 2018). This chapter starts by unpacking the theories, with brief histories, definitions, assumptions and core guiding principles of each theory, presented in line with the aims and objectives. The chapter concludes with a table outlining the summary of the chosen theories.

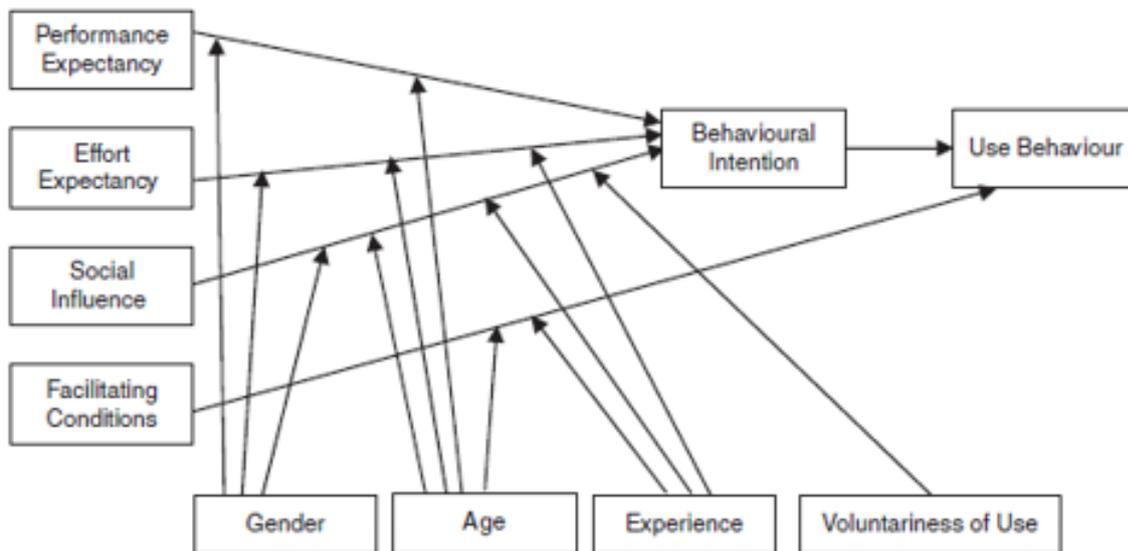
#### 2.2 THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

Scholars have developed multiple theories and models to understand human behaviour in different contexts. With the influx of emerging educational technologies, technology acceptance studies have gained popularity over the last few decades (Gunasinghe et al., 2019). The Unified Theory of Acceptance and Use of Technology (UTAUT) (Figure 2.1) is one of the products of the surge in technology trends and response to the influx of technology acceptance models (TAMs). The theory was developed through the review and integration of eight dominant theories and models in the literature, and it is considered the most comprehensive theory in Information Systems (IS) research to understand the technology

usage behaviour of individuals (Tamilmani et al., 2017) and acceptance across various user contexts (Williams et al., 2015). Like many theories, UTAUT has had a few adaptations by multiple researchers, which necessitates a brief historical overview.

**Figure 2.1**

*The Unified Theory of Acceptance and Use of Technology (UTAUT)*



Note. Adopted from Venkatesh et al., 2003, p. 447

### 2.2.1 A brief history of the Unified Theory of Acceptance and Use of Technology and motivation for the use of its original version

The Unified Theory of Acceptance and Use of Technology (UTAUT) was first developed by Venkatesh et al. in 2003. In the face of a surge of TAMs, the three authors decided to put together a comprehensive model that could study the adoption of technology in a holistic way (Chiemeké & Ewuekpae, 2011; Williams et al., 2015). UTAUT has been used and applied by many educational institutions and research with the aim “to answer one of the most critical questions: What are the user’s attitudes towards accepting ICT solution?” (Ayman, 2015, para. 2). UTUAT has been extended by many authors for use and application in other contexts, such as the UTAUT2 by Venkatesh et al. (2012) for use in the consumer context and UTAUT3 (Farooq et al., 2017) for use specifically in mobile banking. The original model had four key elements (performance expectancy, effort expectancy, social influence and facilitating conditions) and four moderating variables (age, gender, experience and voluntariness of use). UTAUT2 was further extended to UTAUT3 by various researchers to look at the adoption

behaviours of users in Mobile banking (Alalwan et al., 2017; Alalwan et al., 2018; Slade et al., 2013;). However, the revised model, UTAUT2, incorporated three new constructs; 1) hedonic motivation, 2) price value and 3) habit. UTAUT2 also removed one moderating variable, namely, the voluntariness of use, from the original model.

UTAUT was identified as appropriate and relevant to inform and guide this study in its investigation into understanding the e-learning preparedness of academics in large open and distance learning (ODL) environments and the use of eLearning innovation to learn and teach. However, the two extended models were not relevant to this study due to their specificity to certain contexts. For example, UTAUT2 was extended to study the behaviours of executive business students using the lecture capture system (LCS) in Malaysia. In contrast, UTAUT3 was used to determine the behaviours of mobile banking users. Although Farooq et al. (2017)'s study looked at the use of UTAUT theory in studying teaching and learning contexts, their context is also different from the large open distance education (ODE) institutions and e-learning contexts the focus of this study. The original UTAUT is thus appropriate and flexible in that it can be used in various contexts.

## **2.2.2 The Components of the Unified Theory of Acceptance and Use of Technology**

The UTAUT model was developed based on empirical research of constructs identified from the eight most-used technology acceptance models (TAMs), namely;

- 1) theory of reasoned action (TRA) (Fishbein & Ajzen, 1975),
- 2) the technology acceptance model (TAM) (Davis, 1985),
- 3) the motivational model (MM) (Davis et al., 1992),
- 4) theory of planned behaviour (TPB) (Ajzen, 1991),
- 5) combined TAM and TPB (C-TAM-TPB) (Taylor & Todd, 1995a, 1995b),
- 6) model of PC utilisation (MPCU) (Thompson et al., 1991),
- 7) innovation diffusion theory (IDT) (Rogers, 1962), and
- 8) social cognitive theory (SCT) of (Bandura, 1986).

As mentioned in Section 2.2.1, UTAUT comprises four key elements: performance expectancy, effort expectancy, social influence and facilitating conditions, and four moderating variables: age, gender, experience, *and voluntariness of use*. The fundamental constructs of UTAUT are briefly explained below, referring to the schematic representation of the UTAUT model presented in Figure 2.1.

### **2.2.2.1 Performance expectancy**

Performance expectancy is defined as the “degree to which an individual believes that using the system will help him or her attain gains in job performance” (Ventakesh et al., 2003, p. 447). Ventakesh et al. (2003) postulated that if the individuals did not believe that they would benefit from using the new system, this would affect how quickly they adopted the new technology system.

### **2.2.2.2 Effort Expectancy**

Effort expectancy is defined as the “degree of ease associated with the use of the system”. (Ventakesh et al., 2003, p. 450). The idea behind this construct is that users need a perceived amount of effort to successfully learn how to use the new technology system being adopted. The argument is that if the effort is too great, this may have a negative impact on the behaviour of users in accepting the new technology (Ventakesh et al., 2003).

### **2.2.2.3 Social Influence**

Social influence is defined as the “degree to which an individual perceives that important others believe he or she should use the new system” (Ventakesh et al., 2003, p. 451). The influence of significant others’ general behaviour has implications on the behaviour of others. This is evident even in the way advertising and marketing professionals base their work, hence the use of famous people in introducing products and services (Appel et al., 2020; Schoutenet al., 2020). The internet and social media also accelerated the rate at which information is shared. Perceptions about technology are formulated, so the more people use or think that technology is good, the easier it may be for others to accept and use that technology. Therefore, Ventakesh et al. (2003) believed that social influence significantly impacts the acceptance, adoption, and use of new technologies.

### **2.2.2.4 Facilitating Conditions**

The provision of various forms of support for lecturers, specifically regarding ICTs for teaching and learning, has been an object of many studies for decades (Van Den Berg, 2020) and thus has value in facilitating the acceptance and adoption of new technology. Facilitating conditions are defined as the “degree to which an individual believes that an organisational and technical infrastructure exists to support the use of the system” (Ventakesh et al., 2003, p. 453). All these UTAUT independent variables are expected to influence users’ behaviour to a certain

extent. However, the moderating variables (discussed below) impact how independent variables influence behavioural intention and actual use of technology (Attuquayefio, 2019).

### **UTAUT moderating factors**

In order to predict the adoption, acceptance, and use of technology, Venkatesh et al. (2003) looked at different existing models of technology acceptance, which resulted in the identification of common aspects of a typical process of the integration of technology. The facilitating conditions and behavioural intention identified in UTAUT are determinant factors of actual use (Venkatesh et al., 2003). Afonso et al. (2012, p. 6) also found that moderating factors play an important role in the users' use of technology.

With the rapidly emerging views on gender, it is also important to see what role gender plays in using technology for teaching and learning in open and distance higher education (ODHE). These four moderating variables, age, gender, experience and voluntariness of use, are relevant for this study as the two universities under study have academic staff members of various age groups, gender, qualifications and levels of experience in teaching in ODE contexts. Voluntariness of use is defined as "the degree to which use of the innovation is perceived as being voluntary, or of free will" (Moore & Benbasat, 1991, p. 195). Ramayah (2010, p. 97) described voluntariness as the "extent to which potential adopters perceive the adoption decision to be non-mandated". Chiu and Ku (2015) postulate that low voluntariness affects the use effort while high voluntariness affects performance expectancy. E-learning projects in higher education systems are mandatory because they build on the premise of improving teaching and learning. However, a level of voluntariness may be achieved when the institution's leadership involves the lecturers in implementing and choosing the technology (Modise & Van Den Berg, 2021).

### **2.2.3 Relevancy of UTAUT theory for this study**

The Unified Theory of Acceptance and Use of Technology is a combination of a spectrum of theories that have been used and empirically tested in various diverse contexts to understand and predict behaviour in respect of technology adoption and usage. The model includes vital constructs and dimensions that are relevant for this study. For example, the construct of performance expectancy may assist in understanding the intentions, attitudes and actions of academics to enhance their skills and knowledge of eLearning, while the social influences, effort expectancy and facilitating conditions are impacted upon by or impact the ultimate habitual use of technology to learn and teach, with new and emerging educational

technologies. How new technology innovation is communicated to the institution may also affect the perceived value of the system (social influence).

The voluntariness of use in the HEI context is important because of its ability to facilitate and accelerate the intentionality and effort needed by lecturers to voluntarily learn how to use new and emerging technologies to teach and transfer knowledge to students. When an institution decides to adopt and implement a new technology to improve performance, one assumes that management would ensure that the facilitating conditions are conducive for such an innovation to be easily accepted by the ultimate users, especially the lecturers and students. Institutions may also want to look at the moderating factors and thus design new systems so that individual or institutional factors align with the new technology system. The UTAUT theory assists in helping institutions determine the moderating factors within their space and thus approach the implementation cautiously and/or being well-informed. Should the moderating factors yield towards age or gender, the institution can either communicate appropriately with the relevant group. This would provide the necessary resources and tools to address the issues raised or faced by that specific group, or better yet, help design flexible and fluid systems to address various moderating factors.

Gunasinghe et al. (2019) reviewed Information System (IS) theories and models used to study the 'academicians' acceptance of online learning environments, in which the UTAUT, UTAUT2 and UTAUT3 were studied. However, that research comprised a general look at various theories and models "crucial for decision-makers to recognize potential user needs and concerns" (Gunasinghe et al., 2019, pp. 30-31) and not necessarily an investigation of the actual application of these theories and models. Although Venkatesh et al. (2016, p. 329) believed UTAUT has "reached its practical limit of explaining individual technology acceptance and use decisions in organizations", however, research using this theory has thrived (Venkatesh et al., 2012). The combination of various TAMs with UTAUT and a better explanatory power on their own has proved appropriate for use in research and thus in this study. Most research has applied UTAUT as is, while some have applied it with other theories in various contexts. In this study, UTAUT is used together with the Technological Pedagogical Content Knowledge (TPACK) developed by Mishra and Koehler (2006).

#### **2.2.4 Limitations of UTAUT theory for this study**

Theoretical frameworks help limit the scope of a study by focusing on specific variables within the specific context of the research in question. Swanson and Chermack (2013, as cited in the University of Southern California (USC) Libraries Research Guides, 2019, para. 3) believe that

“theories are formulated to explain, predict, and understand the phenomenon and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions”. Several studies have shown that most TAMs use students to explore workplace issues (Abayomi et al., 2016; Mosunmola et al., 2018; Nassuora, 2012). UTAUT is not an exception, as it is made up of TAMs that predominantly address the technology adoption of learners. However, it does not necessarily address the challenges faced by academics. Learners’ contexts and influencing factors are often different from those of lecturers. Therefore, most TAMs are limited in that they cannot be effectively adopted in other contexts or with different users. These limitations necessitated using UTAUT to blend with other theoretical models (Williams et al., 2015), losing its independence. However, although lecturers are experts in their various fields, they still need to learn how to effectively use the available technologies to teach and positively impact students’ learning experiences.

One of the weaknesses of UTAUT lies in its extensive use in a single subject, in terms of community, culture, country, and so on, which Williams et al. (2015) argue limits the potential of generalisation of findings. The other limitation found in UTAUT-related studies is sampling and its focus on consumer contexts with little focus on education (Williams et al., 2015). However, it appears that research is increasing, although gradually, indicating that this model can be used to study various phenomena in respect of academics and not only students (Alshaher, 2013; Mbatha, 2017; Mtebe & Raisamo, 2014b; Oye et al., 2014; Percy & Van Belle, 2012). In this study, the model is used to study large open universities in two different countries in Africa, namely the University of South Africa and the National Open University of Nigeria.

It is also important to note that, in this study, the academics assume the roles of the learner and teacher as they need to acquire new skills (*learn*) in order to be able to teach (*work*) in the new technological innovation. Williams et al. (2015, p. 455) also point out that there is “an opportunity for researchers to use UTAUT to conduct original research work by collecting relevant data in other countries and different contexts”. In addition to using UTAUT in this study, the Technological Pedagogical Content Knowledge (TPACK) theory was also adopted and is presented in the following section with justification for how it is linked to the UTAUT theory and how it guided this study.

## **2.3 TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) FRAMEWORK**

The Technological Pedagogical Content Knowledge (TPACK) theory was also identified to guide this study. TPACK is a theory proposed by Punya Mishra and Matthew J Koehler (2006) to help educators effectively and successfully teach using technology. The theory was birthed after a five-year study of teachers of all grade levels using design experiments to observe how classrooms were operated.

This study investigated how academics are prepared for e-learning implementation in ODeL higher education contexts. While UTAUT was developed to determine various factors affecting the acceptance, adoption and use of technology, TPACK was designed to guide the integration of technology in education to provide the best educational experience for students. As with UTAUT, to strengthen its application in understanding the academics' professional development, e-learning preparedness and adoption of e-learning, TPACK has been blended with other theoretical models (Mahlambi, 2020; Williams et al., 2015). Therefore, the two theories are packaged together to assist in understanding how the digital/technology competencies may assist lecturers in adopting e-learning technology (see Table 2.1). In addition, the two theories are suitable for highlighting key variables for ODeL institutions for the successful implementation of e-learning in their contexts.

### **2.3.1 A Brief History of the Technological Pedagogical Content Knowledge**

Mishra and Koehler's initial idea was based on Lee S. Shulman's 1986 construct of pedagogical content knowledge (PCK). However, their TPACK framework included technological knowledge. Shulman believed that teachers have two sets of knowledge: content knowledge – specific subject matter knowledge and pedagogical knowledge – specific teaching methods, including how to teach. Shulman focused on teachers' pedagogical content knowledge (PCK) in successfully delivering effective teaching. TPACK was originally named TPCK (Graham, 2011; Mishra & Koehler, 2009), but because of the inclusion of technology, it was changed to TPACK (Koehler et al., 2013).

With the inevitable technological changes in education, Mishra and Koehler realised that another set of knowledge was vital in helping teachers teach effectively. After studying teachers in their various classroom settings and grades, Mishra and Koehler highlighted technological knowledge and developed the TPACK framework (Mishra & Koehler, 2003).

They emphasise the relationships, interactions, and constraints in which teachers work using these three knowledge areas. The overlap between these elements makes the theory unique to the teaching environment, as depicted in the TPACK diagram in Figure 2.2.

Various researchers have revised and extended the TPACK theory as with many theories. Saad et al. (2012) extended the TPACK theory to a TPACK-XL Framework, which included a new framework called ICT-TPCK proposed by Angeli and Valanides (2009). The extended TPACK framework was named ICT-TPCK to integrate the context (X) and the learner's (L) knowledge. They believed that the learner's (L) knowledge contributed to TPACK with more specificity on ICTs in educational technology (Saad et al., 2012). Mishra and Koehler proposed the TPACK model to describe teachers' integration of technologies in their classroom practices. TPACK-XL was resultantly formulated by Saad et al. (2012) as an elaborate "form of ICT-TPCK that highlights the interdisciplinary knowledge constructs that synthesize to lead to its core knowledge and, consequently, serve as an advanced lens of ICT-TPCK for preservice teachers' educators" (Saad et al., 2012, p. 2).

### **2.3.2 The key components of Technological Pedagogical Content Knowledge**

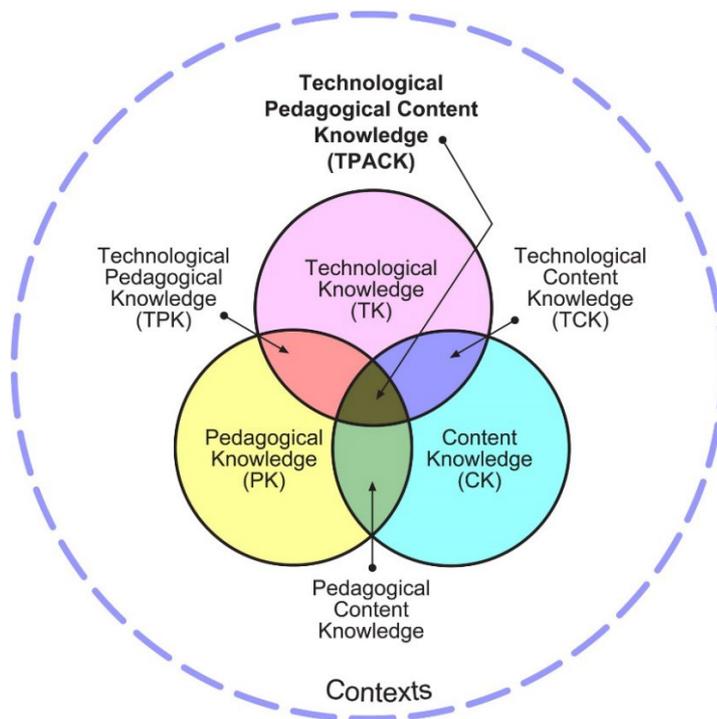
The original Technological Pedagogical Content Knowledge (TPACK) framework by Mishra and Koehler (2006) was purposefully chosen for its relevance to this study. Unlike some theories that can only apply to specific contexts, TPACK was chosen for this study because it renders the freedom to choose the context within which to apply the framework.

Mishra and Koehler (2006) believe that pedagogy and content must be the basis for any technology adopted for teaching to enhance learning. The Technological Pedagogical Content Knowledge (TPACK) framework lays out the knowledge educators need to integrate technology into their teaching successfully. The Technological Pedagogical Content Knowledge framework helps lecturers reflect on how their knowledge domains intersect in a way that helps them to teach and engage students with technology effectively. According to Mishra and Koehler (2009), Technological Pedagogical Content Knowledge has three core components; content (what you teach), pedagogy (how you teach), and technology (digital tools) and three other components that are the results of the overlapping between the core elements (PCK, TPK and TCK) (see Figure 2.2). At the heart of this theory are these three intertwined core components plus the relationships among and between them.

The diagram in Figure 2.2 is a schematic representation of the overlaps, connections and interactions of different sets of knowledge for teaching, as identified by Mishra and Koehler (2006).

**Figure 2.2**

*Technological Pedagogical and Content Knowledge (TPACK) Framework*



*Note.* Adopted from Mishra & Koehler, 2006

The Technological Pedagogical Content Knowledge (TPACK) is meaningful and skilled teaching with technology (Koehler & Mishra, 2009). According to Mishra and Koehler (2006), content, pedagogy and technology knowledge are at play in any teaching scenario. For this reason, the theory is found to be applicable across various contexts (Williams et al., 2015). TPACK is found in the centre of the tripartite relational sets of knowledge.

For any effective teaching practice, this centre is the desired achievement. A person's teaching knowledge should ideally be complemented by his or her knowledge of the subject matter - the content and the application of technology in effectively and creatively delivering education, especially in distance education and online environments. As shown in Figure 2.2, TPACK identifies seven knowledge constructs formed by overlapping the three main knowledge constructs.

### **2.3.2.1 Content Knowledge (CK)**

Koehler and Mishra (2009) described Content Knowledge (CK) as the teachers' knowledge about the subject matter to be learned or taught. This means lecturers need to have solid and expert knowledge of the subject they teach, and this knowledge should include knowledge of concepts, ideas, and ways of developing such knowledge (Koehler & Mishra, 2009). It does not matter what subject a lecturer is responsible for in higher education; the most important thing is that their knowledge and understanding of that subject should be at a level that they can effectively train and transfer key relevant subject-based knowledge and skills to students.

### **2.3.2.2 Pedagogical Knowledge (PK)**

Pedagogical Knowledge (PK) is the lecturers' acquired knowledge about the teaching processes and practices or methods of teaching and learning in ODeL and higher education settings. Pedagogical knowledge (PK) is a generic form of knowledge required to understand how students learn, design, plan and develop lessons, and assess learning (Koehler & Mishra, 2009). Lecturers' pedagogical knowledge is especially important in distance education, where the students are physically separated from the lecturers. With the constantly changing higher education landscape and emerging technologies, this type of knowledge needs to be continuously updated to match the diverse needs of students entering higher education.

### **2.3.2.3 Technology Knowledge (TK)**

Technological Knowledge (TK) represents knowledge of various technologies that lecturers can integrate into their teaching and support of students (Koehler & Mishra, 2009) in ODeL environments. To be productive and effective in their teaching and learning, technological knowledge requires that lecturers continually adapt to changes in information technology. This includes the attitudes and ways lecturers are "thinking about and working with technology, tools and resources" (Koehler & Mishra, 2009, p. 64).

### **2.3.2.4 Pedagogical Content Knowledge (PCK)**

Pedagogical Content Knowledge is the knowledge that teachers (in this case, higher education lecturers) have about the discipline content and the knowledge on how to teach that specific content (Evens et al., 2015; Harr et al., 2014; Koehler & Mishra, 2009; Shulman, 1986). This specialised knowledge allows lecturers to use the most effective methods for teaching specific

content. Such unique knowledge is necessary for delivering tuition at a distance or online to many students scattered around the globe.

### **2.3.2.5 Technological Pedagogical Knowledge (TPK)**

Technological Pedagogical Knowledge is the knowledge that teachers develop to identify the best technology to support a pedagogical approach (Koehler & Mishra, 2009). Koehler and Mishra (2009) explain that this knowledge “includes knowing the pedagogical affordances and constraints of a range of technological tools as they relate to disciplinarily and developmentally appropriate pedagogical designs and strategies” (p. 65). For instance, if you want students to work in collaborative groups (pedagogy), you might choose a collaborative digital tool to communicate, present, and share their learning artefacts and experiences. For ODeL lecturers, with fully online modules, blended modules or non-venue-based examination modules using e-portfolios, lecturers must acquire relevant skills to identify digital tools that may help present content and support the students more effectively.

### **2.3.2.6 Technological Content Knowledge (TCK)**

Technological Content Knowledge is the knowledge lecturers acquire to help identify the best technologies to support their students as they learn content (Koehler & Mishra, 2009). In this case, the lecturer can facilitate learners’ interaction with content via a chosen technology, learn the core concepts and at the same time learn how to use the technology to achieve their learning goals. For instance, if you want student teachers to learn how to teach with technology, an e-portfolio platform would be a good option to help the learners to use technology to learn and accomplish tasks and create a portfolio of evidence that is accessible to them – a lifelong learning resource. In this case, the student teachers will be able to transfer the skills learnt to their learners, as argued by Anderson et al. (2013, p. 550) that “effective online teaching practices promote conditions in which online learning occurs”.

### **2.3.2.7 Technological Pedagogical Content Knowledge (TPACK)**

Mishra and Koehler (2006) described TPACK as the type of knowledge required and desired to effect quality teaching that “requires developing a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and representations” (p.1029). HEIs using open and distance education (ODE) and e-learning require this knowledge and the confidence

it brings to creatively and appropriately use the available technologies to teach, learn, and support their students.

Koehler and Mishra (2009) believe that “the interaction of these bodies of knowledge, both theoretically and in practice, produces the types of flexible knowledge needed to successfully integrate technology use into teaching” (p. 60). This kind of flexibility is much needed in all teaching scenarios, especially in higher education with reference to open and distance education and e-learning. Lecturers need to confidently know which technology tools to use and how to use them for effective teaching and student support.

It is reported that teachers using new educational technology are “suddenly forced to confront basic educational issues and reconstruct the dynamic equilibrium among all three elements” (Koehler & Mishra, 2009, p. 67). Although difficult, separating the three components (content, pedagogy, and technology) may prolong the understanding and meaningful application of all knowledge sets (Koehler & Mishra, 2009, p. 66). Johnson et al. (2016) warn that lack of training will reduce the full potential use of any new technology with which teachers are faced, and they will be unable to offer adequate technical support to the learners.

The most important feature of this framework is that it realises that each set of knowledge (content, pedagogy and technology) depends on the others – as long as they are in this partnership. It is thus equally important that lecturers acquire all necessary sets of knowledge to deliver module content to students online successfully. It is important to note the impact that TPACK has had on teaching and learning and how adopting and applying this framework in new e-learning innovations may facilitate a better adoption, acceptance and use of new technology by lecturers. The next section discusses the TPACK framework to understand its relevance to teaching and learning.

### **2.3.3 Relevancy of the TPACK framework to this study**

TPACK brings the realisation that teaching practice is changing and that the emergence of educational technology tools should not be seen as a separate entity but should rather be integrated into the teaching and learning scenario. Through this framework, Koehler and Mishra (2009, p. 61) explain that “effective teaching depends on flexible access to rich, well-organized and integrated knowledge from different domains”.

Teaching is a special activity that requires the interweaving of many kinds of specialised knowledge. Mishra and Koehler (2003) point out that all this knowledge lies in specific

contexts, with all key stakeholders - teachers and students, and in ODE contexts with e-tutors, teaching assistants and markers, all interacting and contributing to the makeup of the context. As the context changes, a lecturer's knowledge needs to shift to create an environment conducive to effective teaching and meaningful learning. Technology is constantly changing higher education, especially ODE, in Africa, Asia and globally, so the need to acquire relevant skills at any given time is ultimately evident and necessary.

It is not only technology that is changing the higher education landscape; there are many factors at play; however, one of the factors worth noting is the profile of learners entering the higher education sector, especially in South Africa. These varied profiles need to be considered when choosing the type of technology and the accompanying relevant pedagogy to deliver education online and at a distance. Therefore, a better understanding of the relationships between content and pedagogy (Meredith et al., 2017, p. 228) and technology is necessary for institutions implementing e-learning innovations. Technology also brings new challenges to teaching that include the development of knowledge about how it integrates with content, teaching and learning in specific contexts (Mishra & Koehler, 2006; Rosenberg & Koehler, 2015). Therefore, teachers are tasked with more than understanding the relationships between content and pedagogy, and technology. Once a lecturer's PCK is well formulated, this study assumes that the next required skill is the ability to meticulously select the technology tools and relevant pedagogies to enhance the teaching in ODE environments effectively.

TPACK is designed to help lecturers reflect and assess their current skills and areas of improvement and thus effectively integrate technology in their teaching, which is relevant to this study. With the increasing use of social media and other digital tools in teaching and learning, the TPACK framework considers the role of technology in teaching (Meredith et al., 2017) to be highly important and noteworthy. It is thus important that institutions invest in relevant skills and competencies necessary for lecturers to teach online. There are many emerging educational technology tools that lecturers are constantly bombarded with; therefore, selecting relevant tools can be daunting. However, empowering, developing the necessary skills and competencies and supporting them may reduce the anxiety of interacting with the technology tools to teach and to learn.

Research on technology adoption and usage suggests that one must first use technology before the desired outcomes can be achieved, such as improving institutional performance and efficiency (Sarker & Valacich, 2010; Venkatesh et al., 2016). As valuable as TPACK is in supporting teaching and learning in an online context, there are limitations to the application

of this theory. Lecturers cannot transfer knowledge or skills that they do not possess (Modise, 2016). Therefore, higher education educators need to continuously learn how to use technology to effectively deliver their content. However, they must also update and upgrade their content knowledge according to the needs of their learners, future employers and their country. Sharing ideas and learning new ways of teaching may be enhanced by engaging in scholarly discourses with other stakeholders. Other ways include formal training programmes designed and offered internally by an institution to build necessary core skills and competencies (Frick & Kapp, 2009).

### **2.3.4 Limitations to the theory**

Mishra and Koehler's (2003) TPACK theory was originally developed after studying schoolteachers and not necessarily higher education lecturers. Many studies in higher education have successfully used this framework (Benson & Ward, 2013; Lye, 2013; Mahlambi, 2020; Maor, 2017;). However, looking at the framework's core elements, each one is relevant for any teaching scenario. Higher education educators need to have relevant content knowledge; they need to know and understand their teaching subject. They also need to know how to teach the subject effectively. With the inevitable influx of technologies in education, all educators must acquire the necessary knowledge sets to use technology for teaching and learning.

Most HEIs hope to reach a stage where the academic staff seamlessly integrate and use technology in their teaching, learning and the way they support students. Simply uploading study material into various digital and online repositories and onto learning management systems (LMS) is not enough; online teaching needs to be effective in facilitating meaningful learning on an online platform (Anderson et al., 2013). TPACK may guide teachers in purposefully integrating technology into instruction. However, higher education learners need to be adequately prepared for the employment arena and must be trained to use technology effectively. To do so, lecturers must know what technology tools to use for each specific module that they teach. Considering the above discussions, a theoretical framework comprising theories discussed in this chapter have been adopted for this study. The theoretical framework developed is summarised in Table 2.1, pinpointing the key theories and theorists and core concepts addressed by the theories and models. Therefore, this framework can be applied to the higher education environment.

## 2.4 THE THEORETICAL FRAMEWORK UNDERPINNING THE STUDY

Multiple theories give varying perspectives on the same issue. Thus, each researcher must decide which lens to use or which blueprint to follow to build an argument, establish the context of the problem, and explain the findings (Osanloo & Grant, 2016). According to Osanloo and Grant (2016, p. 17), it is imperative that all four constructs - the problem, purpose, significance and research questions - are tightly aligned and intricately interwoven so that the theoretical framework can serve as the foundation for the research work and guide the choice of research design and data analysis. The theoretical frameworks chosen for this study proved to be valuable and relevant in addressing the subject and object of this study

The theories discussed in this study were selected as appropriate based on the strength of their relevancy and applicability to the context within which this study is positioned. The ability of the different theories to work effectively together in guiding and sustaining this research study was also one of the reasons for their inclusion. Table 2.1 offers a summary of the theoretical framework comprising the two theories that underpin this study, as discussed in the preceding sections in this chapter.

**Table 2.1**

*The theoretical theories underpinning this study*

<b>Theory</b>	<b>Theorist(s) and models</b>	<b>Major theoretical propositions and principles</b>	<b>Relevance to core concepts in the study</b>
UTAUT	Venkatesh et al. (2003)	Facilitating conditions and moderating factors affect and facilitate the adoption and usage of technology	<ul style="list-style-type: none"> <li>• Adoption and use of e-learning technology</li> </ul>
TPACK	Mishra & Koehler (2006)	Explains the set of knowledge that teachers need to teach effectively using technology	<ul style="list-style-type: none"> <li>• Skill and competency for 21<sup>st</sup>-century lecturer</li> <li>• Professional development of academics for e-learning                             <ul style="list-style-type: none"> <li>• Support of faculty</li> <li>• Training and skill development</li> </ul> </li> </ul>

Although self-directed learning (SDL) theory applies to this study, it was not included because of the assumption that most academics have proven to be self-directed in their teaching and learning. In most cases, academics must *continue teaching while learning* and adopting new education technology innovations as they emerge. The other reason for excluding SDL theory

as a stand-alone theory in this study is that many values and principles found within the SDL theory are embedded in some of the theories included in the UTAUT theory. For example, motivation is found in Davis et al.'s (1992) motivational model and Bandura's (1986). social influence in social cognitive theory (SCT) These aspects have been addressed in the UTAUT theory in this thesis.

## **2.5 CONCLUSION**

This chapter presented and discussed theoretical frameworks that consisted of various theories that underpinned this study, that is, Venkatesh et al. (2003)'s Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technological Pedagogical Content Knowledge (TPACK) developed by Mishra and Koehler (2006). These theories were deemed necessary for guiding the study and were used to answer the research questions and interpret the research findings. It was also imperative to outline the relevancy and limitations of the theoretical frameworks within the context and setting of this study to ensure that the research tools employed in the study to collect and analyse relevant data meticulously were appropriately chosen and employed. The theories in this study showed a unique relationship in dealing with the key theoretical assumptions and research questions. The following literature review chapter is a record of the studies conducted in and around Africa and the world that relate and/or are similar to the subject under investigation in this study.

## CHAPTER 3:

### KEY ISSUES AND TRENDS IN DIGITAL TRANSFORMATION IN AFRICA AND GLOBALLY

*“Those who cannot remember the past are condemned to repeat it.” George Santayana*

#### 3.1 INTRODUCTION

Research shows that developing countries face many challenges affecting their ability and capacity to reap the benefits of e-learning optimally. The literature reviewed in this chapter was derived from a survey of books, scholarly articles, and related sources relevant to the research topic. The literature indicates that extensive studies have been carried out to investigate the phenomenon of emerging technologies, e-learning and related topics in higher education and distance education, both in developed and developing countries (Borotis et al., 2008; Garrison et al., 2003; Ngeengebule et al., 2007; Rohayani et al., 2015; Veletsianos, 2010b).

This chapter discusses how digital transformation in higher education, particularly e-learning innovation, impacts African countries' higher education and distance education institutions. The chapter first looks at broader definitions, trends and the impact of digital transformation in HE and ODE, then the chapter unpacks the micro-level issues, research and discourse around e-learning, including digital competencies, e-learning readiness, training and development of academics, and other e-learning developments in African countries and other developing countries. Among the highly researched and discussed issues unpacked in this chapter are the e-learning preparedness of academics in higher education, digital literacy and the skills necessary for e-learning education delivery, academic/faculty professional development and support, acceptance and adoption of technology and other related developments in Africa.

#### 3.2 DIGITAL TRANSFORMATION IN HIGHER EDUCATION AND DISTANCE EDUCATION INSTITUTIONS

The extraordinary speed and reach of the digital revolution over the last twenty-five years, according to Tait (2018), is far from over. Today's universities face strong pressure for change (Bates & Sangra, 2011). The ability of an education system to adapt to the demands and needs of learners and other stakeholders is strongly linked to countries' economic development. Moreover, an ongoing international outbreak of respiratory disease (Moris & Schizas, 2020) associated with a novel coronavirus, known as 'coronavirus disease 2019' (COVID-19) that broke out in Wuhan City in China in 2019, has had a major role in driving and accelerating digital transformation throughout the world.

The COVID-19 viral pandemic extended its tentacles across the globe and affected worldwide, with most countries adopting lockdown to avoid the spread of the virus. The subsequent world lockdown “activated an extraordinary instant emergency in the education sector” (Panganayi,

2020, p. 24) and brought about what is now known as 'emergency online education' (Marinoni et al., 2020, p. 6). Although the pandemic immediately disrupted university teaching and learning, Marinoni et al. (2020) warned that the consequences would be felt way into the future. However, Zawacki-Richter (2021) believes that the current crisis will positively affect digital innovations in university teaching. It will increase the commitment of many teachers to using technologies for teaching and learning, especially in distance education. The effects of the Covid-19 pandemic on higher education are further discussed in Section 3.6.4 of this chapter.

Tait warned that the millennium's introduction of technologies into education would continuously reorganise learning and teaching (Tait, 2018, p. 113). For these and many other reasons, digitisation has permeated the higher education sector, especially distance education, with the promise to solve many of its problems and challenges. Therefore, HEIs that appropriately align themselves and strategically take on change will likely gain a competitive advantage for themselves and the societies they serve. Perkin and Abraham (2017) believe that digital transformation is an inevitable necessity that involves more than just technology. Digital transformation is the phenomenon that has permeated everything from personal devices to complex industrial systems. It has become inevitable for places of education to digitise, especially higher education and more so distance education (DE) (Dall'Omo, 2017). Playing catch-up will be expensive for African higher education institutions if they do not develop new and transformative technologies that ultimately increase the competitiveness of the African continent's economies (Dall'Omo, 2017).

Digital technologies are of great importance to tertiary education in developing countries and have the potential to extend access, speed interactions and improve the quality of instruction and learning at all levels, vastly broaden access to information and data resources and greatly assist in professional training (Guri-Rosenblit, 2014). However, most of the developing countries do not possess the appropriate infrastructure for utilising the wide spectrum of digital technologies' capabilities. Sarah Dall'Omo (2017) of Siemens Southern and Eastern Africa reiterates in the Digitalization Maturity Report 2017 that African countries and other developing countries cannot afford to fall behind and risk facing increasing inequality and greater economic divisions.

Education is one of the spaces where digitisation could have a major positive impact if well planned and implemented but also negative if not properly managed. There is an urgent need for HEIs, especially ODE institutions in Africa, to shift from traditional thinking and be innovative in educational content creation and delivery because Africa does not live in

isolation. Africa attracts interest from the global village as some students are from the developed world where technologies used in teaching and learning are advanced, therefore, it is expected that ODE should keep up to transform their citizens and also be able to compete and contribute to the international arena.

Digitisation of education in Africa has not only been happening among distance education institutions (Gachago et al., 2007). Policies governing higher education in South Africa (DHET, 2013) and other developing countries have forced some conventional universities to utilise e-learning resources, operating distance learning programmes run and managed by autonomous units within the institutions. The Covid-19 pandemic has also forced many educational institutions that would not have embarked on utilising digital educational technologies to implement distance education and e-learning strategies (Dwivedi et al., 2020; Marinoni et al., 2020; Mhlanga & Moloi, 2020; Sahu, 2020; Schleicher, 2020), with the world witnessing schools and universities suddenly investing in digital technologies for teaching and learning. The training of educators in the deliberate use of digital technologies has thus become more urgent, and to understand digital transformation, definitions of digital transformation relevant for this study are discussed in the subsequent section

### **3.2.1 Defining digital transformation**

Although many definitions of digital transformation exist in the literature (Benavides et al., 2020), it seems that an 'official' definition does not exist (Web Development and Tech, 2020, para. 5), especially one that is relevant to higher education. Digital transformation may mean different things to different people in different sectors and contexts. It is therefore imperative that a definition suitable for this study is identified.

Westerman et al. (2014, para. 1) define digital transformation as "the use of technology to radically improve performance or reach of enterprises". The technology may include anything from software applications, systems and programs to hardware items such as a new laboratory or computers or even providing students with learning digital devices such as laptops or tablets. Some definitions of digital transformation focus on the changes that digital technologies bring and their influence on various aspects of human life (Wilms et al., 2017). Others focus on technology as a product and not a process (Gobble, 2018). Patel and McCarthy (2000, p. 4) argue that digital transformation means more than the technology itself as it "transforms the way we transact (commerce), the information we use (content), the people we interact with (community) and the ways we interact with them (collaboration)".

Digital transformation definitions in literature do not include an element of competence in using new technological tools and systems necessary in any new digitally transformed space. This omission of what should be considered the most important element in HEI digital transformation – the competency to use the digital tools to teach and learn – may affect how technology is accepted and adopted. Nevertheless, Benavides et al. (2020) revealed that teaching had been the dimension most influenced by technological interventions. Gobble (2018, p. 66) defines digital transformation as “the profound transformation of business activities and organizations, processes, competencies and models, for the maximum transformation of the changes and opportunities of a technology mix and its accelerated impact on society, in a strategic and prioritized way”.

Just as the nature of academic, professional development in the face of technological changes should not be a once-off event, digital transformation should aim for continuous optimisation. Gobble (2018) argues that digital transformation is a journey that needs a clear roadmap driven by a digital strategy. The definition that guides this study must acknowledge the need for training and development of relevant competencies if those digitally transforming are to be successful. Although Gobble’s (2018) definition is also business-oriented, it encompasses the issue of competencies and also acknowledges the urgency and prioritisation of training activities within digital transformation and is thus relevant as it aligns with this study.

Lecturers in DE and e-learning in higher education operate within a specific context; thus, competencies specific to these spaces need to be identified and understood, as unpacked in Section 3.5 of this chapter. PwC Global (2017) explain that we are in a new world that requires new skills and that “everyone should be able to live, learn, work and participate in the digital world” (para. 1.) They state that upskilling the global workforce aims to bridge the digital divide, which “requires business leaders, governments and educators to work together to make the world a more resilient, more capable and more inclusive place” (PwC Global, 2017, para. 2). With a definition of digital transformation in place, the next section discusses key e-learning developments in Africa which inspired this research.

### **3.3 E-LEARNING DEVELOPMENTS IN AFRICA**

African HEIs in countries such as Nigeria, South Africa, Tanzania, Zimbabwe, Ghana and Mozambique have been developing large-scale open universities for decades, but embarking on the e-learning journey has only occurred recently. Although Ravjee (2007, p. 27) reported that e-learning emerged across South African higher education institutions in the 1990s, research by Ng’ambi et al. (2016, p. 843) has revealed that it was only in the late 2000s that

many institutions in South Africa started to include ICTs in their strategic plans, motivated by the potential of ICTs or the pressure to remain competitive. To respond to the national educational goals, various open universities in Africa adopted e-learning. For example, the utilisation of e-learning in Nigerian HEIs was in its infancy around 2010 (Eke, 2011; Ipaye, 2010), while UNISA with a student enrolment of about 400 000 from across South Africa, Africa and other parts of the world (University of South Africa, 2020a, 2020b) officially launched e-learning in 2013 (University of South Africa, 2018).

Although the University of Botswana (UB) started the e-learning process in 2001 (Masalela, 2011), Namibia also only established the Centre for Open, Distance and e-learning (CODeL) at the University of Namibia (UNAM) through a merger between the Centre for External Studies (CES) and the Centre for e-learning and Interactive Multimedia (CeLIM) in 2016 (University of Namibia, 2018, para. 1). Like UNISA and NOUN, UB implemented e-learning through a blended approach to teaching and learning that integrates various modes, methods and media. UNISA began the e-learning journey with a Signature Modules Pilot Project (Bajinath, 2014), which developed six modules, one from each college, to test the running of modules fully online.

In their study, Thurab-Nkhosi et al. (2005) noted that faculty at UB still preferred face-to-face training five years after the e-learning was implemented. According to Masalela (2011), a recommendation was made through an external review consultancy, commissioned in 2007, to confine some distance learning qualification programmes to online learning programmes, thus gradually approaching the implementation of e-learning, using a blended approach. Thurab-Nkhosi et al. (2005) reported that, in 2005, approximately four years after the implementation of e-learning at the University of Botswana, only 74 lecturers at the university were using e-learning in their teaching and learning — approximately 10% of the academic staff

To help increase e-learning awareness and adoption, one of the most significant observations by Rayworth et al. (2011) from their extensive research to identify factors that inhibited its successful implementation at the Polytechnic of Namibia was that students and faculty were “severely uninformed about e-learning in general” (p. vii). Although the university had embarked on the e-learning journey, Rayworth et al. (2011) reported an extensive lack of knowledge and awareness of the e-learning project in the institution. Tynan and Lee’s (2009) in-depth study concluded that “staff need to be afforded better access to information and strategies to raise their desire and awareness of how to use ICTs to enhance student learning” (p. 104).

Despite the many challenges that the African HE sector faces, there are some successes, with NOUN launching its open educational resources (OER) Portal and open-source MOOCs in 2015 (Lou, 2015; UNESCO, 2019). NOUN became the “1st university in West Africa to make the giant step in creating a dedicated OER Unit to conduct awareness seminars and capacity-building workshops” (Lou, 2015, para. 8). NOUN currently share most of its learning content with other universities in Nigeria and other countries (Lou, 2015).

### **3.4 THE ESSENCE OF TECHNOLOGY IN HIGHER EDUCATION AND DISTANCE EDUCATION**

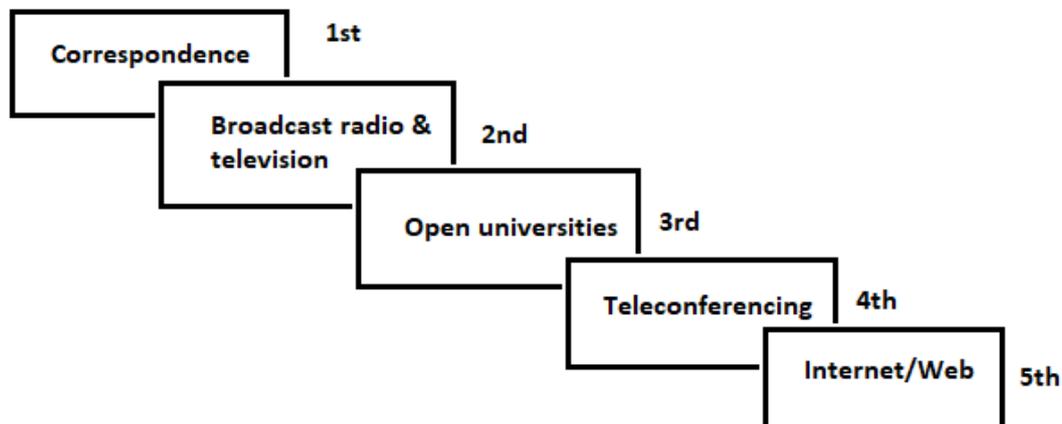
Technology has been central to teaching and learning in distance education for decades. Research has shown that technology is a necessity in which HEIs and ODE institutions need to invest to successfully “compete globally, be innovative and address the learning styles and preferences of digital natives longing to learn in an active, authentic learning environment”, as argued by Bagarukayo and Kalema (2015, p. 169). Yick et al. (2005, p. 1) argued that the “traditional boundaries of education have been expanded beyond the brick-and-mortar university by advancements in technology”.

One of the distinguishing features of distance education institutions is the extensive use of technology. Simonson et al. (2019) believe that DE is one of the most dramatic technology-based innovations influencing education. Gani (2018) pointed out that since the inception of distance education, the use of ICTs has been part of its trajectory. Bates and Bates (2005) explained that DE institutions are deliberately designed and structured to exploit the cost and educational benefits of technology, arguing that “technology is a critical element of distance education” (p. 5). With the global pandemic, technology in DE has ensured that the teaching and learning process continues.

Distance education evolved partly through technologies in various generations of DE delivery (Figure 3.1). Moore and Kearsley (2011, p. 23) explain that technology has been at the centre as DE evolved through several generations (Figure 3.1), with techno-social changes in society, driven by technology innovations, prompting changes in distance education (Saykili, 2018). Brenton (2008) points out that the virtual learning environment (VLE), also known as a learning management system (LMS) or a course management system (CMS) exist in a great majority of institutions, especially HE and DE institutions. Research shows that the use of LMS was one of the technological innovations that changed the face of distance education delivery (Bervell & Arkorful, 2020; Hicks, 2014).

**Figure 3.1**

*Five generations of distance education*



*Note.* Adopted from Moore & Kearsley, 2011.

Dron (2014) mentions the importance of understanding changes regarding distance education and suggests that those distinctive aspects of DE that are susceptible to forces of change need to be identified. Dron (2014) suggests that looking into the history of distance education is logical. Technology has been part of distance education systems (Figures 3.1 and 3.2), delivering learning content to students in rural areas, across borders and globally. The waves and generations of distance education attest to the important role of technology in delivering content, mediating communication and interaction between alienated students and lecturers, and closing the transactional distance (Moore & Kearsley, 2011) that was seen as a major challenge of DE.

Technology has evidently been the vehicle through which education has transcended generations. For example, Morus (2000) point out that the telegraph was invented and acclaimed as the first instrument to "make intelligence instantaneous" (p. 457) and to overcome "barriers of time and space" in communications (p. 458). Dabbagh (2005, p. 25) contends that the Internet has redefined the "boundaries and pedagogies of distance learning by stretching its scope and deepening its interconnectedness," to the extent that "new learning interactions that were not perceived possible before can now be facilitated". The need for instantaneous communication and interaction in education, especially in distance education, drives continuous changes in today's educational technologies. Dominant technologies have impacted the possibilities for teaching, learning and student support and have consequently shaped DE (Aoki, 2012; Heydenrych & Prinsloo, 2010).

For distance education institutions to thrive through the everchanging waves and generations of education, those entrusted with the important task of teaching and facilitation of learning should walk with the times and learn to use the technologies of the day. Each generation of DE has brought a specific technology or technologies that have needed to be adopted and mastered for use in the teaching events, making professional development worthy of the time and money required. Although over a decade ago, Zawacki-Richter (2009) identified professional development and faculty support as an important area requiring more research; however, in their study, Zawacki-Richter and Anderson (2014) found that interaction and communication in teaching and learning ranked number one in the research areas by the number of articles published. This is admittedly because interaction and communication are the glue that binds all elements of distance education, especially three major elements - teachers, students, and content. Without interaction and communication technologies, DE would not survive. However, lecturers and other facilitators should be trained to properly use relevant technologies to deliver education and effectively provide the sought-after meaningful interaction and communication in DE.

Even with this evidence, the body of literature highlights the disunity that exists in the fields of DE on definitions of distance education and e-learning. Therefore, it was necessary to define them and unpack the links between the terms and how they are utilised within the context of this study.

### **3.4.1 *Defining distance education***

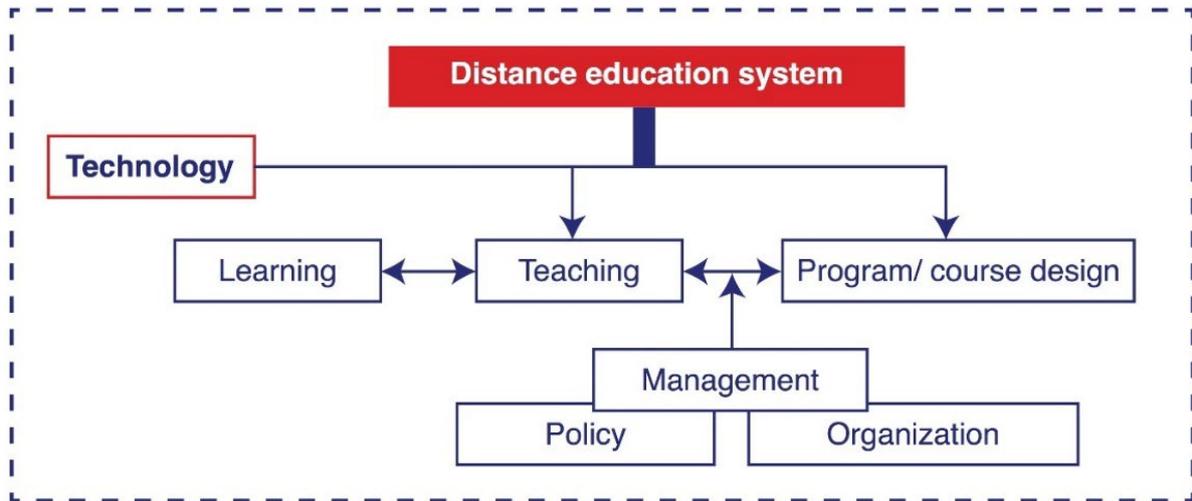
The research in this study focused mainly on the support, training, and development of academics in higher education to prepare the teaching staff for an e-learning innovation, specifically within the context of open and distance education. Therefore, it is necessary to define distance education for this discussion and highlight the definitions that align this research with the definition that espouses the values and principles held by the researcher for this study. For decades, many definitions of DE existed in the literature, Rumble (1989, 2019) pointed out the contention on the definition of DE and Garrison, and Shale (1987) also highlighted the challenges in defining the field of distance education. What is important is that various definitions of DE explicitly highlight technology as the key vehicle of distance education, as mentioned in the above section (Section 3.4).

Moore and Kearsley (2011, p. 2) defined distance education as “teaching and planned learning in which teaching normally occurs in a different place from learning, requiring communication

through technologies and a special institutional organization”. Moore and Kearsley (2011, p. 10) schematically illustrate DE through the conceptual model (Figure 3.2), in which technology clearly takes centre stage throughout the DE system.

**Figure 3.2**

*A conceptual model of distance education*



*Note.* Adopted from Moore & Kearsley, 2011.

In their definition, Moore and Kearsley (2011) identify a few elements of DE, including forms of interaction and communication between students and lecturers – *using technology*, including geographical separation between them and instruction driven by the formal institutional organisation. This definition is also in line with Johnson’s (2003, p. 1) definition of distance education as “a form of education in which the learner and instructor are separated during the majority of instruction”, which “usually implies the presence of an institution that plans curriculum and provides resources and services for its students” (p.1), with the use of information communication technologies.

UNISA’s ODL Policy (2008, pp. 1-2) defines distance education as “a set of methods or processes for teaching a diverse range of students located at different places and physically separated from the learning institution, their tutors/teachers as well as other students”. All these definitions demonstrate the separation of the learner from other key elements of their learning journey, such as teachers, other students and content, with technology as the glue that keeps all elements of distance education together. Although Schlosser and Simonson (2010, p. 1) define DE as “institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors”, the entrance of new approaches such as e-learning, massive open

and online courses (MOOCs) and open educational resources (OERs) have proven that DE is a successfully informal way of acquiring education.

Distance education integrates the use of technology in teaching and learning (Figure 3.2). However, Simonson and Seepersaud (2018) state that the definition of DE must explicitly include these four components: DE must be 1) institutionally based, there must be 2) separation in place or/and time between the students and educators, 3) synchronous or asynchronous interaction must be present, and lastly, 4) the use of electronic media for sharing of content, allowing communication at a distance between lecturers and students. They also argue that “if one or more of these components is missing, then the event is something different” (Simonson & Seepersaud, 2018, p. 3). Moore and Kearsley (2012, p. 306) argue that the geographical separation demands the use of information and communication technologies (ICTs), and institutional organisations should facilitate and maintain effective communication between key elements in the DE system. This facilitation needs to be effective and efficient, which means that the teaching staff need training and retraining to keep abreast as new technologies emerge.

Distance education is generally considered the overall and inclusive term (Moore & Kearsley, 2012; Simonson & Seepersaud, 2018; Yick et al., 2005). Related to distance education is the concept of e-learning (see Section 3.4.2). Some believe that e-learning is a form of DE (Roberts, 2019). However, others believe a huge difference exists between e-learning and distance education, such as Guri-Rosenblit (2005), who strongly believes the two concepts “do overlap in some cases but are by no means identical” (p. 467). She further contends that “the lack of distinction between ‘e-learning’ and ‘distance education’ accounts for much of the misunderstanding of the ICT roles in higher education” (Guri-Rosenblit, 2005, p. 467).

This disagreement may have given rise to the term online distance education, which Yick et al. (2005, p. 2) explain as the concept of online learning merged with the concept of distance learning, as the curricula are delivered solely through the Internet. Some researchers have added e-learning to the concept of open and distance learning (ODL) to derive open and distance e-learning (ODeL) (Kgosinyane, 2019; Ngubane-Mokiwa & Letseka, 2015; Rammutloa, 2013; UNISA ODeL Policy, 2018). Anderson and Zawacki-Richter (2014, p. 290) firmly believe that online distance education is a natural extension of distance education. In this discussion, it is important to note that distance education is used as the umbrella term that encompasses e-learning, online learning and online distance education.

### **3.4.2 Electronic learning and distance education**

The Internet, particularly the World Wide Web (WWW) or 'the Web', was responsible for the rapid expansion of distance education. The Web introduced flexible, collaborative technologies that effectively enabled content to be shared between lecturers and students and students to students. The internet is a 'transformative technology' (Brenton, 2008, p. 85). According to Bates and Bates (2005, p. 8), the Web is a component of the Internet that fuels the creation, storage, access and interaction of digital materials. This is believed to have fuelled the expansion of DE through e-learning technologies. Tayebinik and Puteth (2013, p. 1) assert that information communication technologies (ICTs) have pervaded the fields of education, with the term electronic learning or e-learning emerging due to the integration of ICT in the field of education.

As with DE, there is no common ground for the definition of e-learning. With the myriad of platforms and contexts within which teaching and training through e-learning are conducted, the definitions often inherit the culture, contexts, specific users and purposes of different concepts or phenomena. The University of South Africa defines e-learning as learning that is "mediated through a wide range of current and emerging digital technologies and resources" (UNISA, 2018, p. 2). E-learning is the use of technological interventions for teaching, learning and assessment, with Mlitwa and Van Belle (2011) believing that e-learning "enables learners to improve problem-solving skills and empowers educators to disseminate and impart knowledge effectively" (p. 168). Pavel et al. (2015) define e-learning as the "use of information and communication technologies to support teaching and *learning in distance education*" (p. 707).

Central to e-learning is the ability and freedom to learn and teach ubiquitously, anywhere and anytime. Bates and Bates (2005, p. 8) explain that although e-learning can encompass any form of telecommunication and computer-based learning, including online learning, e-learning means specifically using the Internet and the Web. The terms e-learning and online learning are often used interchangeably. Muljana and Luo (2019, p. 22) list Internet learning, distributed learning, networked learning, virtual learning, computer-assisted learning, web-based learning, and distance learning as the other terms used interchangeably with online learning and e-learning. Brenton (2008) warns that e-learning should not be too loosely mutilated so that it becomes distinct from 'normal learning' (p. 86).

Although Cleveland-Innes and Garrison (2010, pp.19-20) believe online learning represents a “range of practices based on the internet that provides synchronous and asynchronous communication in a personal and group environment”, online learning goes beyond just accessing and sharing information on the Web. Lister (2014) reiterates that if well designed, online learning has components that “may help enhance student learning and allow learners to engage with the content” (p. 671) with each other and with the institution and lecturers. Cleveland-Innes and Garrison (2010) further explain that online learning integrates connectivity (interaction, discourse) with asynchronicity (independence) and that it has the potential to combine different forms of communication (text, verbal, visual). E-learning as an instructional method has been given many names, including mediated learning, web-assisted instruction or web-enhanced instruction, single-mode (Moore & Kearsley, 2012), and pure or fully online courses (Modise, 2020) and is also often confused with blended learning.

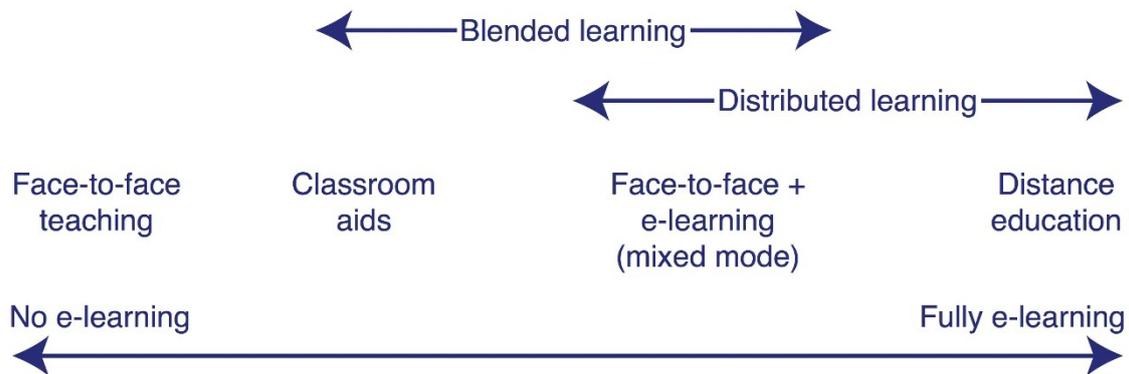
### ***Blended learning***

Blended learning is regarded as a combination of instructional methods enabled by technology. Delialioglu and Yildirim (2007) identify blended learning (and hybrid instruction) as a term that is commonly used to label courses that combine face-to-face classroom instruction with online instruction, involving a “systematic and strategic integration of ICT tools into courses to meet pedagogical goals” (p. 133). The University of South Africa’s ODL Policy (UNISA, 2008, p. 1) defines blended learning as “accomplished by using multiple teaching and learning strategies, a range of technologies in combination with face-to-face interaction and the deployment of both physical and virtual resources”.

In its simplest form, blended learning combines the elements and principles of face-to-face and e-learning/online learning and reaps the benefits of both teaching and learning approaches. Tsai and Machado (2002) warn that these terms represent concepts with subtle yet consequential differences. Terms that are usually used for blended learning include hybrid instruction (Tayebinik & Puteh, 2012) and mixed-mode (Bates & Poole, 2003; Driscoll, 2002), and are used to designate a combination of face-to-face and online teaching. Bates and Poole (2003) graphically outline the lines and consequent overlaps of these educational modes to differentiate between these terms, as depicted in Figure 3.3.

**Figure 3.3**

*The continuum of technology-based learning*



*Note.* Adopted from Bates & Poole, 2003.

Following technology integration into teaching and learning, Bonk and Graham (2012) and Simonson and Seepersaud (2018) suggest that some pitfalls of this technology integration have led to the blended learning phenomenon. Some of the pitfalls may have been the weaknesses and deficiencies in technology integration, such as the failure of institutions to properly identify their needs, their current capabilities and the lack of proper planning and training of the workforce. Ololube (2011) believes blended learning came from democratising education in Nigeria. A blended learning approach seems to be considered a stepping-stone for many HE and ODE institutions to fully adopt e-learning (Bonk & Graham, 2012). For example, both the University of South Africa (UNISA) and the National Open University of Nigeria (NOUN) piloted certain modules and offered other modules or courses in a blended approach before offering them fully online (Bajinath, 2014; Gambari et al., 2018; Ukaigwe & Igbozuruike, 2020).

According to Van Den Berg (2020), UNISA, previously a paper-driven distance education institution, adopted a blended approach to progressively move to a fully-fledged online model of teaching and learning. UNISA piloted its ability and capacity to run online modules (Bajinath, 2014), and later, more modules were offered online. Although the Covid-19 pandemic forced UNISA and other HEIs to fully move their teaching and e-learning activities online, research showed a similar blended approach being employed in other African university contexts. For example, at the University of Botswana (Masalela, 2011), the Polytechnic of Namibia (Kangandji, 2008), a blended approach was as also reported in Ghana (Awidi & Cooper, 2015). Even though this seems to be the safe way to implement e-learning in HEIs in DE, especially in developing countries, the effects of the Covid-19 pandemic are still yet to be

determined for future e-learning implementation strategies. There is no denying that *e-learning has thus expanded distance education to areas where it was almost impossible to reach. More learners, such as those located in rural areas* (Letseka et al., 2018; Patel et al., 2018) and people with disabilities (Mikołajewska & Mikołajewski, 2011), *are now able to participate in quality higher education due to the affordances of e-learning technologies in distance education.*

To facilitate meaningful learning online requires specific knowledge and skillsets. The two terms, e-learning or digital competencies, are used interchangeably in this study, and their definitions are presented in Section 3.5. The following sections discuss e-learning and digital competencies for teaching in technologically driven higher education and open distance contexts.

### **3.5 DIGITAL LITERACY AND RELEVANT COMPETENCIES IN HIGHER EDUCATION AND DISTANCE EDUCATION**

Digital or e-learning competence has been a key concept in education policy and educational research in higher education. E-learning requires specific skills and knowledge, and yet without digital literacy, it may be difficult for incumbents to successfully conduct teaching in online learning environments. The European Framework for the Digital Competence of Educators (Redecker, 2017, p. 20) proposed that a key competence for all educators is to “effectively identify resources that best fit their learning objectives, learner group and teaching style”, to establish connections and be able to develop digital resources that support their teaching.

In the context of e-learning technologies in distance education institutions in developing countries, lecturers must understand and know how to use digital technologies to communicate and support students and know how to choose which media is relevant and fit for purpose. Research shows that digital competence is aligned with digital literacy (Ferrari, 2013; Falloon, 2020; Sjøby, 2008; Spante, Hashemi, Lundin & Algers, 2018;), which is key in digitalised education systems. Digital literacy involves the ability to handle technological devices (hardware and software) and use them innovatively for learning, work, and socialising (Machin-Mastromatteo, 2012).

According to Ferrari et al. (2012, p. 79), digital competence is a “multi-faceted moving target” that constantly evolves as new technologies appear. Lévy and Bononno (1997) strongly believe that the nation’s prosperity depends on its ability to navigate the knowledge space,

characterised by the intense use of digital technologies. Mohammadyari and Singh (2015) found that individual digital literacy facilitates the use of e-learning technologies in teaching and learning environments. Thus, the use of digital tools in DE and HE must be regarded as a required basic skill. Technical competencies and digital literacy were long predicted as basic qualifications for faculty (Leu, 2000; Zawacki-Richter, 2004). Digital competence is directly affected by digital literacy (Falloon, 2020), which clearly involves more than knowing how to use devices and applications, as warns Janssen et al. (2013).

Digital competency is underpinned by basic skills in information communication technologies and involves the confident and critical use thereof. As defined by the Recommendation of the European Parliament and the Council (Rantala & Suoranta, 2008), digital competence can be read as a proxy for digital literacy as “the confident and critical use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet” (p. 109). Some of the key characteristics of online teaching and learning environments include, but are not limited to, interaction and communication, facilitation of learning, and support of students in their learning journeys. It is clear that to actively and effectively engage with students online, lecturers require certain technical skills and knowledge of how to work with ICTs to communicate, and to manoeuvre around the online learning platforms, including the institutions’ LMS, to manage and lead conversations with students, and sometimes to manage conversations between students.

A well-trained and adequately supported academic teaching staff is at the centre of any successful learning activity in any DE and HEI. Raphael and Mtebe (2016) emphasise that faculty support is the inevitable critical success factor in blended learning in higher education. The United Nations Conference on Trade and Development (2019, p. 4) refer to some ICT skills as the “life-learning ability to adapt to technology changes”. Janssen et al. (2013, pp. 4-5) list twelve digital competence areas (Annexure 3.2) that should be honed for today’s digital era, which means that lecturers require skills to swiftly adapt to the changing tasks and roles arising from constant technological change.

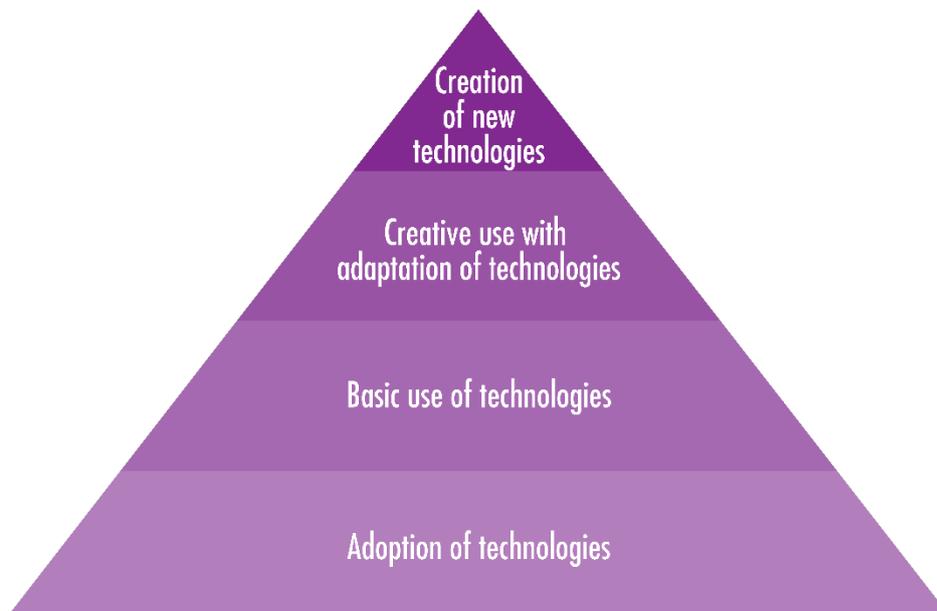
Understandably, some skills are honed over time; however, some skills require intentional planning and thorough education, training and development, especially for those entrusted with online teaching. Thus, it is important that an organisation conduct a skill audit before implementing a new system, as warns Adiyarta et al. (2018) and find ways to address both the skills available and those required. However, it is also incumbent on academics to acquire the relevant skills that will enable them to confidently carry out their teaching duties in everchanging technological teaching and learning settings. This is especially critical as the

younger students entering higher education (Case et al., 2018) are digital natives, known to be able to learn using new technological tools (Bagarukayo & Kalema, 2015) and should thus be taught with relevant technologies. Palfrey and Gasser (2011) argue that this generation of students is tremendously creative and can use technology easily. Lecturers must be able to meet these learners with matching or even superior digital skills.

The United Nations Conference on Trade and Development (UNCTAD) developed a pyramid of digital skills (Figure 3.4.), illustrating how higher-order digital skills build on lower-order digital skills. According to UNCTAD, adopting and adapting technology is necessary, especially within the educational context. Mohammadyari and Singh (2015) indicated that fluency with digital tools positively impacts the speed with which users adopt and adopt new technologies in teaching and learning.

**Figure 3.4**

*Pyramid of digital skills*



*Note.* Adopted from UNCTAD, 2019.

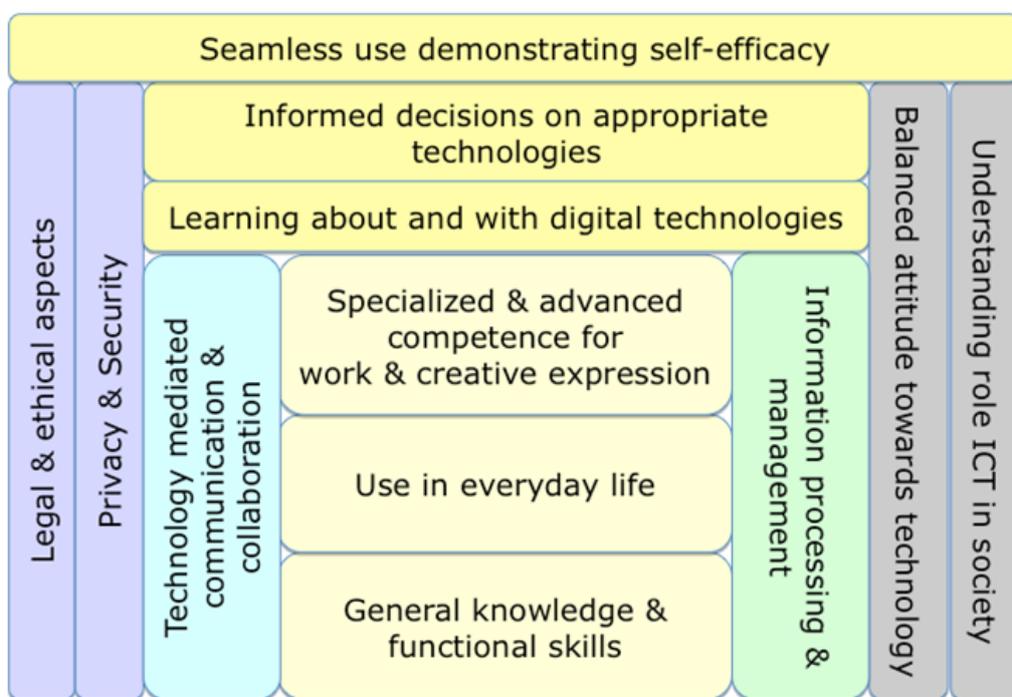
There must be evidence of proficiency in using technology to teach and learn. Merely copying digital content onto the University's LMS is not enough; lecturers need to advance to the level where they can be creative with educational, technological tools, thus positively impacting their delivery of education and their students' learning journeys.

The 2013 Delphi involving 95 experts from across Europe and beyond, provides insights into what it means to be digitally competent today (Janssen et al., 2013). Twelve areas of

complementary digital competence were identified (Annexure 3.2). According to Janssen et al. (2013, p. 8), results indicate that “experts see digital competence as a conglomerate of knowledge, skills, and attitudes connected to various purposes (communication, creative expression, information management, personal development), domains (daily life, work, privacy & security, legal aspects), and proficiency levels”. A schematic representation of the experts’ collective view of what a holistic digital competence framework should entail is presented in Figure 3.5 (Janssen et al., 2013, p. 5).

**Figure 3.5**

*Areas of digital competence: experts’ collective view*



*Note.* Adopted from Janssen et al., 2013, p. 6.

There seems to be an agreement across research on many elements of what constitutes digital competencies (Falloon, 2020; Janssen et al., 2013; Kereluik et al., 2013), which include digital literacy, creativity and innovation and achievement of educational goals. The ‘building blocks are differentiated between core and supportive competencies and identify proficiency levels that will ultimately demonstrate self-efficacy, self-directed learning and seamless use of digital technologies. These digital competencies are not linear or static; lecturers need to participate in continuous training and development to acquire digital competence to keep up with their learners and the emerging technologies.

### **3.5.1 The need for digital competencies in higher education and distance education**

Distance education and higher education are marked by constant technologies that need to be adopted and used in the teaching and learning process with a new breed of students (Blair et al., 2013; Jones et al., 2010). Open universities in African countries and other developing countries are facing unique challenges. The diversity of learners who enrol at UNISA, for example, are young and have never been in a tertiary education setting, requiring almost 'full-time' guidance and support on ODL and e-learning (DHET, 2013; Du Plessis, 2017). The students speak a 'digital language of computers (Blair et al., 2013, p. 46), video games, social media, applications (Apps), and the internet. This diversity requires that lecturers find innovative ways of motivating students to achieve deeper learning through innovations such as using ICTs. It requires facilitators of the learning on these platforms to possess both the required knowledge and significant levels of technical skills. Sjøby (2008) warns that the use of ICTs and digital tools in teaching influences the quality of education, incentives for learning, forms of teaching and learning and ultimately, learning outcomes.

Benavides et al. (2020) explain that the digital infrastructure for teaching involves digital platforms and learning platforms that are important tools that satisfy contemporary educational standards and methods. Therefore, lecturers need skills to use ICTs tools to support their students, especially in distance education, where the learner and lecturer are geographically separated, and the only channel connecting them is through ICTs. This will give students confidence in using technologies for their studies and strengthen their trust in lecturers and the institution (Carroll-Meehan, 2020) to properly equip, train, and prepare them for 21st-century workplace spaces.

Leu (2000) argued that the upsurge of new technological teaching and learning tools constantly requires a reshaping of user competencies. This requires that lecturers master the skills and incorporate relevant existing pedagogical knowledge to conquer the fears of technology-based instruction. Ng'ambi et al. (2013, p. 292) argue that "one of the most common reasons educators do not use emerging technologies to improve their teaching and learning practices is the lack of pedagogical knowledge". Ng'ambi et al. (2013) further contend that "it is difficult to acquire pedagogical knowledge without being exposed to models of authentic pedagogical uses of emerging technologies" (p. 292). According to Mishra and Koehler (2006), content, pedagogy and technology knowledge are at play in any teaching scenario.

In an online teaching environment, the teacher plays an important facilitating role, requiring teaching presence, which is defined by Anderson et al. (2001) as “the design, facilitation, and direction of cognitive and social processes to realise personally meaningful and educationally worthwhile learning outcomes” (p. 5). Eshet (2004) argues that digital competencies should not be perceived as only technical, but also cognitive, social, and emotional. Over the years, research has shown that knowledge involves inter-linked components such as content and skills (Bates, 2015; Mishra & Koehler, 2006). Bates (2015, p. 18) further argues that most instructors at universities are well trained in content and have a deep understanding of the subject areas in which they are teaching. Communication and digital skills form part of the skills that are required in a knowledge society, which include knowledge-based activities that are heavily dependent on the use of technology. Without these and other relevant skills, even with the best technological infrastructure, the new e-learning mode of teaching will be rendered an ineffective, costly activity with no tangible results.

Distance education students learn autonomously and interact with the study materials in their settings, not with the lecturers. With the learners demanding instant communication with their instructors and with other students, e-learning brings an element of much-needed interaction, which is a prerequisite for creating a successful online learning environment. The use of emails, discussion forums in learning management systems (LMS), social media, blogs and other digital tools is increasing in e-learning settings, highlighting the need for lecturers to be supported and trained in the effective use of these and other relevant digital tools. In their study, Amador and Amador (2014) found that students use online social networks to ask for general help but interact with higher education personnel electronically for academic matters, including emails and the institution’s LMS tools such as discussion forums. Some believe that “the amount learned from the online classroom is somewhat greater than in the traditional lecture-based courses” (Chandler, 2014, para. 4). Therefore, a blend of skills that enable lecturers to navigate platforms and digital tools to teach and support learners is necessary for HE and DE.

To achieve the level of knowledge and skills sets needed to confidently teach, lecturers also need to be familiar with the language and technologies used within HE and ODeL, requiring continuous development of faculty, collaborations and communities of practice. The following section discusses the professional development and support of faculty and the effect it has on the adoption of the e-learning innovation in higher education and distance education.

### **3.6 ACADEMIC PROFESSIONAL DEVELOPMENT OF ACADEMICS IN HIGHER EDUCATION**

Many challenges and opportunities in teaching and learning, e-learning, in particular, have sparked bursting discussions and research around topics related to the continuous skill development of lecturers. The promotion of student-centred approaches to teaching and learning in higher education, particularly in distance education, has also inevitably affected how lecturers teach, support and assess student learning, especially with technology. Casanova et al. (2009) state that new and specific skills, attributes, attitudes and roles are required from HE teachers for the newly emerging technology. Learning processes have become more flexible, with the global village borders being blurred and international students, younger students and students with disabilities entering higher education (Case et al., 2018; Meehan & Howells, 2018). This explicit move to a more student-centred teaching and learning approach requires a different mindset and framework for higher education and distance education teachers.

Research supports staff development as an important consideration when implementing an innovation, including implementing technology initiatives such as e-learning (Cresswell et al., 2013; Frick & Kapp, 2009; Levy, 2003; Ncube et al., 2014; Zawacki-Richter, 2005). With the burgeoning developments in distance education and e-learning in developing countries, Anderson and Garrison (1998, p. 109) believe that “obviously new technical skills are required”. Sun and Chen (2016, p. 172) argue that given the fact that online education is a new dynamic for both novice and veteran faculty, professional development is necessary, which may include knowledge and skills beyond the subject matter and educational qualifications. E-learning has become mandatory in South Africa (DHET, 2013, 2014), with many institutions such as educational institutions and private and public businesses in Africa (eLearning Africa, 2008; Masalela, 2011; Thurab-Nkhosi et al., 2005; Venkatesh et al., 2003) and other developing countries adopting the e-learning mode of teaching and learning.

With various developments, challenges and opportunities in open and distance higher education (ODHE), “academic professional development (APD) has emerged as an area of practice in higher education as a way to help academic staff to adapt and to keep abreast of all these changes and challenges” (Frick & Kapp, 2009, p. 256). The sub-sections discuss the necessity of professional development of academics in open, distance and higher education in relation to the introduction of e-learning systems and related required knowledge and skills.

### **3.6.1 Defining academic professional development in higher education**

Professional development is the “training, formal education, and/or advanced professional learning intended to help clinicians, teachers, researchers, and administrators improve their professional knowledge and effectiveness” (Hilty et al., 2019, p. 337). Like many concepts within the education sector, there is no unity or one-fits-all definition of professional development, as this is a highly contextual concept. However, the central idea of professional development is that it is not a once-off activity but encompasses continuous efforts and fosters life-long values and principles.

Frick and Kapp (2009) provided a definition with a specific focus on academics - academic professional development (APD), which refers to the development and support of academics in higher education. Academic professional development is defined as “any formal, non-formal or informal initiative beyond initial training whereby the lecturer as professional practitioner obtains knowledge and/or skills that can transform professional practice and/or professional identity” (Frick & Kapp, 2009, p. 257). APD looks at academics as professionals and how they transition from novices to experts and beyond through intentional, continuous training and development programmes. It also encompasses information training activities since academia is surrounded by opportunities to acquire new knowledge and skills outside the formal education qualification system. These opportunities may include academic conferences, internal and external workshops, communities of practice, and even autodidacticism (self-teaching, self-learning, self-education) of some concepts. Autodidacticism as a concept is self-directed learning that continues to be investigated in learning approaches, and it is believed to be essential in the 21st Century (Ougherty, 2011; Reader, 2018).

Professional development is believed to be intensive and collaborative, ideally incorporating an evaluation of the training intervention, something in which many institutions do not seem to engage, that is, the return on investment (ROI) of faculty professional development activities based on the skills acquired over a period of time. However, Hicks (2014) indicated that international pressures exist with accountability and standardisation to measure and demonstrate the impact of professional development initiatives and interventions. These evaluation activities ought to be mediated through the academics supported or engaged in teaching and learning activities. Although Gray and Radloff (2011) challenge the use of the term impact, Sutherland and Hall (2018) insist that evidence of the ‘impact’ of academic development and its significance to the work of an academic must be provided as this may highlight further training needs.

### **3.6.2 The necessity for continuous academic professional development in higher education and distance education**

The history, views, values and features of professional development in higher education bring a different approach to academics' continuous professional development. APD is more than just a coping mechanism for lecturers; it has become a requirement for lecturers to do more than cope; they need to be in control of their profession. The nature of challenges, opportunities and developments constantly surfacing in the higher education sector, especially with technological developments and trends, including the emergence of the Covid-19 pandemic, makes it very difficult for lecturers to be in control. Hence, lecturers must continuously learn and incorporate existing pedagogical-didactic knowledge with new technical skills.

Various factors have been at play in the way things are developing in open and distance higher education (ODHE), in Africa and the world, such as politics, socio-economic, environmental and health issues, especially technology. Professional development of academics stretches beyond knowledge and skills to the values and attitudes that define an individual's professional identity as a scholar. It also places greater emphasis on the organisation than on the individual in terms of needs, purposes and provision of development initiatives. E-learning training may be both incremental and transformational (Davis et al., 2017; Rodriguez et al., 2017). It should enhance existing pedagogical skills and add the new necessary skills vital for online teaching.

Technology has drastically changed the way we do things in ODHE, especially lecturers' roles in distance education, creating a need for the continuous training and development of academics. In the case of the University of South Africa (UNISA), studies have found that UNISA academics require training in the use of educational technology tools for teaching in ODL and e-learning environments (Chetty, 2012; Holomisa & Dube, 2014; Modise, 2020; Van den Berg et al., 2016), which relates to HEIs in countries in Africa and other developing countries. A shift of pedagogical approaches toward constructivism (Charalambos & Zembylas, 2004, p. 326) and education reform efforts are among the factors that have prompted faculty professional development and continuing education for global recognition. The call for Africanisation and democratisation of education in Africa (Msila & Gumbo, 2016; Ng'ambi et al., 2016) has also led to the need for faculty in HEIs to learn, unlearn and relearn.

There is an urgent need for institutions and lecturers to invest in education that improves performance, research, teaching and learning, better retention, and improved grades (Bagarukayo & Kalema, 2015). There is no denying that university lecturers are functioning

within a unique area of professional practice as professionals. University lecturers' practice and education require elements of both discipline-specific and educational expertise and relevant technical skills. Development of lecturers should go further than education (Frick & Kapp, 2009, p. 256); it should be aimed at helping academics cope with the recent and current fast-paced technological changes in the African national higher education system, and with the effect of the Covid-19 pandemic.

There are many important reasons for any ODHE institution to press forward with an APD plan, policy and funding investment. Some of the reasons discussed in Chapter 1 (Sections 1.3 and 1.4) form the basis for this research, highlighting that continuous APD is necessary as more institutions adopt the e-learning mode of teaching and learning (Arkorful & Abaidoo, 2015). Andresen (2000) (as cited in Frick & Kapp, 2009, p. 258) thinks that "very few lecturers excel naturally and equally in all their scholarship roles", therefore they need to continue with professional learning to update their pedagogical knowledge and practice, to enable them to use the available educational technology tools to teach.

The challenges faced by ODHE institutions prompt academic professional development (APD). Suwaed and Rahouma (2015) identify the "poor quality of higher education programs and the limited scientific research" (p. 692) as one of the key challenges faced by HEIs and ODE institutions. The workload of academics is also reported as a major factor affecting APD (Inegbedion, 2017; Janib et al., 2021; Steenkamp & Roberts, 2020). These challenges are more prevalent in developing countries, where funding and support from the government and other organisations are shrinking (Cloete, 2016; Cronje, 2017; Musundire & Mumanyi, 2020). Although APD is believed to be about keeping abreast of the latest developments and especially improving the continuing employability of professionals, there is evidence in the literature that suggests that APD is the lifeline of academic institutions that are faced with everchanging technological disruptions and tense competition (Kachingwe, 2000, as cited in Frick and Kapp, 2009, p. 260). Without the necessary and relevant skills, academics may not be able to meet the diverse needs of today's learners. Academic staff members should be encouraged to apply their self-directed learning skills and passion for their work to self-learn or group-learn where possible, especially in cases where there is limited funding for training and development activities.

It is also important to understand that academic professional development is not a once-off event, as Suwaed and Rahouma (2015) warn. APD is a process that should eventually bring the lecturers and learners into a team, an institutional community, external stakeholders and even the world together. Zawacki-Richter (2004) and Bates (2015) acknowledge that online

learning requires additional competencies, for example, media literacy and skills, on the part of the learners, and even more, skills are required from those who facilitate the learning experiences in online spaces. If well managed and supported, this may become mutually rewarding teaching and learning journey for the learner and the lecturer.

The teaching staff constitute a vital component of the HIEs e-learning initiatives as they are the ones through which pedagogical tools and services are dispatched to the students. Mapuva (2009, p. 106) concurs that the lecturers, not the technology, facilitate the students' learning experience in an e-learning teaching environment. Therefore, professional development and faculty support are important in distance education research (Hicks, 2014; Moreira, 2016; Zawacki-Richter, 2009). It is also evidently true that most faculty members in "universities were not appointed with the prospect that in the future they would teach online" (Moreira, 2016, p. 188). Hicks (2014, p. 267) asserts that this era requires that all faculty have a level of competence with online learning and technologies. This challenge is faced by all faculty members in HEIs, whether distance or campus-based. Nonetheless, developing new skills in these technology-intensive times can be a mutually beneficial exercise for all involved, especially for the students.

Acquiring e-learning skills is no longer optional but should be core to the university learning environment. It is, thus, imperative for institutions implementing new education innovations such as e-learning to thoroughly assess the pool of skills and knowledge available before, during and after the implementation to pave the way for a reasonable transition and adoption of the technological innovation (see Annexure 3.1). The necessity of APD directly links up with its benefits of professionally developing academics in higher education, which seems obvious, as illustrated in the following section.

### **3.6.3 Benefits of academic professional development for the e-learning era**

This section aims to highlight some key benefits of the professional development of lecturers in ODHE. There is an emerging worldwide consensus about the benefits of the appropriate use of evolving information and communication technologies in education (United Nations Educational, Scientific and Cultural Organization, 2011). There is an agreement in the literature that high-quality and effective teacher professional development improves teaching and student achievement (Blazar, 2016; Desimone, 2009; Rodriguez et al., 2020; Shagrir, 2017). At the core of academic professional development programmes, is to simply increase teacher knowledge and skills, improve their teaching and students' performance. Accordingly, Thompson (2012) found that extensive academic background and professional training

correlate positively with students' performance. Continuous academic professional training is important because it directly affects students' performance and ultimately their success and the success of an institution. Frick and Kapp (2009) further argue that "APD is a vital instrument through which professionals can channel their creative energy, talents and skills in order to remain relevant in society and continue to be viable in the profession" (p. 261). APD should not be approached as an activity to promote individuals (academics) but as an inclusive activity that sustains the overall institution and its general community.

It is in the best interest of HE and DE institutions to weigh the needs of all its stakeholders and decide on what resources are necessary to best serve those needs. Challis (1999) points out that besides updating knowledge and skills in existing and new practice areas, APD is necessary to prepare for changing roles and new responsibilities. This should comprise intentional, well-thought, proactive and continuous planning from all relevant stakeholders. Having a workforce that is not appropriately and adequately resourced, trained, and supported is a recipe for disaster and failure. Sun and Chen (2016, p. 172) argue that given the fact that online education is a new dynamic for both novice and veteran faculty, especially in the African context, adequate professional development is necessary. This may come with valuable benefits, including effective course design, excellent instruction, creative implementation, and evaluation of all parts of an online system. Sorcinelli et al. (2006) assert that "providing institutional support for faculty members facing changing contexts and new demands becomes an essential strategic choice" (p. xviii), and Hicks (2014, p. 283) agrees that this support is a "critical element in assuring good teaching and learning practices".

Research indicates how various types of training and support may positively impact the teaching staff; for example, dialogue and joint reflection of teachers on pedagogical content are believed to improve their self-efficacy (Kiemer et al., 2018; Rodriguez et al., 2020). Dialogue and joint reflection can happen with departments or practitioners in a community of practice or even at an academic conference. When teachers' effective practice increases, their students' learning also improves. Desimone (2009, p. 185) explains that highly efficacious teachers tend to be more prepared to "identify better ways of teaching, drawing on the use of innovative methods that have been supported by scientific research". This aligns with the thought that digital competence is not just about technical skills (Janssen et al., 2013), but it also includes those skills that require practitioners to think outside the box. Research also shows that teacher quality and effective teaching guarantees equitable learning opportunities and outcomes in contexts where cohorts of students are increasingly diverse (Chatelier & Rudolph, 2018; Impedovo, 2016; Knight et al., 2015). It will benefit lecturers and their affiliated institutions to frequently update their content, pedagogical and technological knowledge and

acquire new skills, especially for the different types of learners currently accessing higher education through distance education systems and platforms.

Janssen et al. (2013) list communication and collaboration as one of the key digital skills in a technology-mediated educational environment. Collaboration can be an effective source of teacher professional development through informal online communities and networks (Macià & García, 2016). This approach has great benefits for student-teacher and student-student collaborations on online learning platforms. Charalambos and Zembylas (2004, p. 330) also agree that a self-sustaining online community of professionals supports and enhances the professional growth of teachers and sharing of resources among the participants.

Professional development of academics has far-reaching effects on all stakeholders attached to any ODHE institution, from students, lecturers, other higher education institutions, private business/employers and governments within which the institution operates. In a literature study spanning 2004 to 2013, Rohayani et al. (2015, p. 233) found that “skills and attitudes are the most significant factors that influence e-learning readiness” and adoption. As discussed in the following section, the impact of the Covid-19 pandemic on education on the future of e-learning, academic professional development and support in higher education and distance education is yet to be fully determined. However, Zawacki-Richter (2021) predicts a positive outcome for faculty.

#### **3.6.4 The impact of the Covid-19 pandemic on the future of e-learning, academic professional development and support in and distance higher education**

Distance education is framed within larger socio-economic and political contexts in developed and developing countries. Evans and Haughey (2014, p. 132) believe that DE is susceptible to the sequence of global crises experienced this century. Such a global crisis was the emergence of the Covid-19 pandemic and the subsequent world lockdown in 2020. When distance education in higher education was beginning to learn to swim in the river of the fourth industrial revolution (4IR), the pandemic struck. As Shoba (2020) bluntly put it, “higher education was battered by the Covid-19 pandemic” (para. 1). While each DE institution experienced Covid-19 related challenges, institutions worldwide suspended contact teaching, and the provision of online distance education was seen as the best solution, confirming and highlighting the urgent need for digital competencies in higher education and distance education.

We have entered an era where all faculty need to have a skill level with online teaching and learning. Hicks (2014, p. 267) warns of the urgent need to “ensure that all faculty are adequately prepared, motivated, and supported to carry out all aspects of academic practice, including those that take place online or at a distance”. Developing institutional digital competencies is no longer optional. However, it is core to the university learning environment, and this “raises the immediate question of how to best support faculty in both online and blended learning contexts” (Hicks, 2014, p. 267). In 2013, the Department of Higher Education and Training (DHET) passed the ‘White paper for post-school education and training’, which required the higher education system in South Africa to almost double in size (DHET, 2013). However, due to capacity and other challenges, the DHET has advised the largest ODeL institution in Africa (University of South Africa, 2020a, 2020b), the only HEI fully dedicated to distance education in South Africa, to reduce the number of first-time students by 20 000 for the 2021 academic year (Magubane, 2020).

The reality of the widening digital divide in developing countries brought by technology became even wider during the Covid-19 lockdown. According to Garden (2020), e-learning inequalities “leave most students unable to participate in virtual learning scenarios or to benefit from advances in education that will prepare them for life in the real world” (para. 3), and the Covid-19 pandemic which highlighted this reality. Some of the e-learning inequalities may be attributed to cases where academics were not properly and adequately trained in using digital technologies to teach, consequently putting students at a disadvantage.

The pandemic has proven the need for relevant technical skills and knowledge of teaching with technology within all levels of education. Learning to use e-learning tools to teach may require that lecturers practice such learned skills before the actual implementation of e-learning, the idea that scholars support (Bates & Sangra, 2011; Holomisa & Dube, 2014; Salas et al., 2012;). Dwivedi et al. (2020) point out how the pandemic has forced many organisations to undergo significant transformation in a short period and how education, work and life were impacted. HEIs and ODEIs learned during this pandemic that those who had some knowledge and skills in using educational technology in teaching were much better prepared for this unprecedented time of our lives (Ferrel & Ryan, 2020; Iyer et al., 2020; Upoalkpajor & Upoalkpajor, 2020).

Dwivedi et al. (2020) argue that the key lessons of the pandemic for decision-makers is to ensure that they have the ability to harness the power of technology to learn and to be better prepared for future waves of the virus and other crises with a similar impact on education. Dwivedi et al. (2020) argue that no country was prepared to handle something like the

Coronavirus (Covid-19) pandemic, not even developed countries, and thus many educational institutions were also not prepared for such a disruption, yet the resulting lockdown throughout the world has highlighted the important role and dependence of education on ICTs. Thus, to mitigate such a challenge, institutions need to ensure that the future professional development of faculty for e-learning environments in higher education and distance education is securely in place.

### **3.6.5 The future of professional development of faculty in e-learning environments in higher education**

The dialogue around the future of technology in education and the subsequent professional development trajectory has been in existence for decades. Sutherland (2018) reported that the legacy of academic development traces back to the late 1960s. Few believed that professional development in higher education was still regarded as a young and emerging discipline (Hicks, 2014; Makura & Toni, 2014), and digital transformation of education such as e-learning has burgeoned the need to continue this dialogue. Kozma (2000) argued that research in educational technology and development needs to “shift in focus from the design of instruction to the design of learning environments” (p. 13), and this is true even for today’s lecturers. Bates and Poole (2003) also point out that teaching with technology is about serving learners and not about using technology. However, those who teach using technology must learn how to effectively use the tools for the optimum benefit of the learners.

The emergence of the pandemic and its effect on education systems had shifted the education fraternity towards the e-learning modes of education delivery. New technologies enable learners to learn better and faster, “more effectively, efficiently, flexibly and comfortably (Zhu et al., 2016, p. 1). Research shows that more people have access to smartphones and other digital gadgets used to access digital resources from the Internet through wireless networks (Mayisela, 2013; Silver et al., 2019). Teaching in these environments requires matching skills and knowledge sets that bring a different understanding of new roles and expectations of lecturers in open distance and higher education. This also requires that lecturers move from merely replacing technology tools to a more intentional and comprehensive understanding of the impact of various technology tools on the delivery of education in e-learning spaces.

According to Conole (2014, p. 217), technology has been in intense use in education for over forty years. Tynan and Lee (2009) argue that the application of technologies in higher education teaching is a fast-moving and changing area of practice. Hicks (2014, p. 269) further argues that technologies are quickly outdated as new technologies are introduced, especially

e-learning tools (Brenton, 2008, p. 97). Zhu et al. (2016) introduced smart education, which emphasises the ideology for pursuing better education “which addresses the needs for smart pedagogies as a methodological issue and smart learning environments as a technological issue” (p. 6). They further argue that smart education’s typical goal is to advance the educational goals that promote smart learning. Smart education pulls together technologies and pedagogies to design effective learning experiences that ultimately produce smart learners through smart teaching.

The challenges in HE and DE should be seen as the opportunity to upgrade the knowledge and technical skills and find new ways of presenting and delivering education. Morus (2019, pp. 21-22) point out that the future must be “imagined as different from the present”, and proper care is taken to prepare for the future. The need for faculty professional development is well documented in the literature. Hicks’s (2014) scoping review of the literature published between 2009 and 2014 on professional development and faculty support revealed that “faculty need more assistance in their use of technologies in teaching” (p. 269), more now with the pandemic forcing HE institutions to teach off-campus. On the other hand, Hicks (2014) revealed that students want more online learning components that provide flexibility and autonomy in their knowledge acquisition.

Zawacki-Richter’s (2009) Delphi study found that professional development and faculty support were most frequently mentioned as being of high importance in distance education research. Bolander et al. (2020) identified academic development as one of the topics with continuing relevance. Although vigorously debated for decades, there is an undeniable relationship between teaching and technology, affecting how faculty teach and students learn. The technology used in teaching requires explicit development of specific knowledge and skillsets to teach online. However, less than seven years ago, the professional development of faculty was still regarded as a new phenomenon (Hicks, 2014). This raises a significant question of how embedded faculty professional development is in the policy and culture of higher education institutions and how often a higher educational institution should conduct digital skills audits and skills-gap audits to sustainably continue offering quality online education.

Despite the growing literature on educational technology and faculty professional development, Hicks (2014, p. 273) observed that there seems to be limited large-scale research on professional development and faculty support for online distance education and that most studies are based on institutional case studies. She argues that most of the studies are descriptive in nature and only reflects the experience of individual authors, and not based

on any large-scale empirical studies. There seems to be difficulty in demonstrating the impact of professional development in teaching and learning, as observed by Hicks (2014, p. 271), and the lack of empirical studies on evidence in professional development.

Baran and Correia (2014) recognise that successful online teaching in higher education results from the interaction of support activities at the teaching, community, and organisation levels. Frick and Kapp (2009) question whether the professional development of academics should be compulsory in developing countries. Technology adds new levels of complexity and requires new knowledge and skillsets for academic teaching and other professions (Bates & Sangra, 2011, p. 190). For technology to be successful, faculty need to be given proper training. Bates and Sangra (2011) strongly recommend compulsory training, which aligns with Cresswell et al. (2013), who believe that there may be a need for compulsory and voluntary training and point out that some individuals may need more training than others. Online learning technologies and platforms also make it easier for lecturers to complete training anytime and anywhere and continuously upgrade their knowledge and skills. At the same time, they simultaneously continue with their daily teaching activities.

Wall (2013) warns that critical to sustaining higher educational institutions are efficient and skilful staff and progressive and dynamic institutions committed to developing their academics and providing organisational learning opportunities. The need to educate the masses and produce graduates ready and well-equipped to fully and competently participate in growing their countries' economies and alleviating poverty and other important issues requires a hand-in-glove approach between the institutions and their academic staff. The students deserve better services, quality higher education and appropriate support during their learning journeys. This is the responsibility of both the institution and the academics. It is thus compelling for higher education institutions to train and prepare their academic workforce in adopting technology as a necessity for teaching, engaging and supporting 21<sup>st</sup> Century learners. Academic professional development policy also needs to vigorously work with e-learning policy and other institutional policies to address lecturers' needs and support strategies in higher education institutions.

The international collaboration between HEIs for capacity building has also become a prominent trend for APD in higher education (Van den Berg et al., 2016), especially in developing countries. Guri-Rosenblit (2014) recommends inter-institutional and inter-regional collaborations and argues that successful partnerships create "synergetic strengths" (p. 120). The discussion on the impact of technology on higher education and the impact of a global pandemic such as Covid-19 has shown that much work still needs to be done in the

professional development of lecturers. The e-learning readiness of lecturers in higher education and distance education is important, as discussed below.

### **3.7 E-LEARNING READINESS IN HIGHER EDUCATION AND DISTANCE EDUCATION**

Many reasons have been given for the adoption of e-learning in HEIs, such as institutional performance and competitive advantage, but the major reason to implement e-learning is to meet the needs of the university's primary clients – the students. Bagarukayo and Kalema (2015) warn that digital natives engrossed with technology may not subscribe to traditional teaching and learning methods. Therefore, e-learning is the way forward for today's universities. Digital upskilling of key teaching staff is necessary to meet these learners' needs, meaningfully engage them, and appropriately support them through their learning journey. Those who teach the current and future generations of the workforce must be ready to use available, current and relevant technology tools of the trade.

Preparing the workforce for the change-in-work and emerging new roles is one of the most important key success factors for e-learning innovation. Scholars believe the successful implementation of the e-learning initiative is dependent on the four key factors, which include information communication technology (ICT), infrastructure and leadership, support and training initiatives and the teachers' ICT capacity (Broadley, 2007). There is a resounding agreement that the limited expertise of staff members in institutions of higher education poses a challenge to online learning (Adiyarta et al., 2018; Oye et al., 2012, Modise, 2016; Salas et al., 2012;) and that working online requires a new set of skills and a new way of thinking (Conole & Alevizou, 2010, p. 23).

For this research, e-learning readiness (ELR) is defined as an organisation's mental or physical readiness with the relevant and available technological and digital skills and knowledge for a meaningful e-learning experience, a definition adapted from Borotis and Poulymenakou (2004). As indicated in Chapter 1 (Section 1.12), this definition is in line with the argument that a holistic approach is needed to academic professional development and the preparation of lecturers for e-learning. The lecturers' technological and digital skills and knowledge may not mean much if they are not relevant and available for use. Similarly, accepting and adopting new e-learning technology may depend on the skill sets available and the training is given to the teaching staff.

The academic research literature on e-learning readiness or preparedness often focuses on macro factors such as the financial, business and information communications technology (ICT), infrastructure, institutional strategy and organisational culture, but not so much on the immediate training needs of the academic staff (Adiyarta et al., 2018; Borotis et al., 2008). Most e-learning readiness models studied focused on several institutional factors, not devoting much attention to e-learning readiness and academic staff training.

In their study, Adiyarta et al. (2018, p. 241), using the 13-factor e-learning readiness model, found that the “three readiness factors that needed a lot of work” included human resource, technology skill and content. This assertion is in line with Mishra and Koehler’s (2006) TPACK framework (Section 2.3) in that it addresses the key sets of knowledge (technology and content) necessary for successful teaching and supporting students in higher education.

Mosa et al. (2016) highlighted this trend by comparing the factors related to e-learning readiness, illustrated in Table 3.1. Pedagogy, training and human resources factors were not regarded as key to e-learning readiness, as Azimi (2013) reported, who found that 54.8% of heads of departments indicated that they had no plans to train their staff and faculty members on new technological skills required for the future. Azimi (2013) and Mosa et al. (2016) emphasise the need for understanding users' readiness as paramount to the success of any e-learning programme.

**Table 3.1**

*Comparison of factors related to e-learning readiness*

Author(s) Components /Factors	Darab & Montazer (2011)	Akaslan & Law (2011)	Keramati et al. (2011)	Omoda-Onyait & Lubega Alshaher (2013)	Alshaher (2013)	Engholm & McLean (2001)	Lopes (2007)	Chapnick (2000)	Psycharis (2005)	Aydin & Tasci (2005)	Total	Frequency
<i>Technology</i>	√	√	√	√	√	√	√	√	√	√	10	1
<i>Learners</i>	√	√	√	√	√	√	√	√	√	√	8	2
<i>Content</i>	√	√	√	√	√	√	√	√	√	√	6	3
<i>Resources</i>	√	√	√	√	√	√	√	√	√	√	6	3
<i>Social and cultural Awareness</i>	√	√	√	√	√	√	√	√	√	√	5	4
<i>Equipment</i>	√	√	√	√	√	√	√	√	√	√	5	4
<i>Management</i>	√	√	√	√	√	√	√	√	√	√	4	5
<i>Standards</i>	√	√	√	√	√	√	√	√	√	√	3	6
<i>Institution</i>	√	√	√	√	√	√	√	√	√	√	3	6
<i>Acceptance of e-learning</i>	√	√	√	√	√	√	√	√	√	√	3	6
<i>Pedagogy</i>	√	√	√	√	√	√	√	√	√	√	2	7
<i>Human resources</i>	√	√	√	√	√	√	√	√	√	√	2	7
<i>Financial</i>	√	√	√	√	√	√	√	√	√	√	2	7
<i>Security</i>	√	√	√	√	√	√	√	√	√	√	1	8
<i>Laws and Regulations</i>	√	√	√	√	√	√	√	√	√	√	1	8
<i>Training procedure</i>	√	√	√	√	√	√	√	√	√	√	1	8

Note. Adopted from Mosa et al., 2016

A key question raised in literature is when the teaching staff should be trained and prepared for an e-learning innovation. The pandemic has highlighted this very question related to everyone, especially higher education and distance education institutions in developing countries. According to Dwivedi et al. (2020, p. 15), HEIs should investigate lecturers' current and anticipated future preparedness levels. Adiyarta et al. (2018) and Janssen et al. (2013) warn that it is incumbent for institutions to evaluate their e-learning readiness as early as the analysis stage, during which an evaluation takes place to determine what requires more attention and also to determine the level or possibility of achievement of the e-learning initiative. Although having the technology and money to adopt an e-learning programme is an institutional advantage, it takes more than these two equally important elements for the new e-learning system to succeed.

E-learning readiness entails a complex, integrated, inclusive, and continuous process of identifying the underlying factors likely to negatively impact the deployment of e-learning, as Holomisa and Dube (2014) argued. Coopasami et al. (2017, p. 305) posited that an e-learning readiness assessment at the beginning would help stakeholders to develop the required skill sets necessary for efficiency in an e-learning environment rather than lecturers resisting new methods and technology tools. The pre-intervention assessment of e-learning readiness will identify, among other things, the skill sets that the institution possesses and those that require attention prior to implementation and later evaluate the impact of e-learning innovation on teaching and learning.

E-learning programmes that are haphazardly implemented without proper training of the teaching staff may fail to achieve a meaningful learning experience because online education facilitators such as lecturers, teaching assistants and e-tutors may not be adequately equipped with the required skills and know-how to close the communication gap in distance education (Moore, 1993). The e-learning readiness exercise assists in identifying such factors and allowing an institution an opportunity to deal with them before fully implementing e-learning. An audit of this nature may be done by using the available and tested tools such as e-learning readiness models (Adiyarta et al., 2018; Cresswell et al., 2013; Engelbrecht, 2003), strengths, weaknesses, opportunities and threats (SWOT) analysis (Gürel & Tat, 2017) and other relevant tools. Raphael and Mtebe (2016) also reported that follow-up support after a training intervention is fundamental to instructors to allow them to practise using new tools.

Studies indicate that students are engaged by technology as a teaching tool only when the teacher is proficient and enthusiastic about its use (Barron et al., 2003; Mukhari, 2016). Unfortunately, many institutions do not achieve success in the e-learning education system (Adiyarta et al., 2018; Borotis et al., 2008), with some e-learning initiatives failing because institutions and their constituencies were not ready for the e-learning experience (Aydin & Tasci, 2005; Borotis & Poulymenakou, 2004; Ncube et al., 2014).

Mokgalane (2020) reports that the Professional Development Manager at the South African Council for Educators (SACE) raised concerns about teachers in South Africa who are not currently being trained to deal with future skills and teach learners about these skills. If the lecturers, entrusted with the training of school teachers, are not well equipped with the relevant skills needed in the future, how can they transfer the skills they do not possess to the learners? Gani (2018, p. 59) argues that e-skilling of the nation is important as it will assist the country in becoming a global competitor as well as improve prosperity for all. Higher education

institutions are recognised as one of the vehicles for training and up-skilling the nation by integrating ICTs for online learning in their offerings. This highlights that universities must begin to critically engage with ways to integrate ICT so that students become fully prepared for the workplace with relevant knowledge and digital skillsets.

Rudenstine et al. (2018) report that trends show an expectation that universities should meet students 'where they are at'. To do this requires that lecturers know how to use the relevant technology tools to communicate, engage and facilitate the students' learning on online platforms. Many argue that the success of a digital transformation requires strategic institutional leadership (Bates & Sangra, 2011; Gibbs, 2013) and the e-learning policy (Parchoma, 2006) that will drive the transition with foresight and excellence. Although academic development should be a partnership between the institution and academics, some believe that institutional leadership (Stensaker et al., 2017) is responsible for driving e-learning policy in higher education and distance education in the face of e-learning implementation, as discussed below.

### **3.8 INSTITUTIONAL LEADERSHIP AND E-LEARNING POLICY IN HIGHER EDUCATION AND DISTANCE EDUCATION**

While the new information and communication technologies that connect us in a globalised world have their advantages and attractiveness, the problems of education are always more complex than solutions provided by technology alone. There is an outcry by many authors about the haphazard and random manner that which online teaching and learning have been introduced in many colleges and universities (Paul, 2014, p 178). Paul argues that many of the world's largest universities have undergone significant changes to their primary distance education technology in recent years and face many challenges, not denying that "developing countries face additional challenges" (Conole, 2014, p. 230). Therefore, it is vital to discuss how institutional leadership and e-learning policy in an African context affect e-learning implementation in HE and ODE.

#### **3.8.1 The role of Institutional leadership in the successful implementation of e-learning**

Those seeking to integrate technology into any form in post-secondary institutions should look for lessons learnt in specific studies in ODE from those who have walked the journey. One of the purposes of this research is to report lessons learnt from African large-scale ODE institutions' e-learning journeys and experiences. Paul (2014) points out that much value may

also be found in the broader literature on change management and academic culture. It is also important that institutions honestly record and report their case-based learning journeys. Reported misalignment between institutional direction and units regarding APD in universities, as Frick and Kapp (2009, p. 265) pointed out, may be due to a lack of direction from the institutional leadership and a lack of clear vision of the role and function of APD within their institutions.

Paul (2014) argues that the “attitudes, knowledge, and support of chairs, deans, and provosts are critical” (p. 183) in managing and leading e-learning innovation and implementation projects. Strong leadership is important in bringing about the necessary changes and support for an effective online learning strategy. Management of change, particularly leadership in distance education and strategy, was among the considerable gaps that needed attention, according to a study by Zawacki-Richter (2009). The technological change, pace and complexity increasingly demand that leaders know and understand the most recent technologies. Portugal (2006) emphasises the need for leaders in distance learning to be aware of the relevant research and that they too need to develop a variety of skills across all facets of distance education. Tait (2008) reiterates that leadership development in distance education is necessary, particularly as the leadership of higher educational institutions has become intensive and complex in recent years with constantly changing data and information, which makes decision-making difficult. It is important to acknowledge that senior management needs all the help it can get, as Paul (2014) argued. He further suggests that HE and DE institutional leaders need a research-oriented approach to the management and organisation of online and distance learning.

Tony Bates and Albert Sangra (Paul, 2014, p. 179) wrote a book entitled *Managing technology in higher education: Strategies for transforming teaching and learning*, a book based on empirical studies of e-learning practice in over 20 universities worldwide and in-depth case studies of 11 universities and colleges, highlighted that the major challenges facing academic change are cultural, not technological. This notion is supported by many studies, such as Islam et al. (2015), Latchem (2005), Paul (2011) and Schein (2010).

The technology that connects us is not culturally neutral (Gunawardena, 2014). Thus, it is incumbent for institutions in developing countries to understand and identify the point where technology and culture meet and use this to manage relevant techno-cultural issues. Gunawardena (2014) warns that the promise of a global e-learning system can only be realised by better understanding the views of learning in different cultural contexts. Therefore, in order to provide quality education to diverse audiences, distance educators should be

sensitive to hegemonic perspectives, “the imposition of cultural values and practices” (Latchem, 2005, p. 189), educational differences, and the social, cultural and language assumptions embedded in courses. Africa HEIs leaders need to redefine what e-learning means to them and what possible best ways exist to tackle the challenges faced by Africa and other developing countries, including how best to manage and lead context-specific e-learning technology innovations.

Masalela (2011, p. 1) reported that, unfortunately, “due to a top-bottom approach, a lack of a comprehensive institutional strategy based on a shared vision; the absence of a situational analysis of the environment to assess the viability of the project in terms of resources; facilitator attitudes and user preparedness”, the e-learning project pilot failed. In her study, Masalela (2011) recommended the LASO (the leadership, academic and student ownership and readiness) model, which integrates top-bottom and bottom-up initiatives with leadership incorporated with academics. She further recommended that the transition to online learning be done meticulously planned and gradual, as has been the trend in many HEIs in Africa (eLearning Africa, 2008; Masalela, 2011; Thurab-Nkhosi et al., 2005). This gradual approach has been observed in various HEIs, both in distance education and traditional contact-based institutions. Most institutions have begun the e-learning project through piloting and a blended learning approach and gradually progressing to fully e-learning systems and offering online programmes and courses. Although the pandemic and subsequent lockdown of the global village (see Section 3.6.4) has caught the world off-guard, the e-learning education system still needs to be implemented strategically with all the parts ready to go, including the well-trained parts and well-prepared lecturers.

### **3.8.2 E-learning policy in higher education and distance education**

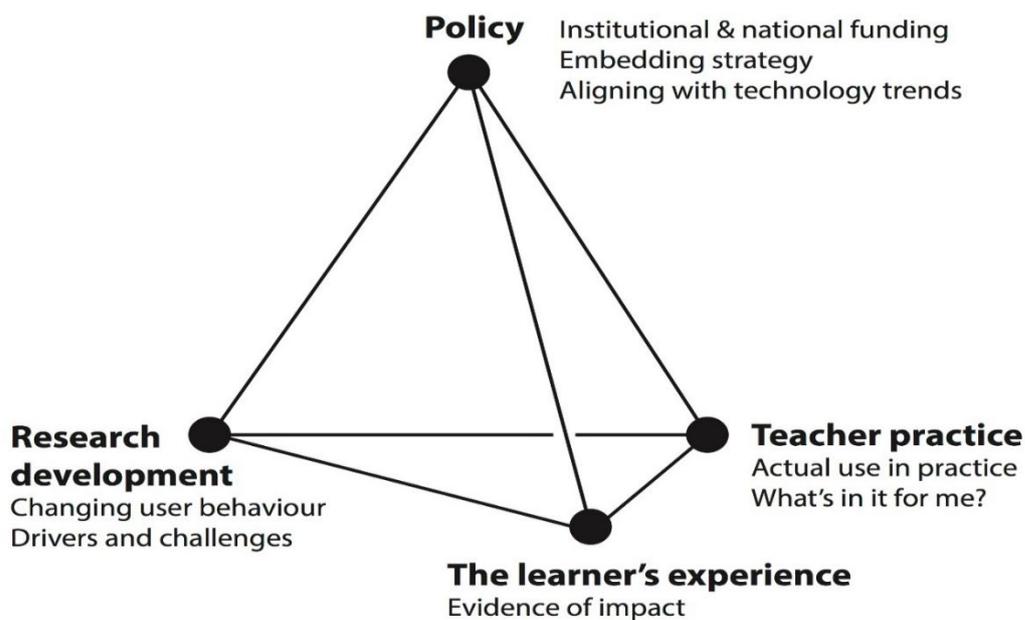
With the constantly emerging technologies that directly affect how teaching and learning unfold in HE and DE environments, various inevitable changes have emerged, including the development and implementation of e-learning policy and other teaching and learning policies. Keaster (2005) reported that several changes in policies and processes need to take place in order to adapt to the new reality. E-learning is still in its early adoption and implementation stages in developing countries. Institutions face different challenges in the implementation, which are quite different from the developed countries (Bhuasiri et al., 2012; Nawaz, 2012). Even though many developing countries are eager to implement the e-learning paradigm (Grönlund & Islam, 2010), they experience different issues such as resources, infrastructure, internet access, support from the institution, personal characteristics as well as culture and

policy, which challenge the promotion of e-learning paradigm (Bhuasiri et al., 2012; Farid et al., 2015; Nawaz, 2012).

Embedded in teacher practice is the need and ability to continuously sharpen the teaching craft using the available technologies. E-learning research should be conceptualised to address the integration of HE and DE technologies with relevant policy guidance. Conole (2014) argues that evident in practice are several shifts; however, it does not help HEI and ODEIs to play blind to the key role that policy plays in integrating technology in teaching and learning. Pachler and Daly (2011) argue that there is a need to integrate research, policy, and practice better in HE and DE, which aligns with Conole (2014), who suggests that a technology intervention framework can be applied in integrating policy, research and practice, and to promote and foster the uptake of OERs (Figure 3.6).

**Figure 3.6**

*A framework for policy intervention*



*Note.* Adopted from Conole, 2014.

When an institution decides to implement a new system like e-learning, it becomes imperative that the leadership takes the lead in APD activities to bring the institutional workforce skill set in line with the new e-learning strategy. This may require a robust e-learning policy that leads and effectively guides the e-learning innovation implementation. One of the major factors affecting the success of technology integration in HEIs and ODE is the lack of clear goals and

plans. According to Bates and Sangra (2011, p. xx), many HEI institutions they studied had no institutional plan and no clear and measurable goals for learning technologies.

Patel and McCarthy (2002) warn that e-business does not just happen - a vision is a vehicle that transports the e-business to its destination. Bagarukayo and Kalema (2015) suggest that institutional leadership, policy and awareness programmes are needed to encourage use of technology to improve institutional policy and delivery performance at HEIs. What makes it difficult to develop an e-learning policy is the lack of a generally accepted definition of e-learning. Many variations of the term's spelling and other synonyms bring more confusion and disconnection on this matter (Brown et al., 2007, p. 78). For example, in some cases, blended learning is confused with the concept of e-learning, which may badly affect the proper setup of an effective policy framework.

Patel and McCarthy (2020) warn that an effective e-business vision cannot exist without a clear definition of scope (size, shape or function). The clear definition of scope is the role of policy in implementing a new business model such as e-learning. In education, this scope will inevitably include a policy that guides and drives the implementation of an e-learning function and the strategy to equip the workforce with the necessary skill sets needed to successfully embark on the new operational strategy. Czerniewicz and Brown's (2009) study revealed the crucial need for a balanced relationship between institutional policy, organisational culture, and e-learning.

The governmental policies in South Africa and other developing countries are charging higher education institutions with a mandate to make ICTs part of their architecture by engaging in online teaching and learning. If students are to meet the demands of the digitally globalised world in which we live, they will have to possess the necessary relevant knowledge and skills. Institutions of higher education, including distance education institutions in developing countries, must therefore begin to leverage the affordances of ICTs meaningfully to engage in online learning (Gani, 2018, p. 60), backed by strong governmental and institutional leadership and effective, equitable e-learning policy.

### **3.9 CONCLUSION**

The literature review looked at major trends of digital transformation in distance education and higher education in this chapter. It noted that most governments from developing countries are implementing e-learning as part of their strategy for digital transformation to combat socio-economic challenges. However, most of these e-learning projects seem to either take too long

to be fulfilled or fail, as discussed in the chapter, which highlighted key factors that cause ODE institutions' e-learning implementation to fail.

This chapter also discussed the interrelationship between key concepts in this study - academic development and support, preparation of academics for digital transformation, specifically e-learning, e-learning readiness of lecturers, and the subsequent successful implementation of e-learning technology in higher education and distance education. Although lack of agreement on a definition makes it difficult to fully appreciate the impact and important role of faculty development in higher education, research shows that the field of academic development and support is recognised by many as important and urgent. The diverse contexts within which academic development and support are rendered make the situation more complex. However, the idea of embracing diversity and of sharing lessons learnt by other institutions, albeit from diverse contexts, is still important.

The next chapter provides an in-depth presentation of the research methodology, highlighting the research paradigm underpinning the study and outlining the research methods and instruments used to collect, analyse and interpret data in this study.

## CHAPTER 4

### RESEARCH METHODOLOGY

*“Every discourse, even a poetic or oracular sentence, carries with it a system of rules for producing analogous things and thus an outline of methodology.” Jacques Derrida*

#### 4.1 INTRODUCTION

Chapter 4 reports on the research design and methodology for the empirical research activities undertaken and describes the attributes of the environment within which this research was undertaken. The research process introduced in Chapter 1 is further explained in detail, with the rationale given for each chosen set of actions. The discussion in this chapter helps shed light on how the data were ethically collected and processed to fully and correctly address the study’s research problem, its aims, and given objectives.

#### 4.2 RATIONALE FOR EMPIRICAL RESEARCH

Curiosity about others and the world in which we live has led to research, which according to O'Donoghue (2019, p. 18), is “an ancient and ubiquitous activity”. This curiosity has led to interesting discoveries in life through conversations and asking questions, such as technology. Technology and the Internet have played a major role in DE in developing and developed countries (Cleveland-Innes & Garrison, 2010). However, as discussed in the preceding chapters (Chapter 1 and Chapter 3), the reported failure rate of e-learning projects in HE and DE in developing countries is concerning and has led to inquiries and questions being asked to identify challenges and solutions. Research also shows that years after an e-learning system has been implemented, many lecturers are still not using technology to teach (Masalela, 2011; Moakofhi et al., 2017). This trend has been particularly prevalent in African HEIs. Furthermore, with inadequate resources, HEIs in Africa and other developing countries face challenges in successfully implementing technological education systems such as e-learning and fully reaping their benefits.

As discussed in Chapter 2 (Section 2.2.4), the majority of TAMs often make use of students to explore technology skills and technology adoption of academics (Abayomi et al., 2016; Mosunmola et al., 2018) sometimes corporate data are used to assess HEI academics performance and technology skill mastery or to inform e-learning practice (Borotis & Poulymenakou, 2004). However, few researchers have explored these three elements (that

is, academic professional development, e-learning readiness and technology adoption) from the larger-scale ODeL academics' perspective, especially in Africa. It is postulated by Abrami et al. (2011) that research which focuses on DE and online learning would be beneficial in advancing theory and practice. Therefore, research that pays specific attention to finding effective ways of preparing lecturers for e-learning innovation in the African HE and developing countries' context is beneficial, especially now with the Covid-19 pandemic demanding that most educational institutions offer education online.

Given the challenges and opportunities discussed above, specifically, the failure related to e-learning implementation projects in an African HE context, as discussed in Chapters 1 and 3, requires further investigating and reporting. Research that specifically records the lessons learnt from other institutions and highlights both failures and successes is particularly significant in mitigating further failure of e-learning projects in HE and DE. Formplus (2021, para. 1) points out that the “bulk of human decision relies on verifiable evidence”, with empirical research as that which “relies solely on evidence obtained through observation or scientific data collection methods” (para. 3). This study involved collecting primary data using interviews, which are widely used in qualitative research (Jamshed, 2014) (Section 1.8). Secondary data were also collected using a systematic review, described by Hoffecker (2020, p. 252) as “a special type of review with a formal procedure that ensures orderly and unbiased assessment of the evidence” and document analysis of specific policies from the two case studies in this research (see Sections 4.5.4).

The empirical research aided to answer the research question “*How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?*” together with the following sub-questions as presented in Chapter 1 (see Section 1.5):

- Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?
- How prepared are lecturers for online teaching/e-learning in African large-scale open and distance education (ODE) institutions?
- How are academics professionally prepared and supported for e-learning in African large-scale open and distance education (ODE) institutions?
- What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions?

Saunders et al. (2015) point out that empirical research is based on real events observed or experienced. In this case, the study focused on the experiences of the selected candidates at NOUN and UNISA and the meanings they attach to their experiences, with the aim of recording and reporting the lessons learnt and highlighting the key performance indicators in e-learning implementation for HEIs in African countries and other developing countries. Empirical research brings trustworthiness and adds value to the existing body of knowledge. Therefore, it was carried out to extract primary data and secondary data, as explained in the next sections.

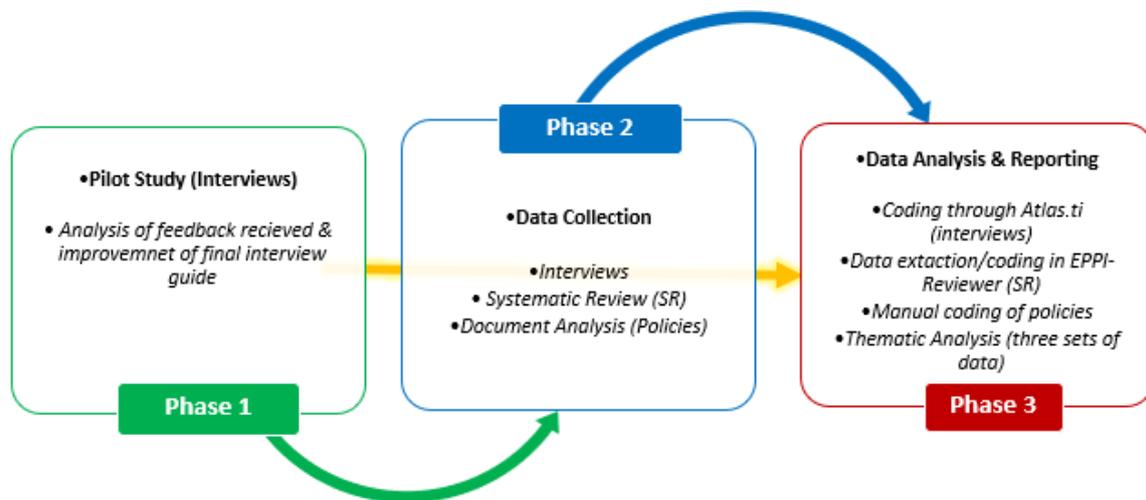
### **4.3 RESEARCH DESIGN**

The research design refers to the overall strategy and details how the different components of the study are integrated coherently and logically, thereby ensuring that the evidence obtained is effective in answering the research questions as unambiguously as possible (De Vaus, 2006). The research design establishes the decision-making processes, conceptual structure of investigation, and analysis methods used to address the central research problem of the study (Creswell & Creswell, 2018). According to Yin (1989, p. 29), a research design is concerned with “a logical problem and not a logistical problem”. This means that planning in qualitative research, including choice of research methods, sampling and analysis, is about what evidence is needed to answer the research question or address the research problem.

While research methods are modes of data collection and analysis, the research design is a logical structure of an inquiry (Mbilinyi & Mwabungulu, 2020). Research design informs researchers on what data is relevant to answer the identified research question. In contrast, research methods describe how data are collected and analysed to answer the research question effectively. This section presents the relevant research design, type, and strategy, including the paradigm and approaches that influenced the way data were collected and synthesised in this research.

**Figure 4.1**

*Contextualising the data collection and analysis processes*



*Note.* Author's graphic

As depicted in Figure 4.1, the research process followed a non-linear approach:

- **Phase 1:** Pilot study, which involved testing and improving the interview schedule,
- **Phase 2:** Collection of data involving three methods. The primary data was collected using semi-structured interviews, and the secondary data was collected using Systematic review and document analysis. The process between interviews and systematic review was conducted iteratively and concurrently (See Section 5.1)
- **Phase 3:** Analysis of the three data sets, which included various forms of coding and thematic analysis. The research process then ended with reporting research findings from each set of data.

The yellow arrow in the process represents the continuous review of the literature and theoretical frameworks that continuously guided this study. The arrow also represents the interconnectedness and interdependency of all the phases and steps taken in this research. The detailed research process is presented in the discussions that follow in this chapter (Sections 4.4, 4.5 and 4.6).

### **4.3.1 Research Paradigm**

A research paradigm defines how a researcher thinks about his/her research, and it is critically important that it is clarified from the beginning of the research. The term research paradigm was defined in Chapter 1 (Section 1.7.1) as a worldview (Neuman, 2000) or the “perspective,

or thinking, or school of thought, or set of shared beliefs, that informs the meaning or interpretation of research data” (Kivunja & Kuyini, 2017, p. 26). Social research is often guided by certain assumptions or beliefs concerning the world that influence the action for research.

The research paradigm rests on philosophical dimensions and assumptions such as ontology (the nature of reality or truth), epistemology (the understanding of the nature of knowledge and how it may be known), axiology (the intent, ethics and values of the researcher) and methodology (the way information is obtained), as outlined by Ling (2017, p. 19). Various worldviews support specific types of research strategies: positivism, post-positivism, constructivism, interpretivism, advocacy/participatory, feminism, critical inquiry, postmodernism, and pragmatism (Cohen et al., 2017; Creswell & Creswell, 2018).

This study is grounded in an interpretivist research paradigm. Other paradigms were found not suitable for this research. For example, positivism as a paradigm views “experimentation, observation and reason based on experience” as the only basis for understanding human behaviour and “the only legitimate means of extending knowledge and human understanding” (Kivunja & Kuyini, 2017, p. 30). Alghamdi (2015) asserts that the positivist paradigm is aligned with quantitative methods of enquiry. On the other hand, the critical inquiry paradigm, sometimes referred to as the transformative paradigm (Kivunja & Kuyini, 2017), positions its research on social justice issues to address the political, social, and economic issues. These paradigms were not well suited to help understand the e-learning preparedness of academics in higher education within the open and distance e-learning contexts.

The interpretivist paradigm was chosen for this study to guide the researcher to objectively engage the participants and collect, analyse, and present data trustworthy. However, the interpretivist research paradigm is typically seen as a perspective suited to qualitative research (Creswell & Creswell, 2017) or the interpretivist paradigm (Kivunja & Kuyini, 2017). This paradigm helps the researcher to understand and interpret what the participants are thinking and the meaning they elicit from their real-life experiences - it is about the participants’ viewpoints and not that of the researcher.

This philosophy is also appropriately suited for the multiple case study using data collection methods such as a configurative systematic review, interviews, and document analysis (Chilisa & Kawulich, 2012). As mentioned in Chapter 1, this philosophical approach allows adequate interaction with the subject matter as experienced in its natural setting (De Vos et al., 2011). Creswell & Creswell (2017) state that an interpretivist approach aims to understand and describe the meaningful social action in a dialogic discourse, which cannot be achieved

through the other paradigms. Within an interpretivist paradigm, Kumar and Sareen (2011) explain that “a phenomenon is studied through the meaning people assign to it and in the context in which such phenomenon is studied” (p. 94). Therefore, in this study, interpretivist research aimed to understand the approach employed in the preparation of academics in the context of large-scale open and distance education institutions in Africa and to objectively report on the lessons learnt from these cases.

#### ***4.3.1.1 The ontological, axiological and epistemological assumptions***

The philosophical commitments behind ontology involve theories about the nature of reality and in what form it exist (Aliyu et al., 2015; Deane, 2018). Peck and Mummery (2017) explain that realities originate from people’s perceptions emanating from their contextual experiences. Thus the individual contextual experiences render reality relative (Guba & Lincoln, 1994, p. 110) and at times conflicting (Lincoln et al., 2011, p. 103). For this reason, qualitative researchers view reality as subjective and allow multiple interpretations of phenomena (Kamal, 2019, p. 1390). The qualitative researcher can observe or receive information on individual realities and explore them through questions and interactions with the participants. In this study, ontology influenced how the research plan was implemented, including selecting the research aim and research questions (Graue, 2016, p.6) and how I interacted with each participant.

Axiology is about “what is good or bad in life and what do we find worthy” and “incorporates ethics (theory of morality)” (Deane, 2018). Deane further explains that axiology speaks to what makes a good researcher. It is thus vital to be cognisant of what role values play in research (Wahyuni, 2012; Mahlambi, 2020). In this research, my values did not override the importance of the participants’ values; I treated each participant with respect and dignity, understanding that each unique contribution to this is valuable. The worthiness of each knowledge and reality was also taken into account based on each participants’ context, considering that this study involved participants from two different countries with different cultures and resources.

Epistemology, on the other hand, involves theories about “the relationship between the knower and what is known” (Deane, 2018) or what can be known (Aliyu et al., 2015). Within the epistemological assumptions, the qualitative researcher tries to get as close as possible to the participants to study their lived experiences in their natural contexts. However, Guba and Lincoln (1988) warn that distance or objective separateness should be observed between the researcher and the research participants. A researcher intends to extract whatever knowledge lies in each participant in their contexts using various tools and methods. In this research, to

objectively capture the participants' lived experiences and knowledge about e-learning and their preparedness for its implementation, semi-structured interviews aligned to the research questions were used.

This paradigm enabled me to understand the participants' views and lived experiences of the e-learning implementation in their respective institutions and countries. It is important to note that the same 'reality' may be experienced differently by different people in the same group and that knowledge is thus created and understood differently. For example, in this study, the assumption made is that the process of e-learning implementation can be experienced differently by different academics based on their knowledge and skills in the use of ICTs, and other contextual factors. From an interpretivist viewpoint, this helps in objectively looking at each participant's view and their constructed meaning and thus interpreting their realities in the way it was presented to the researcher. This view is the heart of ethical behaviour in qualitative research that researchers do not influence the participants' perspectives. The next section presents the research approach chosen for this study.

#### **4.3.2 Research Approach**

Social science research often starts with a research question (Panke, 2018), determining the research approach and the methodology used. Creswell and Creswell (2017) identify three research approaches, including qualitative, quantitative and mixed methods. This study followed a qualitative research approach, which Creswell and Creswell (2017, p. 4) define as an "approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem". The choice of a research approach is often determined by what the researcher wants to achieve. Qualitative research approaches use open-ended questions and are concerned with emerging themes from the data, while quantitative research approaches use closed-ended questions and are concerned with numerical representations of data (Apuke, 2017; Aspers & Corte, 2019). Qualitative research is planned around the interaction between the researcher and the participants and content/text in documents to understand and analyse how the social phenomenon is experienced and lived.

To understand the academics' professional development and e-learning preparedness in the chosen universities' contexts, I needed to interact directly with the selected participants and have a transactional dialogue. I also needed to study the selected policies to understand the understanding and approach taken by the universities under study with regard to their e-learning implementation. It was thus important to focus on the actual and real experiences of

higher education and open distance education practitioners as the e-learning implementation unfolded and was experienced (Creswell, 2014; Saunders et al., 2015).

A Configurative systematic review was conducted to build upon the knowledge from the literature used in the interpretation and discussion of the primary findings. The qualitative approach assisted in further understanding the themes that emerged in the data, analysing them accordingly and appropriately presenting the findings (Chapter 5 and 6) to reflect the participants' realities (Yin, 2011). Therefore, qualitative research made it possible to combine and use other data collection methods compatible with the research paradigm underpinning this study.

### **4.3.3 Research Type**

The research design is a “formalized approach toward problem-solving, thinking, and acquiring knowledge” (Salkind, 2010, para. 1). Research design is seen as an umbrella that includes a whole host of considerations that determine how the research questions are answered through the vigorous research process, including how “participants are selected, how data are collected and analysed, and how extraneous variability is controlled so that the overall research problem can be addressed” (Dannels, 2018, p. 402).

A research type is an appropriately chosen strategic framework that serves as a guide for a research project. Research highlights the characteristic of a case study that is intensive, in-depth exploration and systematic investigation (Heale & Twycross, 2018) from multiple perspectives of the complex and unique situation as it unfolds in its real-life context. The research process in this study involved qualitative multiple case study research, which was chosen for its ability to thoroughly interrogate the academics' professional development and e-learning preparedness, findings and reality. Many authors also support the holistic, in-depth nature of case studies to provide detailed, data-rich content (Creswell, 2012; Harling, 2012; Simons, 2009).

For example, several types of qualitative research designs, grounded theory, and a systematic procedure of data analysis that results in a theory that explains a specific phenomenon (Lambert, 2019) could be selected. Chun Tie, Birks and Francis (2019) report that grounded theory, although well-known, is a complex methodology requiring expert knowledge and application. Ethnography is another research design that is a qualitative procedure used to describe, analyse and interpret a culture's characteristics (Statistics Solutions, 2021, para. 3). In addition, there are various types of case study designs (Fàbregues & Feters, 2019);

however, this study employed a multiple-case design, choosing two cases to study within a specific African context, interacting with relevant candidates through semi-structured interviews. A case study design was deemed best suited for this study as it brings the level of flexibility and some control for the researcher on various aspects of the research process, such as what or who to focus on. A case study design was also suitable for this study due to the large size of the African context. It would be difficult and costly to study the whole continent during the period allowed for the PhD programme.

Case study as the design frame brings the uniqueness of the phenomenon under study in its completeness. This phenomenon, according to Harling (2012) and Thomas (2015), comes in different forms: a programme, an event, an activity, a problem or an individual(s). In this study, a combination of forms is investigated, such as the academic professional development in relation to implementing the e-learning approach in two ODE universities in Africa. Thomas (2015) supports the view that a case study's strength lies in its ability to provide a "form of inquiry that elevates a view of life in its complexity" (p. 3) by allowing a researcher to focus on one thing in detail. However, Heale and Twycross (2018) raise the concern that there seems to be no one definition of case study research. Yin (2012) is also concerned that case study research continues to be misunderstood. This is evident in the lack of a common definition of case study in literature. Most definitions tend to focus on the characteristics and nature of the case study. Gustafsson (2017, p. 2) defines a case study as "an intensive study about a person, a group of people or a unit, which is aimed to generalize over several units".

Hannum (2009), among others, has suggested that, although case studies were useful during the early stages of DE, their application is somewhat limited to their specific context, while Paul (2014) pointed out that the research into the organisation and management of distance learning has mostly followed institutional case study methods. This study was interested in specific HEIs with a unique key feature not held by other types of universities or HEIs, that is, their specific context of open and distance education, their location in Africa, and their large-scale size characterised by student enrolment and staff compliment and their age in existence. Therefore, the case study was relevant and appropriate for this study.

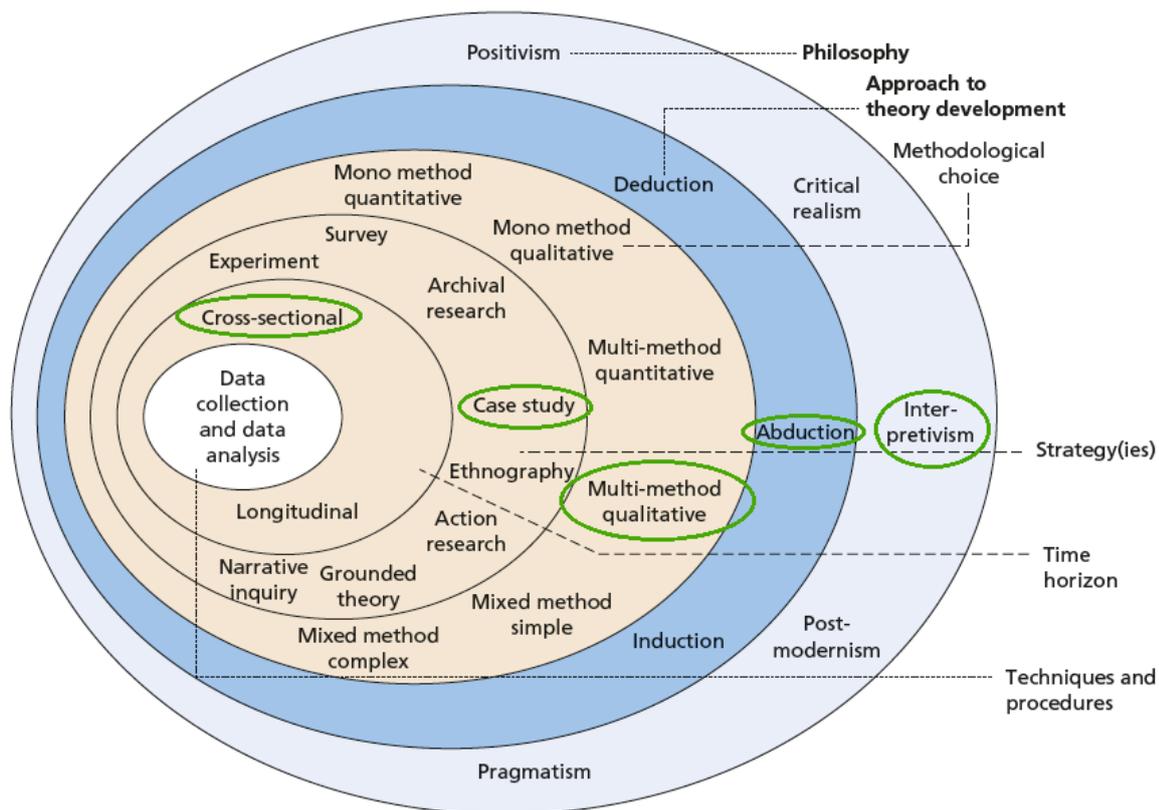
One of the reported disadvantages of case studies is their lack of generalisability (Thomas, 2015). However, Cohen et al. (2011) believe that generalisation in case studies is possible and that it can take various forms, such as "from features on one case to a multiplicity of classes with the same features" (p. 254). Although it was not the intention of this study to generalise *per se* or compare findings, the intention was to get a collective understanding of APD, e-learning readiness, and technology adoption of academics in large-scale ODL

institutions in Africa. Fàbregues and Fetters (2019) state that the major strength of multiple case designs “enable researchers to develop an in-depth description of each case and identify patterns of variation and similarity between the cases” (p. 3). Gustafsson’s (2017) case study definition also supports the thinking that one can generalise from case study research. Various research studies successfully used multiple cases study research to produce evidence-based conclusions. For example, Peterson et al. (2007) used seven cases in their study.

Saunders et al.’s (2019, p. 130) research ‘onion’, as presented in Figure 4.2, clarifies and summarises the research design and indicates how this study was paced within the qualitative social sciences research framework. My study is highlighted with green circles at each layer of the research ‘onion’.

**Figure 4.2**

*The research ‘onion’*



*Note.* Adopted from Saunders et al., 2019, p. 130.

Research also shows that case study research is compatible with many data sources (Crowe et al., 2011; Fàbregues & Fetters, 2019; Harling, 2012; Swanborn, 2010), allowing one to triangulate. That is why I was able to combine both the primary and secondary data collection methods in this study. Fàbregues & Fetters (2019, pp. 4-5) also outline ten steps for

conducting a case study (Annexure 4.1), which also helped guide the research. Various research methods were used in line with the qualitative research approach: a configurative systematic literature review, semi-structured interviews, and document analysis. Each method is discussed in detail in the sections that follow. The next section unpacks the steps taken in collecting and analysing the data.

## **4.4 RESEARCH METHODS**

### **4.4.1 Research context**

This study is situated within the higher education environment, specifically in Africa's open and distance education context. The study focuses on two of Africa's mega open universities (Tait, 2013). These universities enrol hundreds of thousands of students per year; in 2018, the University of South (UNISA) recorded around 400 000 student enrolments (UNISA, 2021) and the National Open University of Nigeria (NOUN) 515 000 student enrolments (Premium Times, 2018). Both institutions have also embarked on an e-learning innovation in response to the local socio-economic needs and demands, trends and needs of today's learners in their respective countries.

Open universities operate within unpredictable environments with many socio-economic, political, environmental and technological factors feeding into the education systems and impacting how they operate. Both NOUN and UNISA adopted virtual teaching and learning approaches (e-learning) through digital transformation. In response to local and international changes and trends, the two universities have used Information and Communication Technology (ICT) to deliver an education tailored toward local and international needs and demands. There are other mega universities in Africa, such as the Cairo University in Giza, Egypt; however, these are on-campus or residential universities and operate in different contexts, although facing similar challenges and opportunities.

This study also involved a configurative systematic review and document analysis as part of data collection and analysis. Therefore, academic databases are also a research site for this study. The selection of literature for systematic review in this study was situated within the four electronic databases - Scopus, Web of Science (WoS) and EBSCOHost and Sabinet African Journals (Sabinet) (Table 4.1). The databases were chosen based on the quality of research articles published and coverage (Boland et al., 2017) and regional research coverage. More details on the data collection process are given in Section 4.5.3.

#### **4.4.2 Selection of participants**

As indicated earlier, a multi-method approach including a configurative systematic literature review, interviews, and document analysis was used to collect data in this study. Non-probability purposive sampling, congruent with an interpretivist research philosophy, was used to select participants based on relevance (Lavrakas, 2008; Ndenje-Sichalwe & Elia, 2020). The study also involved a pilot study that followed the same sampling and data collection procedures.

##### **4.4.2.1 Purposive sampling**

Non-probability sampling methods in line with the qualitative research methodology were used to identify and select participants, purposive sampling and snowballing. Purposive sampling was used to ensure that only relevant individuals directly linked to the research questions were invited to participate in this study. The aim was to purposefully choose participants and data that fit the parameters of research questions, goals and objectives (Tracy, 2013) and choose participants with experience and knowledge of the topic under study.

As is characteristic of non-probability sampling, the researcher has no real control over how representative the sample would be concerning race, gender and personal attributes (Carl & Strydom, 2017). However, purposive sampling helped ensure that people willing to participate were given a chance to do so. An insider perspective was deemed important to fully explore and understand these experiences (Babbie & Mouton, 2012).

##### **4.4.2.2 Snowballing**

Snowballing is a technique compatible with purposive sampling used during the interviews to refine and further identify additional relevant participants to be included in the study, as suggested by Cohen et al. (2011, p.158). While I approached some people to help me identify the potential participants with relevant knowledge and experience of the e-learning project at both universities, some of the participants in the pilot study volunteered names of other possible candidates. These participants then informed the identified candidates and requested their contact details on my behalf, making it easy for me to initiate a conversation. The sample and the inclusion criteria for participants are discussed below.

#### **4.4.2.3 The sample for the interview**

The selection of participants from both universities was limited to academics and individuals involved in the implementation of e-learning and people in management. The inclusion criteria were as follows:

- Academics – lecturers exposed to online teaching and have at least one or more modules that they teach fully online or via a blended learning approach.
- Department of Tuition Support and Facilitation of Learning (DTSFL) – which comprises the regional offices, the Directorate of University Teaching and Learning (DUTLD) and the Directorate of Instructional Support and Services (DISS). The DISS consists of the Centre for Professional Development (CPD) and Tuition Support (TS), which play an important role in the induction, continuous professional training and development of staff and tutors/e-tutors and teaching assistants.
- Personnel from various levels of management of the universities and other key strategic candidates are directly involved in implementing the e-learning education delivery model.
- Any person who has participated in e-learning and digital transformation implementation tasks in the University of South Africa and the National Open University of Nigeria.

It was important to include these candidates in the study as the professional development of academics for ODE and e-Learning in the African context is the core focus of this study. It was also important to interact with management personnel to investigate and understand their perspective (Tracy, 2013) on the implementation of e-learning in their institutions. Therefore, lessons learnt may prove paramount for other higher education institutions and ODE in Africa and other developing countries.

Overall, twenty candidates were interviewed, comprising twelve from the University of South Africa (UNISA) and eight from the National Open University of Nigeria (NOUN). Since this was a qualitative research study, these numbers were adequate. The purpose was to gather in-depth data to understand how academics are prepared for e-learning within these contexts. Although biographical factors such as age, gender and race were not the key determinants of whether people would be included in the study, it was important for reporting and data analysis that I note and record these factors during the interview. Therefore, the participants were between 30 and 65, mostly with teaching experiences ranging from 3 years to more than 30 years. It was also interesting that most of the UNISA participants were female, with more male participants from NOUN.

#### 4.4.3 Selection of sources for the configurative systematic review

A configurative systematic review is one method selected for data collection and synthesis in this research study. A systematic review involves a rigorous and systematic research process of information searching (Newman & Gough, 2020). It is founded on the principle of comprehensive literature searching to identify the available quality literature with a replicable search strategy as completely as possible (Hirt et al., 2020). Systematic reviews were first formulated in the field of medicine in response to the exponential growth in medical research, whose findings proved impossible to synthesise on given topics (Ramey & Rao, 2011). They were intended to improve the process by synthesising research in a transparent and reproducible way to support evidence-based decision-making.

The selection of literature for review in this study focused on the four electronic academic databases - Scopus, Web of Science, EBSCOHost and Sabinet African Journal. Each of these platforms has many databases covering a variety of topics. One can choose only those databases and search engines relevant to the study. This study focused on databases and search engines within education, humanities, social sciences and Africa-specific databases. Table 4.1 highlights the specific databases that comprised the search used in this study.

**Table 4.1**

*Databases included in the systematic review*

DATABASES	SEARCH ENGINES/SUBJECT AREAS
Scopus	Social Sciences, Arts and Humanities, Psychology
Web of Science	SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI
EBSCOHost	Academic Search Complete, Africa-Wide Information, ERIC, Humanities Source,
Sabinet African Journals	Education, Social Sciences and Humanities African Journal Archive

- **Sabinet African Journals** was specifically included because it indexes peer-reviewed journal articles related to African content covering a wide variety of topics (Sabinet, 2021, para. 1). The focus was on African HEIs in distance education. Sabinet African Journals has the most comprehensive collection of its kind in the world with Africa-rich content (Sabinet, 2021, para. 2). Therefore, it was important and appropriate to include a database

such as Sabinet that I afforded me access to the relevant studies focusing on the African context.

- **EBSCOHost** was chosen because it also indexes the Africa-Wide Information and the Education Resources Information Centre (ERIC), an Internet-based bibliographic and full-text database of education research and information (Education Resources Information Centre, nd).
- **Scopus** is an abstracting and indexing citation database of scientific research literature and quality web sources covering over 25 751 titles. Subjects covered are from a wide variety of disciplines, for example, health sciences, social sciences, physical sciences and life sciences (Scopus, 2021, para. 1).
- **Web of Science** has multidisciplinary content from the world's most trusted global citation database (Clarivate, 2021).

These databases, kept up to date to consolidate information from several existing publications on given topics (Hong, 2018), were chosen for their credibility and breadth of coverage.

Academic databases are considered the most commonly used tool to locate literature in a systematic literature review (Rethlefsen et al., 2021). However, there is no consensus on what constitutes an acceptable number of databases to search for a systematic review (Cooper & Booth, 2018). Rethlefsen et al. (2021) further argue that there is no single database that can provide a complete, objective, unbiased selection or accurate list of all relevant literature due to the differences in coverage and indexing methods. Therefore, to maximise the likelihood of finding potentially relevant studies (Bramer & Rethlefsen, 2017), it is recommended to use comprehensive literature searches of multiple databases.

For this study, because the systematic review was paired with primary data through interviews and document analysis, the four databases were adequate to bring about an understanding of the APD, e-learning readiness and technology adoption within the HE and DE institutions in Africa and to identify as many eligible studies as possible (Lefebvre et al., 2019). Kitchenham and Charters (2007) believe that systematic reviews are time-consuming and typically take 8 to 10 months to complete. The systematic review process was done over six months in this study to develop and test the search strategy and ensure that relevant sources were included (see Table 4.4, Figure 4.3).

Although increasingly used for SR research projects, other search engines such as Google Scholar were not suitable for this research. Google Scholar reportedly selectively index

journals, omitting many publications not fitting the scope of a particular database (Stansfield et al., 2016), but it also has a poor database search strategy formulation. Other databases are not accessible due to subscription-based paywalls and therefore were not included in this study.

In addition to academic literature, grey literature, for example, websites of organisations, institutional repositories, academic social media sites, research reports, conference papers, theses, online library catalogues and internet search engines, is often included in online resources outside academic bibliographic databases (Stansfield et al., 2016). Schöpfel (2010, p. 11) defines grey literature as “document types produced on all government, academics, business and industry levels in print and electronic formats.”

A debate exists on the inclusion of grey literature in a systematic review, where some argue that the inclusion of grey literature reduces risks associated with publication bias. In contrast, others argue that it increases the bias (Mahood et al., 2014), while others believe that grey literature is inferior in quality to peer-reviewed literature (Xiao & Watson, 2019). Although Godin (2015) argues that relying exclusively on peer-reviewed literature could omit potentially relevant items, qualitative research is a subjective process in nature (Kalu, 2019; Miles et al., 2014) and is prone to bias.

As indicated in Hoffecker’s (2020) definition (see Section 4.2), to limit the element of bias and ensure the quality of data, it was important that only the databases that indexed peer-reviewed journal articles were consulted. Thorough and comprehensive literature searches minimise bias and increase rigour in identifying and synthesising the best available evidence to answer a particular question (Aromataris & Pearson, 2014). The search process is discussed in detail in Section 4.5.3.2.

#### **4.4.4 Selection of policies for the document analysis**

Bowen (2009) defines document analysis as “a systematic procedure for reviewing or evaluating documents both printed and electronic (computer-based and Internet transmitted) material” (p. 27). As explained in Chapter 1 (Section 1.8.3.3), this study included two policies that are believed to be key in driving the e-learning innovation in HE and ODeL contexts. A sample of the universities’ policy documents related to e-learning was selected and included for analysis in this study, namely:

- UNISA’s 2018 Open and Distance eLearning (ODeL) policy, and

- NOUN's 2005 Draft eLearning Strategy and Policy for National Open University of Nigeria (NOUN)

Dalglis et al. (2020) offer criteria used to guide the collection of policy documents, which they explain should be established around “(1) the topic (a particular policy, programme, narrowly defined according to the research question); (2) dates of inclusion (whether taking the long view of several decades or zooming in on a specific event or period in time); and (3) an indicative list of places to search for documents” (p. 1426). In this case, the topic and the policies' location were used as a guide to select the relevant policies, but the date was not relevant as I was interested in the latest version of the policy. Karppinen and Moe (2019) warned that the use of such documents could seem relatively straightforward; however, they argue that the “selection of relevant documents, their availability, collection and analysis” (p. 249) may present methodological problems for researchers.

The policy documents were specifically chosen for their relevance to the topic of academic professional development for e-learning, academics' e-learning readiness, and technology adoption due to the e-learning implementation within these two institutions. Although these policies refer to other policies, I only focused on the identified two policy documents because they were adequate to understand how e-learning is framed within the ODeL institutions. Bowen (2009) describes document analysis as a form of qualitative research whereby various types of documents are selected and interpreted. Document analysis was included in this study as part of triangulation to provide a convergence of evidence that produces credibility and to “reduce the impact of potential bias” (Bowen, 2009, p. 28), eminent in qualitative research.

#### **4.5 DATA COLLECTION**

Data were collected using three methods, a configurative systematic literature review, semi-structured interviews with open-ended questions and document analysis. The systematic review data gathering also took place online through academic research databases (see Sections 4.4.3 and 4.5.3.3). The six-month timeline includes tweaking and testing the search string, searching for sources online, appraising sources, data extraction and analysis as outlined in Section 4.5.3.

#### 4.5.1 The Pilot Study

Piloting is fundamental to the research process. Leon et al. (2011) argue that novel interventions or an innovative application of an intervention can be explored through a pilot study. Van Teijlingen and Hundley (2010, p. 1) define the term 'pilot studies' as “mini versions of a full-scale study” which are generally aimed at assessing the feasibility of a full-scale/major study. Van Teijlingen and Hundley (2010, p.1) highlight two main types of pilot studies used in social science used to inform the substantive study as the 1) smaller versions of studies - feasibility studies, and 2) “the pre-testing or ‘trying out’ of a particular research instrument”.

Although Thabane et al. (2010) warn that pilot studies are no guarantee that the main study will succeed, Van Teijlingen and Hundley (2010) argue that conducting a pilot study might give “advance warning about where the main research project could fail” (p. 1). Junyon In (2017) warn that for the pilot study to play its role, conditions and factors must be clearly defined and listed in advance before proceeding with the pilot study. Leon et al. (2011) also warns against pilot study data being combined with data from the larger scale study, mentioning possible data contamination. The pilot data was used in this study merely for the purpose of testing the feasibility of the interview schedule. Participants knew that this was a pilot study, for the purpose of testing and improving the research instrument. I was open and honest with this fact as seen in the email invitation to potential participants in Annexure 4.2. I also requested that the pilot study participants give thorough feedback as much as possible on the following issues:

- The length of the questions
- The clarity of questions
- The complexity of language
- The length and duration of the interview

One of the reasons for the pilot study was to ascertain whether the questions would produce the relevant data, as guided by the research questions and research aims and objectives. Some of the participants in my study were from another country, which meant consideration needed to be given to issues relating to the times zones and accent and English language proficiency. It was therefore important that I also use the opportunity in the pilot interviews to simplify the language used, and also to review my interviewing skills and build confidence in conducting interviews. The feedback from the pilot participants made it possible to objectively examine the interview schedule and update the questions where necessary.

Together with the insight and guidance from the research literature, research questions and the guidance from my supervisors, the pilot study helped by strengthening the quality of the interview instrument. For example, some questions were long and caused confusion, so these were shortened and reworded. Duplicate questions were also removed. The initial interview schedule had 24 items, but the final one was reduced to 20 items (Annexure 2.3 and 4.5). The overall design and quality of the interview schedule was therefore improved to extract relevant information from participants (Showkat & Parveen, 2017). The other important benefit of conducting a pilot study is that it was possible to conveniently and purposefully identify possible participants through snowballing, as discussed in the sampling (see Section 4.4.2). Some participants in the pilot study volunteered and suggested names of people they thought would give more valuable information, based on their experience and knowledge of the topic under study. The participants identified for the pilot study had to have the same characteristics as the target population and as indicated, qualitative non-probability sampling methods were used to identify and select potential participants.

#### **4.5.2 Semi-structured Interviews**

Showkat and Parveen (2017) define the interview as “an important qualitative research method in which the researcher collects data directly from the participants” (p. 3) and further point to its flexibility in that it can be paired with other research methods like focus groups. Kvale (1983, p. 174) lists one of the purposes of interviews as “to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomenon”. As part of the strategy to strengthen the study's trustworthiness through triangulation, interviews were paired with the configurative systematic review (see Sections 4.5 and 4.6).

Although interviews are not without disadvantages, in comparison to questionnaires, interviews were better suited for this research study. Interviews have many advantages, including reliability because they can offer anonymity and encourage honesty. Interviews can be cost-effective possibly because they can be conducted online, at the respondent's convenience. Questionnaires, on the other hand, are often completed in a hurry and tend to have a low percentage of returns, as pointed out by Cohen et al. (2017). Cohen et al. (2017) further warn that when open-ended questions are added to the questionnaires, this may weaken this data collection tool in extracting information from participants because they may not be willing to spend time with the questionnaire or give their answers, especially without encouragement from the researcher, as is the case with interviews. Questionnaires with closed items may also not be correctly completed if the respondents do not understand what

is being asked. On the other hand, interviews involve gathering data through direct verbal interaction between individuals (Cohen et al., 2017), whether face-to-face or online, and they provide the flexibility to probe (Roulston & Choi, 2018). This is also in line with the interpretivist perspective, which advocates for adequate interaction with the subject matter (De Vos et al., 2011).

The interview as a data collection tool was therefore chosen to give the researcher a certain degree of control, although with no absolute power. The researcher has opportunities during the interview to immediately attend to any misunderstandings experienced by the interviewee. Sometimes, the researcher may still have a higher chance of accessing the interviewees and further probing for clarification even after the interview. It may be not easy to have the same people answer the same question more than once with questionnaires. The data quality in this study depended heavily on the quality of the instrument used to collect the data; therefore, it was necessary to conduct a pilot study.

#### **4.5.2.1 *The process of inviting the participants***

Once the participants were identified for research interviews (see Section 4.4.2), they were contacted and formally invited via email with all the necessary information, including the participation information sheet, the envisaged duration of the interviews, ethical considerations and the consent form. The participants' email addresses were obtained following both the University of South Africa (UNISA) and the National Open University of Nigeria's (NOUN) ethical procedures. Reminders were sent a week later for those potential participants who did not respond within a week of receiving the invitation email. This procedure was followed for the actual interviews and the pilot study. Once participants indicated their willingness to participate, an electronic meeting was scheduled using Microsoft Outlook. The interviews were then scheduled via email and on Microsoft Teams and Zoom. Although I had initially planned to travel to Nigeria for face-to-face interviews, the Covid-19 pandemic required the formulation of a new strategy. Therefore online interviews were the only option for this research study.

All the UNISA interviews were conducted on Microsoft Teams, but most of the NOUN interviews took place on ZOOM. It was important to use the tools that participants had access to, were comfortable with and were able to operate. Bryman (2001, p. 321) says that "qualitative researchers are frequently interested not just in what people say but also in how they say it". Having access to the video facility in Microsoft Teams and ZOOM was important. I was able to have synchronous face-to-face interaction (although digital) with the participants

and gain the non-verbal cues that would have otherwise been difficult to attain through telephonic or e-mail interviews.

#### **4.5.2.2 Gatekeeping in qualitative research**

The issue of gatekeepers in research remains a relevant and much-debated topic, given the nature of ethical and legal issues that need to be addressed before research can occur. Gatekeeping is “an integral part of an ethical process of seeking authorisation for research” (Kay, 2019, p. 37), and it involves the process of managing and controlling access to research participants, research sites and research documents (McFadyen & Rankin, 2016). Gatekeeping could be a major issue when research is done outside the researcher’s organisation, country or any external setting that requires the involvement of gatekeepers or decision-makers who hold the keys to certain elements of the research. Fortunately, negative gatekeeping with the two universities in this study was not experienced. The Directorate of Research Administration and Advancement (DRAA) at the National Open University of Nigeria assisted with the ethical clearance and identifying and inviting participants to this study.

#### **4.5.2.3 The interview instrument**

The semi-structured interview schedule comprised twenty questions with the introduction of the research topic to clarify the context (Kumar & Sareen, 2011). Each question in the interview schedule was related to the research questions (see Annexure 2.3). The interview questions, guided by literature review and the research questions, were designed to gather information about the participants’ experience, steps, and procedures followed in preparing (training and supporting) academics during the implementation of the e-learning innovation. The more open-ended the questioning, the better. The researcher listens carefully to what people say or do in their life settings, with subjective meanings that are negotiated socially and historically (Creswell & Creswell, 2017).

#### **4.5.2.4 The Semi-structured interviews**

Although there are many types of interviews in qualitative research (Cohen et al., 2017; Showkat & Parveen, 2017), this study opted for semi-structured interviews. Qualitative semi-structured interviews are one of the most widely and commonly data collection methods used within the social sciences (DeJonckheere, & Vaughn, 2019; Evans & Lewis, 2018). Semi-structured interviews were chosen due to their flexibility and ability to allow follow-up questions, referred to as probing by Roulston and Choi (2018). Their ability to create free-

ranging conversation (Cohen et al., 2017) was also an attractive feature. Semi-structured interviews also fall between the standardised and unstructured interviews, giving the researcher the benefit of much-desired researcher-control.

The in-depth interview is considered one the most powerful tools in qualitative research (Goodman, 2011) is intensive, particularly when conducting interviews with a “small number of respondents to explore their perspectives on a particular idea, program, or situation” (Boyce & Neale, 2006, p. 3). In-depth interviews are also appropriate when a researcher looks for detailed information about a person’s thoughts and behaviour (Boyce & Neale, 2006). This research study aimed at investigating the decisions, thoughts and behaviours of those involved in implementing e-learning in large-scale open and distance education institutions, that is, the steps taken (or not taken) in preparing the academics for e-learning innovation. Boyce and Neale (2006) argue that in-depth interviews have to be with persons associated with a programme and their experiences and expectations related to the programme. The combined benefits of in-depth and semi-structured interviews proved effective in extracting detailed information and a deep understanding of a subject or concept (Showkat & Parveen, 2017). These types of interviews allow for a series of open-ended questions to be presented with possible follow-up questions to gather empirical primary research information. The semi-structured interview schedule also allowed for flexibility and reduced time spent with the participants, especially when the mobile network became problematic. For example, sometimes, a participant’s response to one question may cover the requirements of another question, especially with participants that were elaborate in their responses. One then can avoid repeating questions that the participants have already alluded to unless more information is required.

The interviews during the pilot study were approximately 40 minutes, and the questions were mainly open-ended. This allowed me to ask follow-up questions where the need arose and optimally stimulate discussion. Showkat and Parveen (2017, p. 3) point out that interviews are significant in “unfolding opinions, experiences, values and various other aspects of the population under study”. Cohen et al. (2017, p. 350) explain that the interview is a social encounter and not a mere platform for information exchange, that is why face-to-face interviews have been historically preferred (Hawkins, 2018) over other types such as telephonic interviews (Zhang et al., 2017). However, with the advances in information and communication technologies and the Internet, an explosive growth of new communication forms, platforms, and tools has introduced new credible interview techniques that can be employed for data collection within qualitative research (Opdenakker, 2006).

The emergence of social media in distance education and e-learning has also brought various approaches to qualitative research. Some interview options include email interviews or 'e-interviews', as Bampton and Cowton (2002, p. 1) call them. Online platforms and tools have been used objectively to collect quality data. Tracy (2013, p. 163) defines technologically mediated interviews as those "interviews that do not occur face to face, but rather via technological media such as a telephone, a computer, or other hand-held devices". The beauty of the digital platform is that they do not completely remove the 'face-to-face' elements because you can still see the person's face and some of the important emotions as expressed facially during the 'online interview'. The online tools used in this research study allowed me to observe and record non-verbal communication. Although the interviews were recorded, I made sure that the identity of the participants was protected as I transcribed the interviews myself. However, some participants also opted not to use the video during the online interviews. One of the ways of protecting their names was to use pseudonyms.

#### **4.5.2.5 Saturation**

A total of twenty participants from both institutions were selected for the interview, twelve from the University of South Africa (UNISA) and eight from the National Open University of Nigeria (NOUN). Although Van Rijnsoever (2017) points out that theoretical saturation is difficult to estimate, Beitin (2012, p. 244) argues that theoretical saturation is becoming a more common approach for purposive sample size; however, this study was guided through thematic saturation. Weller et al. (2018, p. 2) define thematic saturation as the "point during a series of interviews where few or no new ideas, themes, or codes appear". Coenen et al. (2012) found that 12–16 qualitative interviews were adequate to achieve thematic saturation. This number also depends on the size of the population. Van Rijnsoevwer (2017) indicated that the prevalence of the items also determines the point of saturation in qualitative research.

Data is considered saturated by Nascimento et al. (2018) "when no new elements are found, and the addition of new information ceases to be necessary since it does not alter the comprehension of the researched phenomenon" (p. 229). It was difficult to determine saturation in this study, as each participant brought unique revelations on the topic of preparation of academics for the e-learning innovation implementation as they experienced it. Although I reached a point where there was no new information given on certain interview questions, guided by the literature and my research study supervisor, I regarded twenty participants as adequate to understand the issue under study.

### 4.5.3 A configurative systematic review

This study followed a configurative systematic review, which has been promoted as suitable for the heterogeneity of educational research and as necessary for pursuing questions that address the complexities involved in teachers' work and that correspond to the broader aims of the educational system (Gough et al., 2012; Snilstveit et al., 2012). Levinsson and Prøitz (2017, p. 211) also add that configurative reviews "tend to use exploratory and iterative review methods that emerge throughout the review process". A systematic review was conducted following an explicit and replicable search strategy (Bond, 2020; Gough et al., 2012) (see Table 4.3). The final result included sources comprising peer-reviewed articles published in English between 2010-2021 and included studies empirically reported on academic professional development and training, e-learning readiness and e-learning adoption by academics in higher education institutions within the open and distance education (ODE) environment, in developing countries, with a major focus on African countries.

Newman and Gough (2020) explained that reviews find out what is already known from pre-existing research about a phenomenon or topic, and Gough and Richardson (2018) argue that bringing together and clarifying that knowledge is itself a form of research and needs to be undertaken according to the agreed principles of research. Systematic research evidence aims to inform policy and practice decision-making. However, Levinsson and Prøitz (2017) established that they are rarely used in education, although they can benefit academic researchers. Unlike aggregative reviews, configurative reviews are generally described as more exploratory and iterative (Gough et al., 2012a). Although Sandelowski et al. (2012) suggest that a broad distinction exists between reviews that follow a configurative synthesis and those that follow an aggregative synthesis, Gough et al. (2012) point out that most reviews have elements of both.

An aggregative synthesis usually explores research questions about the impacts and effects of interventions (Newman & Gough, 2020). It often uses predefined concepts and predefined (a priori) methods, whereas configurative methods can be adaptive (Gough & Thomas, 2016). Gough et al. (2012) further explain that aggregative reviews are likely to combine similar forms of data and are often interested in the homogeneity of studies, whereas "configurative reviews are more likely to be interested in identifying patterns" (p. 3) in heterogeneous studies. This study dealt with three concepts comprising academic professional development, e-learning readiness and technology adoption by academics in African HE and ODeL contexts. The search yielded a heterogeneous body of literature that was easy to deal with using the configurative review (see Table 4.4).

The use of systematic reviews used initially in medicine (evidence-based movement) spread to other disciplines in the mid-1990s (Boell & Cecez-Kecmanovic, 2015), being adopted in other disciplines to solve problems of incompleteness or bias (Ramey & Rao, 2011). Systematic reviews are increasingly being used in PhD studies (Bond, 2020; Skelly, 2014), although still relatively new in the African HEI context. Researchers often refer to previous studies to understand various elements (Shaffril et al., 2020) and conclusions derived from these studies. This kind of review also assists in reducing the duplication of research studies.

The major advantage of a systematic review is that it creates an unbiased synthesis from a great body of literature (Sayers, 2008). Koufogiannakis (2012) argues that a systematic review assists in synthesising data and drawing conclusions from existing evidence. Systematic reviews are highly ranked in research and are considered the most valid form of medical evidence (Jahan et al., 2016) and are now used in other research fields. They allow for a robust literature review that is impartial and focused with the aim to accurately represent the current state of knowledge about a given issue (Higgins et al., 2019).

Configurative systematic reviews also follow more formalised and rigorous processes than other literature reviews, such as a systematised literature review (Peters et al., 2015). Russel and Muir (2020) and (Fox et al., 2019) warn of the explosion in the types of systematic-like reviews being developed that incorporate some features of a systematic review without adhering to all the required components. Peters et al. (2015) also warn of the variety of standards existing within systematic review environments. To meet specific requirements and adhere to relevant criteria established by the authoritative guides (Fox et al., 2019), such as PRISMA Statement and Protocol, were consulted. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement and Guidelines (Page et al., 2020) and Eppi-Reviewer support tools and resources allowed me to remain grounded within the credible systematic method.

The PRISMA Statement calls for a high reporting detail in systematic reviews and meta-analyses. I used the current PRISMA 2020 statement updated by Page et al. (2021), which comprises a 27-item checklist addressing the introduction, methods, results and discussion sections of a systematic review report. Eppi-Reviewer is a “web-based software program for managing and analysing data in literature reviews” (Eppi-Centre, 2021, para. 1), which was developed and is maintained by the Eppi-Centre, University College in London (Evans & Benefield, 2001).

Grant and Booth (2009) argue that systematic reviews are not without bias; however, the PRISMA organisation follows a strict protocol that ensures vigour and transparency and continuously improves and updates the standards and guidelines (PRISMA, 2020). A systematic review protocol describes the rationale, hypothesis and planned methods of the review (Shamseer & Moher, 2015). It should be prepared before a review is started and used as a guide to carry out the review, which is a differentiating feature of a systematic review compared to other literature reviews. The protocol designed to guide this process is attached to this thesis (Annexure 2.1). Using the inclusion and exclusion criteria regarding eligibility (Table 4.2) allowed me to select only the journal article relevant to the topic in this study, as explained below.

#### **4.5.3.1 Eligibility criteria**

The eligibility criteria were purposefully designed to select academic journal papers strictly according to the inclusion and exclusion criteria (Table 4.2). The inclusion and exclusion criteria helped narrow down the search scope and described how to determine whether or not an item meets a certain criterion (Hornberger & Rangu, 2020). Hornberger and Rangu (2020) warn that there should be no grey areas in the criteria as it directly influences the feasibility of the study.

Only the articles published between January 2010 and March 2021 were selected as per the criteria. The PICO (Population, Intervention, Comparison and Outcomes) framework was consulted and pursued the explicit inclusion and exclusion criteria (Cook & West, 2012; Page et al., 2021; Xiao & Watson, 2019).

**Table 4.2**

*Inclusion and exclusion criteria*

<b>INCLUSION</b>	<b>EXCLUSION</b>
Published 2010 - March 2021	Published before 2010 and after March 2021
English language only	Articles that are not published in English
Primary empirical research	Reviews or theoretical articles
Higher Education	Basic Education (primary and secondary/middle school education), Community Education and Training (CET), Corporate HE and training, Technical and Vocational Education and Training (TVET)
African and developing countries	European, American and all other developed countries
Journal articles (peer-reviewed)	Books, book chapters, conference papers, book reviews, grey literature
Academic professional development	General professional development

Distance Education and Open Distance Education	Traditional/ residential/ contact/ on-campus/ face-to-face universities
Digital transformation (e-learning)	Articles not about digital transformation (e-learning)
E-learning readiness of academics only	E-learning readiness of non-academics, corporate, schools

The refining process identified 457 journal articles (see Figure 4.2) which were then imported to the EPPI-Reviewer software for further screening and synthesis.

#### 4.5.3.2 Search strategy

Conducting a thorough and well-documented search is one of the main distinctions between systematic and traditional literature reviews (Horsley et al., 2011; Polonioli, 2020). The search string is important in a systematic review to extract only the relevant items for the research project but also in ensuring replicability of the search, should the need arise (Polonioli, 2020). Rethlefsen et al. (2021) explain that a search strategy includes the structure of terms, logical operators and syntax elements (field codes, adjacency operators, phrases) that are used to search a database or other information source.

Academic databases facilitate highly structured Boolean searching, specialised search features, subject headings, automated recording of search history and bulk exporting of results to facilitate easy and comprehensive searching (Rethlefsen et al., 2021). The search strategy structure used to search for the relevant article as per the inclusion/exclusion criteria is presented in Table 4.3 below:

**Table 4.3**

*Search terms*

CONCEPT	SEARCH TERMS
Academic Professional Development	(training OR “professional development” OR “faculty NEAR/3 support” OR “lecturer NEAR/3 support”) <b>AND</b>
Distance Education (e-learning)	(online* OR distanc* OR blend* OR mobile OR technology-enhance*) NEAR/3 (learn* OR teach* OR study OR studie* OR education OR e-learning) <b>AND</b>
Education level	(“higher education” OR universit* OR college* OR “postsecondary education” OR “tertiary education” OR undergraduate* OR postgraduate*) <b>AND</b>
Location (developing countries, Africa)	(Africa OR “global south” OR “developing countr*” OR “sub-Saharan countr*”)

A systematic search relies on the ability of the searcher to compile an exhaustive list of synonyms (Polonioli, 2020). However, developing a good search strategy can be difficult; it is

an iterative process (Aromataris & Riitano, 2014). The search strategy must be tested to ensure that it will draw the relevant studies to answer the research question.

Systematic reviews start with the definition of the research question. The search terms are also derived from the research question. However, a researcher may not always use the same search terms across different academic databases and search engines (Ramey & Rao, 2011). This study used the same search string across all four databases, using basic BOOLEAN operators (AND, OR and NOT). However, the database-specific search operator precedence and search rules (Clarivate, 2020) and refining processes were also employed. The search manuals and guides from each database were also studied to help derive suitable specific search operator precedence. For example, both WoS and Scopus use 'proximity operators' and wildcards (Bramer & Rethlefsen, 2017; McKeown & Mir, 2021); however, WoS use (w/3) and Scopus uses (NEAR/3). This means that the system will look for the terms that are within a set number of words of each other, as illustrated in the string below:

(online\* OR distanc\* OR blend\* OR mobile OR technology-enhance\*)  
NEAR/3(learn\* OR teach\* OR study OR studie\* OR education OR e-  
learning)

WoS also uses (parentheses) to group compound Boolean operators, whereas Scopus uses {brackets}. Creating a suitable search string can be time-consuming; that is one of the reasons systematic reviews are believed to be time-consuming (Kitchenham & Charters, 2007). As indicated in the 2020 PRISMA statement, it is important to record the number of searches and their dates. Table 4.4 presents the database search process and the results thereof. Polonioli (2020) explains that a search process should be sufficiently detailed and clear to allow other researchers to repeat or update it. The process allows for mechanisms to track and document the search paths so steps can be reproduced by others (Holly et al., 2017; Stansfield et al., 2016).

**Table 4.4***Database search timelines*

DATABASE	DATE OF SEARCHES AND HITS		
	1 <sup>st</sup> Search	2 <sup>nd</sup> Search	Final Search
<i>Date of search</i>	<i>24/02/21</i>	<i>26/02/21</i>	<i>12/03/21</i>
Scopus	16	67	67
Web of Science	57	88	91
EBSCOHost	30	183	102
Sabinet	75	195	197
<b>Total</b>	<b>178</b>	<b>533</b>	<b>457</b>

Librarians are helpful during any research project, as they possess relevant experience and skills, such as searching skills, they understand techniques and tools to search discipline-specific grey literature (Spencer & Eldredge, 2018) and may suggest relevant vocabulary, synonyms, terms and possible keywords (Dudden & Protzko, 2011). The librarians are also able to teach and train researchers in conducting literature searches. With the help of my supervisors, the librarian at the University of South Africa, I developed a suitable search strategy.

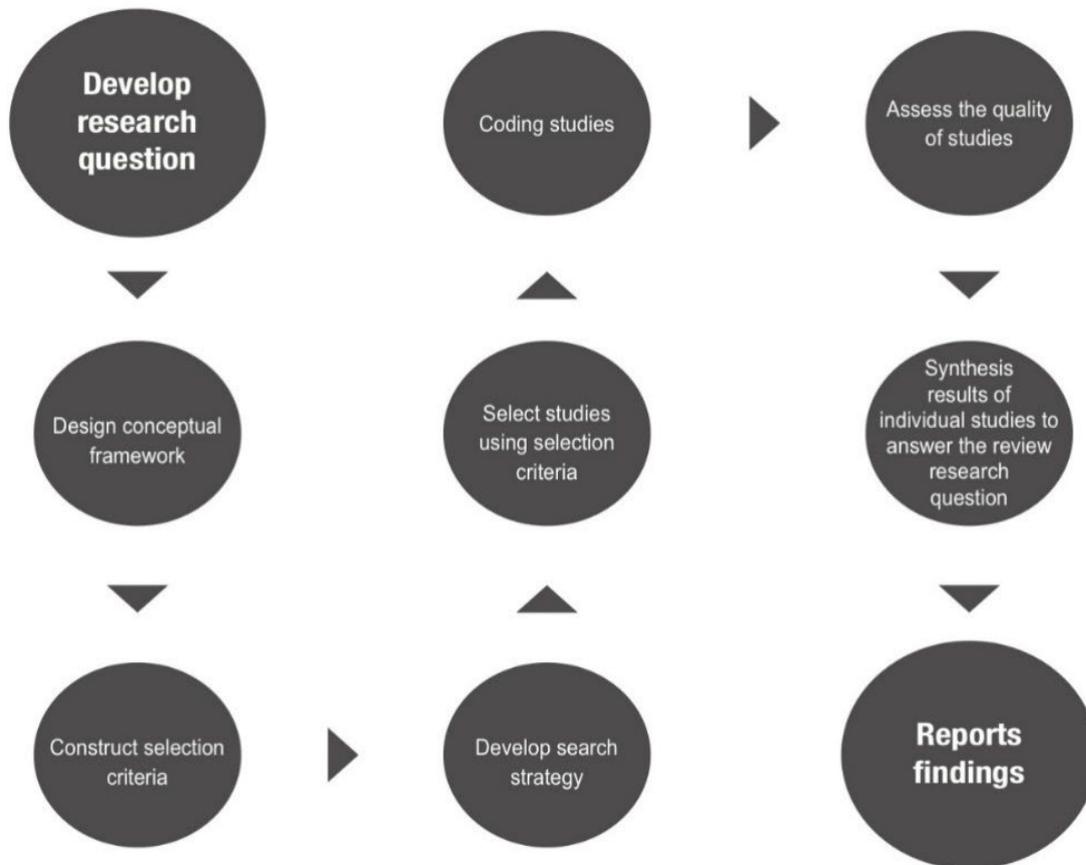
The major challenge experienced in this study was in limiting the search terms to Africa, as this could have yielded very low or no results from the databases. The search terms ("global south" OR "developing countr\*" OR "sub-Saharan countr\*") were added to the search string, which then yielded different results on various dates (Table 4.4). This systematic, iterative process ensured that a good search strategy was created for the study.

#### **4.5.3.3 The systematic search process**

The systematic review process followed in the study employed the process designed by Newman and Gough (2020) and the standardised SR protocol writing and reporting guideline (Moher *et al.*, 2009; PRISMA, 2020).

**Figure 4.3**

*The systematic review process*



*Note.* Adopted from Newman & Gough, 2020, p. 6.

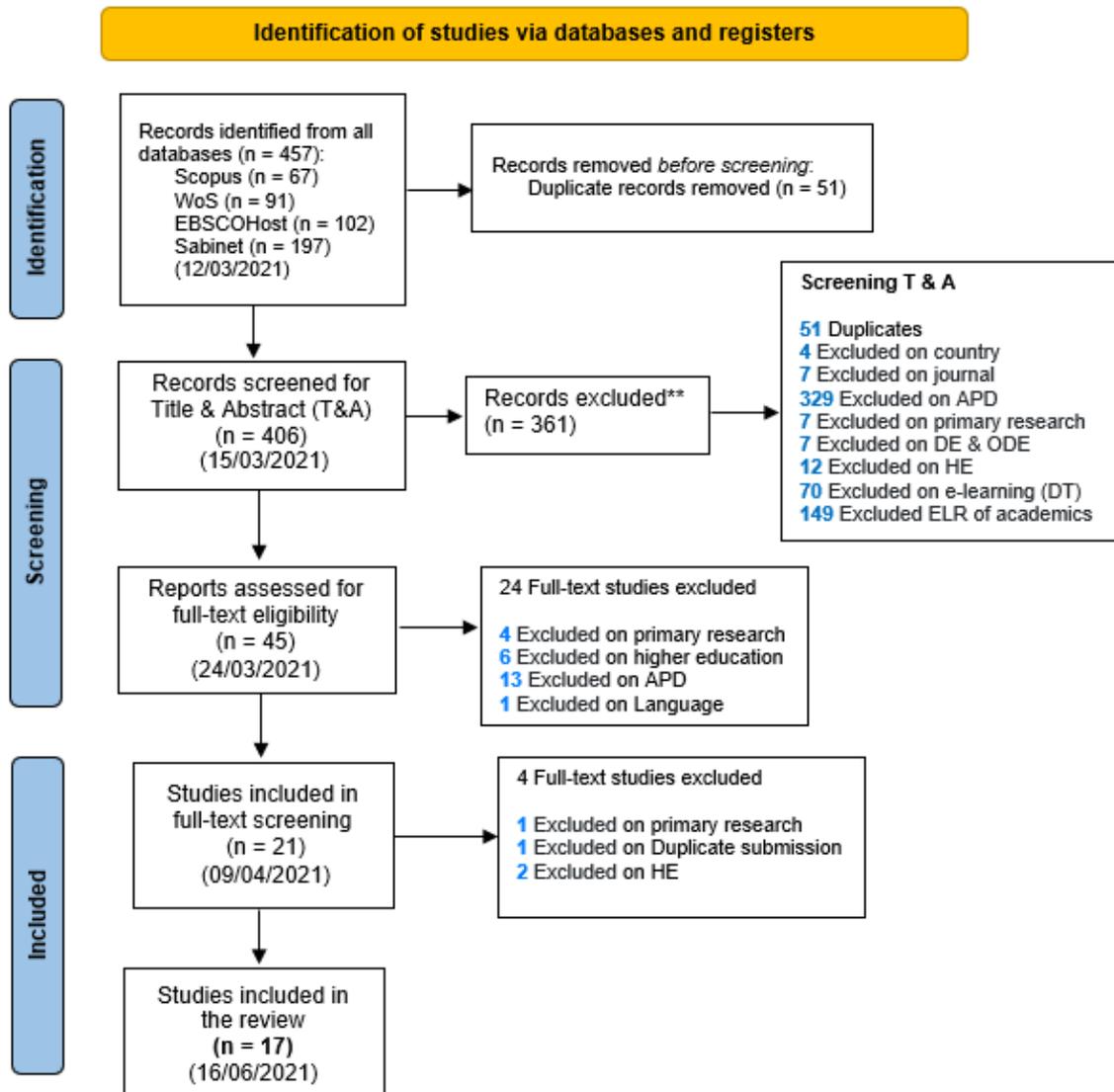
The PRISMA guidelines consist of a four-phase flow diagram, and a checklist of 27 items developed to help improve the reporting of configurative systematic literature reviews and meta-analyses (Bond, 2020). These were primarily designed for the healthcare context but incrementally adapted and used in other research contexts. In order to facilitate evidence-based policymaking and practice (Evans & Benefield, 2001), systematic reviews of research findings have come to be “treated as a priority in the field of education” (Hammersley, 2001, p. 543). Davies (2000) also argues that educational policy and practice have much to gain from systematic reviews. A systematic review was thus relevant for this study.

The PRISMA flow diagram is an integral part of the methodological description of a systematic review (Haddaway et al., 2020), as it outlines the identification, screening, eligibility and inclusion processes of items and reasons for study exclusion/inclusion (Figure 4.3). The flow diagram depicts the flow of information through the different phases of a systematic review and maps out the number of records identified, included and excluded and the reasons for

exclusions. Different templates are available online depending on the type of review (new or updated), and sources used to identify studies (Page et al., 2021). Figure 4.4 outlines the process undertaken in this study, including the dates the searches took place and the number of records identified, screened, and selected for inclusion in this study.

**Figure 4.4**

*PRISMA flow diagram*



*Note.* Adapted from Page et al., 2021

The screening process, which took place in EPPI-Reviewer, yielded 21 legible studies, as listed in Table 4.5 and illustrated in the PRISMA flow diagram in Figure 4.3. Of the 21 included studies, five were from WoS, five from Scopus, four from EBSCOHost, and seven from

Sabinet. The screening process in EPPI-Reviewer yielded 21 studies for inclusion in the research study, as presented in Figure 4.5.

**Figure 4.4**  
*EPPI Reviewer Coding Assignments*

The screenshot displays the EPPI-Reviewer Beta web interface. At the top, there is a navigation menu with options: Review home, References, Frequencies, Crosstabs, Search & Classify, and Collaborate. Below the menu is a toolbar with buttons: Distribute Work, Create reference groups, Create new code, Create coding assignment, and Create comparison. The main content area is divided into two sections: Reviewers and Coding Assignments. The Reviewers section shows a table with one reviewer: Mphoentle Modise (ID: 13347). The Coding Assignments section shows a table with 21 rows, each representing a coding assignment. The columns are: Id, Name, Study Group, Codes to apply, Allocated, Started, Remaining, and a Delete button. The table shows that all 21 assignments have been completed (Allocated = Started = Remaining = 0). Below the Coding Assignments table is a section for Comparisons, which is currently empty. At the bottom of the interface, there is a status bar with a message: 'Status: There will be a 30m interruption (hopefully not ...more)'. The current user is identified as Mphoentle Modise, and the review is for a PhD Review.

Id	Name	Study Group	Codes to apply	Allocated	Started	Remaining	
84770	Mphoentle Modise	Group 20 T&A	Screen on Title & Abstract	20	20	0	Delete
84769	Mphoentle Modise	Group 19 T&A	Screen on Title & Abstract	20	20	0	Delete
84768	Mphoentle Modise	Group 18 T&A	Screen on Title & Abstract	20	20	0	Delete
84767	Mphoentle Modise	Group 17 T&A	Screen on Title & Abstract	20	20	0	Delete
84766	Mphoentle Modise	Group 16 T&A	Screen on Title & Abstract	20	20	0	Delete
84765	Mphoentle Modise	Group 15 T&A	Screen on Title & Abstract	20	20	0	Delete
84764	Mphoentle Modise	Group 14 T&A	Screen on Title & Abstract	20	20	0	Delete
84763	Mphoentle Modise	Group 13 T&A	Screen on Title & Abstract	20	20	0	Delete
84762	Mphoentle Modise	Group 12 T&A	Screen on Title & Abstract	20	20	0	Delete
84761	Mphoentle Modise	Group 11 T&A	Screen on Title & Abstract	20	20	0	Delete

Coding reports were then generated from EPPI-Reviewer and exported in Excel to the researchers' computer for further analysis. The systematic review unpacked the academics' professional development and e-learning preparedness and provided contextual information which formed a foundation for the interviews conducted with sampled participants.

#### 4.5.4 Document analysis

As explained in Section 4.4.4, this study included two e-learning policies from the two universities. The NOUN's 2005 Draft eLearning Strategy and Policy for the National Open University of Nigeria (NOUN) was requested and accessed through the Research Administration at the National Open University of Nigeria. The second document, UNISA's 2018 Open and Distance eLearning (ODEL) policy, was accessed through the Ethics

Committee of the College of Education. Section 4.4.4 reported how the policies were accessed and the criteria and rationale for selecting these two policies.

#### **4.6 DATA ANALYSIS**

Qualitative research produces “large amounts of contextually laden, subjective, and richly detailed data” (Byrne, 2001, p. 904), which requires creative demystifying and making sense of the data. Braun and Clarke (2019) highlight the point that “qualitative research is about meaning and meaning-making” and that “qualitative data analysis is about telling ‘stories’, about interpreting, and creating the truth” (p. 591). Therefore, qualitative data analysis is the most important step in the qualitative research process (Leech & Onwuegbuzie, 2007). McMillan and Schumacher (2010) also point out that qualitative data analysis is characterised by the practice of a continual occurrence in the study, meaning that data are analysed both during and after fieldwork.

Thematic analysis was used to unpack the configurative systematic literature review, the interview data and the policy documents. Content and thematic analysis are two prominent methods used for data analysis in research (Neuendorf, 2018; Vaismoradi et al., 2013). Braun and Clarke (2006) describe thematic analysis as a descriptive approach for identifying and analysing patterns of meaning in a dataset to provide an answer to the research question. Braun et al. (2014, pp. 188 –189) and Braun and Clarke (2020) further outline the typical process of thematic analysis to include the following six steps, which also guided the analytical process undertaken in this study:

1. familiarisation with the data,
2. coding,
3. generating initial themes,
4. reviewing themes,
5. defining and naming themes and
6. writing up.

The following sub-sections comprise Phase 5 and present methods and approaches used to analyse this research study's data.

#### 4.6.1 Analysing data from the interviews

To transcribe the interviews, I used Descript software, a safe and secure fee-based online cloud-based automatic transcription software (Descript, 2021). This involved listening to each audio interview and correcting whatever needed to be amended, especially the interviews conducted with the participants from Nigeria, as the software could not accurately transcribe due to the distinct Nigerian accent. This way, I was able to fully immerse myself in the data. I needed to interact with the transcribed interviews as soon as possible to ensure that my experience of the interviews was still new and that I still had a fresh memory of the conversations. I then coded interview data using Atlas.ti software for coding and analysis, built around coding (Friese, 2019). Braun and Clarke (2019, p. 591) argue that the final analysis in qualitative research “is the product of deep and prolonged data immersion, thoughtfulness and reflection, something that is active and generative”.

Data analysis begins by reading through your data several times before starting with coding (Braun et al., 2014). I immersed myself in the data as I transcribed it myself, which helped keep the conversations with the participants alive in my head as I started with the analysis. Kalpokaite and Radivojevic (2018) point out that data analysis begins with a basic inspection of the data and is followed by multiple coding cycles, identifying patterns, codes, and drawing out categories. Elliott (2018) argue that coding is a fundamental aspect of the analytical process and an almost universal process in qualitative research. Coding is also defined by Richards and Morse (2013) as “the strategy that moves data from diffuse and messy text to organized ideas about what is going on” (p. 167). The purpose of coding is simply to make sense of data and to look for interesting things in the data (Creswell, 2015; Friese, 2019). Based on the research questions, interview questions and literature review, pre-set codes were created and later updated.

As depicted in the research ‘onion’ (see Figure 4.1), an abductive approach was used to analyse data, which is described by Saunders et al. (2019) as an approach of “collecting data to explore a phenomenon, identify themes and explain patterns, to generate a new or modify an existing theory” (p. 153). One of the advantages of abduction is that it is not restricted to or associated with any particular methodology (Lipscomb, 2012), it is systematic (Dubois & Gadde, 2002), and it brings a high level of flexibility as it effectively combines deduction and induction (Saunders et al., 2019, Yin, 2003).

I started with the coding process in Atlas.ti program, making notes and asking myself questions about the link between participants’ voices (data), theoretical framework, and

literature. This helped me identify words and phrases that described the data (Saldaña, 2016) and brought sense to the participants' experiences. The codes were then grouped in categories, also called themes, which Creswell (2013, p. 186) defines as "broad units of information that consist of several codes aggregated to form a common idea". Saldaña (2016) believes themes are an outcome of coding and come after analytic reflection.

Friese (2019) warns that the number of codes should not swell into the thousands. There are various thoughts on this issue, with Saldaña (2016) suggesting a code limit of between 50-300 codes, Lichtman (2013) suggesting 80-100 codes divided into 15-20 categories, eventually grouped into 5-7 major concepts and Creswell (2016) recommending a more modest figure of between 30 to 50 codes. Elliott (2018) advises looking for overlapping and redundant codes and reducing them to at least 20 codes that can be collapsed further into about five to seven themes, which will become the major heading in one's findings sections in a qualitative research report. Richards (2015) argues that too many descriptive codes yield excess information, making it difficult to see the data.

The data from 20 interviews in this study yielded 86 first-level codes, further refined to a final list of 65 codes (Annexure 5.6) and ten categories/themes, discussed in detail in Chapter 5 (Section 5.4). Working with Atlas.ti was helpful as the program helps in automatically organising codes and categories. The software program also has features that help create memos (notes) as one continues with coding. Together with my memos and quotations, these codes and categories were then exported into my laptop in Excel format, which I then used to write up my findings presented in Chapter 5.

#### **4.6.2 Analysing data from the systematic review**

Data analysis for the systematic review was done through the Eppi-Reviewer software program, using an extensive coding system to extract data (Bond, 2020, p. 21). A narrative synthesis was undertaken of the qualitative data, a valid method of analysing and assembling evidence (Petticrew & Roberts, 2006). The narrative review attempts to identify what has been written on a subject or topic, using which methodologies, on what samples or populations, and with what findings (Davies, 2000, p. 367). Hammersley (2001) argues that synthesis indicates that systematic reviews do not simply discuss the contributions of individual studies; rather, it involves a combination of the findings from various reviewed studies to draw more robust conclusions. Following the PRISMA 2020 checklist (Annexure 2.2) and protocol assisted in asking the critical questions about my study, how best to approach data analysis, and what data to extract to answer the research question.

Information pertaining to the e-learning readiness of academics for digital transformation of ODE institutions, academic development and training in preparation for such a digitalisation project, specifically e-learning in this study, and how the preparation impacts the project's success. The data were extracted using an extensive coding system that I developed guided by the research question and literature (Annexure 4.3). This coding system included codes to extract specific information from the included studies (Bond, 2020). To extract data, I assigned a code to a segment of text and selected a code in the data extraction coding tool with the corresponding text in the uploaded PDF, which is similar to Atlas.ti. On completion of this process, coding reports were generated and exported from the EPPI-Reviewer to my personal computer for further synthesis.

These reports were further studied to derive emerging themes discussed in Chapter 5. During this process, mainly guided by the research questions and literature, I constantly consulted various tools and resources such as the EPPI-Reviewer, and the step-by-step manual (see <http://eppi.ioe.ac.uk/cms/er4>) and online instruction videos (<https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=3763>), and I also looked at other systematic review reports available online.

#### **4.6.3 Analysing data from the document analysis**

As explained in Section 4.4.2.5, only two policies related to e-learning delivery/mode from both universities were selected for this study. Thematic analysis (see Section 4.3.4) together with a systematic approach for document analysis by Dalglish et al. (2020, p. 1424) in health policy research called the READ approach: (1) ready your materials, (2) extract data, (3) analyse data and (4) distil your findings. Bowen (2009, p. 28) explains that the analytic procedure in document analysis entails finding, selecting, appraising (making sense of), and synthesising data contained in documents.

The two policy documents were saved; I then read through the policies more than twice to get a feeling of what was included (topic) and familiarise myself with the policy text (Braun et al., 2014). Rapley (2018) explains that when analysing documents, one needs to think about what is there and what is not there, “the silences, gaps or omissions,” and focus on “how a specific argument, idea or concept is developed” (p. 124). Rapley also argues that when studying a text, a researcher should be interested in how the text (for example, policy) structures and organises specific issues that it raises and how that text seek “to persuade you about the authority of its understanding of the issue” (p. 137).

I read through these two documents, guided by the research questions and literature (Section 4.6), looking specifically for terms such as e-learning, blended learning, technology, academic training and development in relation to how they were used, what they were used to describe. This was the data extraction phase, or step 2 of the READ approach (Dalglish et al., 2020). Although Dalglish et al. (2020, p. 1429) explain that “documents can also be imported into thematic coding software such as Atlas.ti or NVivo”, as earlier explained, I only had two documents, so I opted for manual coding. Using thematic analysis, I began to analyse the data found in the policies during the data extraction to make meaning of the data, thus combining steps 2 and 3 of the READ approach.

#### **4.7 MEASURES FOR TRUSTWORTHINESS**

Lack of scientific rigour, poor justification of the methods adopted, and a lack of transparency in the analytical procedures and the findings, subjectivity and researcher bias are some of the issues for which qualitative research has generally been criticised (Noble & Smith, 2015). Gunawan (2015) argues that this is partly because many qualitative researchers neglect to give adequate descriptions in their research reports regarding data collection and analysis methods. It is thus important that these issues are addressed in this chapter.

Although Noble and Smith (2015) argue that it is difficult to demonstrate rigour when conducting qualitative research since there is “no accepted consensus about the standards by which such research should be judged” (p. 34); however, it is important to evaluate the quality of research. Evaluating the quality of research in qualitative social research gives authenticity and strengthens the research findings. Cypress (2017) argues that a researcher needs to build strategies to ensure rigour in the qualitative research process rather than evaluate it only after the inquiry. Cypress (2017, p. 254) defines rigour as “the quality or state of being very exact, careful, or strict precision”. Agreeably, Morse et al. (2002) believe research is worthless without rigour. Therefore, the rigour and trustworthiness of qualitative research must be prioritised.

Trustworthiness in qualitative research refers to the “quality, authenticity, and truthfulness of qualitative research findings, and it relates to the degree of trust, or confidence, readers have in results” (Schmidt & Brown, 2015, p. 548). Trustworthiness is also described by Yin (1994) as a criterion to judge the quality of a research design. Trustworthiness becomes a matter of persuasion whereby the scientist is viewed as having made those practices visible and therefore auditable (Sandelowski, 1993). According to Lincoln and Guba (1985),

trustworthiness comprises credibility, transferability, dependability and confirmability. In addition, Amankwaa (2016) offers practical steps and guidelines in ensuring trustworthiness in qualitative research, which guided this research. Some strategies include “member checking, triangulation, detailed transcription, systematic plan and coding” (Gunawan, 2015, p. 11).

#### **4.7.1 Credibility**

Credibility refers to the “confidence in the truth and their interpretations” (Polit & Beck, 2012, p. 539). This can be seen in the interpretation and representation of the data and the participant views by the researcher. Amankwaa (2016) recommends member checking to ensure credibility in qualitative research, especially in research projects that involve more than one researcher. The PhD journey is characterised by an active and lively relationship between the researcher (student) and his/her supervisor(s), which is a form of member checking where guidance is sought and given. Some level of the validity of the research is established. This also highlights the important role that supervisors play in postgraduate research studies. Transparency, one of the key ingredients of credibility (Yin, 2011), was also ensured by consulting my supervisors and relevant literature to guide data collection and analysis. Davies (2000, p. 375) also points out that the quality of systematic reviews depends on the quality of the primary studies on which they are based and on the rigour, transparency and reporting of the inclusion and exclusion criteria used by reviewers when doing a systematic review.

#### **4.7.2 Dependability**

Dependability refers to the “stability (reliability) of the data over time and similar conditions” (Polit & Beck, 2012, p. 539). It focuses on the process of inquiry. The processes undertaken in this study are clearly and thoroughly documented. Relevant methods and tools such as the interview schedule, policy documents, systematic review protocols, search string and PRISMA flow diagram were also explained and attached as annexures in this thesis. Gunawan (2015) argues that repeatability in qualitative research is not essential as the reality of each research scenario can only be real at a point in time; however, repeatability is one of the key characteristics of a systematic review, which was ensured by using relevant tools such as protocol, which describes every stage in one’s systematic review research process by offering a roadmap.

Slavin (1986) argues that the literature search procedure in systematic reviews should be “described in enough detail that the reader could theoretically regenerate an identical set of

articles', minimizing reliance on judgement or discretion by the reviewer" (p. 10). According to Evans and Benefield (2001), the key features of systematic reviews are:

*"an explicit research question to be addressed; transparency of methods used for searching for studies; exhaustive searches which look for unpublished as well as published studies; clear criteria for assessing the quality of studies (both qualitative and quantitative); clear criteria for including or excluding studies based on the scope of the review and quality assessment; joint reviewing to reduce bias; a clear statement of the findings of the review"* (p. 530).

Relevant standards and protocols guide systematic reviews to ensure dependability. I used the latest PRISMA 2020 checklist (Annexure 2.2) and protocol, together with the help of a librarian and literature, to ensure that the systematic review data was not contaminated by bias. These allow for situations where the study needs to be repeated. This thesis also includes the interview schedule and a thorough description of each process undertaken in this study.

#### **4.7.3 Confirmability**

Polit and Beck (2012, p. 539) define confirmability simply as the researcher's objectivity. This trustworthiness criterion is concerned with establishing the researcher's ability to demonstrate that the data represent the participants' responses and not the researcher's biases or viewpoints (Cope, 2014). The purpose is to evaluate the accuracy and evaluate whether or not the data support the findings, interpretations and conclusions. Lincoln and Guba (1985) also suggest triangulation and audit trails as some of the strategies to ensure confirmability. The advantage of research digital tools is that a trail is automatically created, such as coding and data analysis with computer programs, audios and videos are recorded, so one has proof of accounts, such as interviews, email invitations and communication with participants, gatekeepers, supervisors and other relevant stakeholders. All data generated and analysed during this study are included in this thesis as supplementary information in the attached annexures.

#### **4.7.4 Transferability**

Transferability implies that the research results can be generalised to other contexts (Houghton et al., 2013). One strategy that can facilitate transferability is thick description (Amankwaa, 2016; Lincoln & Guba, 1985). This was ensured by explicitly describing all research procedures used in this study. Cohen et al. (2011) recommend documenting and

justifying the methodological approach in qualitative research, thoroughly describing critical processes and procedures that helped construct, shape, connect and relate the meanings associated with the phenomenon being investigated. To achieve a high degree of transferability, this research has taken the necessary steps to describe all the phases of this research, including sampling methods (Johnson & Onwuegbuzie, 2004), methodological approaches, and data collection and analysis methods used.

#### **4.8 TRIANGULATION**

Triangulation is “a method that involves the careful reviewing of the data collected through different methods to achieve a more accurate and valid estimate of the qualitative results in relation to a particular construct” (Oliver-Hoyo & Allen, 2006, p. 42). It is used to support and enhance the trustworthiness of research findings (Oates, 2009) and to bring together various data sources to arrive at credible research conclusions (Creswell, 2009) (see Section 1.10). The combination of data collection and analysis methods in triangulation assists in improving the accuracy and reliability of the findings while minimising the impact of the cultural bias (Fàbregues & Fetters, 2019). This study involved a multiple case study design, which according to Fàbregues and Fetters (2019), must include the flexibility of combining data collection and analysis methods. The data were collected using a configurative systematic literature review, semi-structured interviews and document analysis of policies. Research findings from each data set are presented and discussed in Chapter 5.

The qualitative triangulation methodology in this study allowed the researcher to gain deep insights into how African ODE institutions prepare their academics for e-learning innovation and how this affects their teaching and learning using technology. Not only does triangulation allow a researcher to gain more reliable answers to research questions and by integrating results from several different approaches, as argued by Lawlor et al. (2016), it also improves the validity and reliability of data (Turner, 2015) and mitigates possible researcher bias (Fusch et al., 2018). Although De Vos et al. (2011) warn of the effort and expertise required for triangulation, they state that one of the benefits of triangulation is that it allows a researcher to navigate the object of study through multiple sources of data which, in turn,, helps in enhancing the validity and credibility of a study (Oliver-Hoyo & Allen 2006). In addition, De Vos et al. (2011) point out that each type of data used in triangulation may be collected and analysed independently. Therefore, methodological triangulation was used in this study through interviews and a systematic review of literature and policy analysis.

## **4.9 ETHICAL CONSIDERATIONS**

Ethical considerations, questions and challenges characterise every phase of the qualitative research process. This includes handling of personal information of participants, secure data handling and storage (Steffen, 2016), consent from participants (Arifin, 2018) and gatekeepers (Kay, 2019). Webster et al. (2013, p. 84) argue that qualitative research depends on the researcher building up effective relationships to gather high-quality data. This involves social skills and communication skills (Webster et al., 2013), which are also important in dealing with gatekeepers (see Section 4.5.2.2). The ethical research guidelines of both universities were followed with the help of the DRAA at NOUN and supervision and guidance from my PhD study supervisors and the Research Ethics Committee at UNISA. While it is the responsibility of the PhD student to ensure that all aspect of the research project is conducted ethically, the role of supervisors is also very important in guiding and holding the student accountable for putting all ethical measures in place and conducting the research ethically.

### **4.9.1 Ethical clearance and access to participants**

The relevant Ethics Committees within UNISA (Annexure 2.5) and NOUN granted ethical clearance to conduct this research. Through these committees, permission was granted to access the email addresses of the targeted sample, who were then contacted via email, with detailed information on the scope of the study with the participants' rights being communicated to the participants.

### **4.9.2 Informed consent**

Internet-mediated and online technologies have affected how research is done (Steffen, 2016). Webster et al. (2013) warn about such issues as gaining consent from participants when conducting research through online platforms. Although consent must be voluntary, and participants need a clear understanding of what is being asked of them (Arifin, 2018); however, the use of digital technology in research is continuously changing the process of obtaining consent from participants. For example, written informed consent is not only given in hardcopy paper format. However, it can also be done digitally through emails and by ticking off a checkbox in a questionnaire or even a word document, as illustrated in Annexure 2.7. Consent was obtained from participants via signed Word documents verbally before the interview, with some participants indicating their willingness to participate via email. It also helped that the target population for this study were adults over 18 years of age, capable of understanding their rights and exercising them. Nobody who was unwilling to participate in this study was forced to do so.

### **4.9.3 Confidentiality and anonymity**

Privacy and confidentiality of the interviews in online environments were managed carefully together with transcription, data analysis and reporting of the findings. In this research, I noticed that ZOOM automatically records audio and video files of meetings/interviews. In contrast, Microsoft Teams only records the videos, which posed ethical issues with revealing participants' identities to transcribers. For this reason, I decided to transcribe the interviews myself to secure the anonymity and confidentiality of the participants and immerse myself fully in the data (see Section 4.6.1). The protection of participants through applying appropriate ethical principles is important in all research (Arifin, 2018), including analysing participants' data so that it fairly and fully represents their views (Steffen, 2016). Data were analysed truthfully without manipulating participants' views and presented in this thesis in a way that their comments cannot be traced to identify them.

### **4.10 CHAPTER SUMMARY**

This chapter unpacked and presented the methods used to collect and analyse data and the lenses through which this research was guided. The methods used were chosen for their robustness and ability to adequately answer the research question. The rationale for choosing these methods over others was thoroughly presented. Each step of the research was captured and recorded as ethically and accurately as possible. The chapter also discussed how trustworthiness was ensured throughout this research study by clearly and in detail presenting how the principles of credibility, transferability, dependability, and confirmability, including triangulation, were adhered to. The chapter concluded with the presentation of ethical considerations. The findings are presented, and interpretations are discussed in Chapter 5.

## CHAPTER 5

### FINDINGS AND DISCUSSION OF EMPIRICAL RESEARCH

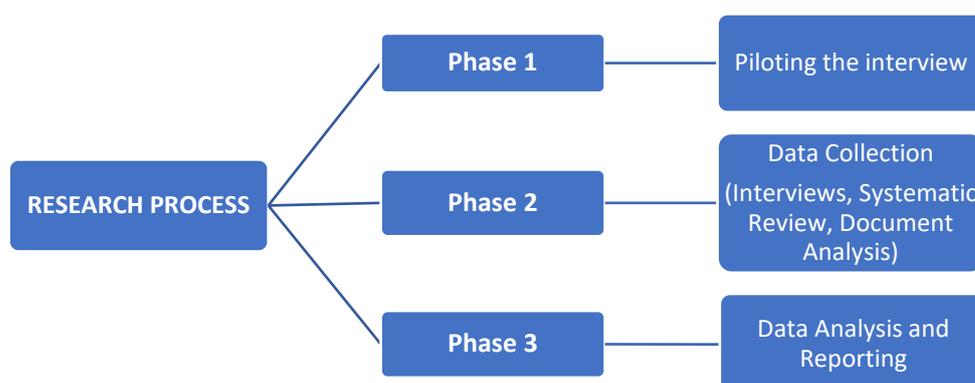
*“It always seems impossible until it is done.” Nelson Mandela*

#### 5.1 INTRODUCTION

The primary objective of this chapter is to present and discuss the findings of the empirical research. As explained in the previous chapter, the interpretivist research paradigm and qualitative approach were chosen to guide how specific data sets were collected and analysed in this study. Therefore, the chapter presents the findings on lessons learnt from the process in terms of the professional development and preparation of academics for implementing the e-learning innovation at two of Africa’s large-scale open and distance e-learning (ODEL) higher education institutions (HEIs). The empirical research involved rigorous data collection of primary data through interviews and secondary data via configurative systematic review and document analysis, as illustrated in Figure 5.1. The secondary data were collected and analysed through a systematic review process.

**Figure 5.1**

*Contextualising the research process*



I began with a pilot study in *Phase 1*, from which “the comments and suggestions received, were used in revising, rewording and sequencing the questions” (Modise, 2016, p. 74). Consequently, the pilot study greatly improved the quality of the interview questions. *Phase 2* involved the collection of various sources of data, both primary and secondary. While waiting for the responses from selected participants for the interview phase, I began reviewing literature for the configurative systematic review. Although the process was systematic, it was not necessarily linear. The phases were inter-linked, with some flexibility, especially where the

study depended heavily on the availability of participants. Therefore the interviews were done as and when a participant became available. Therefore, the steps and activities in the data collection phase took place concurrently, guided by the literature, research questions and research objectives. The analysis of policies took place after the interviews and systematic literature review. Phase 2 involved data analysis, interpretation and writing of research findings.

## 5.2 ORGANISATION OF THE DATA

This chapter's data presentation is logically organised into three sections, as illustrated in Table 5.1. The first section presents findings from the *systematic review* (Data Set A) (Section 5.3), followed by the findings from the *document analysis* (Data Set B) in section 5.4 and the *interviews* (Data Set C) findings in Section 5.5. Chapter 5 is to present the results of the systematic review and the document analysis prior to the empirical research to build an understanding of the academics' professional development and e-learning preparedness upon what is already known from the literature. The chapter concludes with a consolidated reflection on all the data sets in Section 5.6.

**Table 5.1**

*Overview of the organisation of data*

DATA SETS	SECTION
Systematic Review (Data Set A)	Section 5.3
Interviews (Data Set B)	Section 5.4
Document Analysis (Data Set C)	Section 5.5
Reflection on the overall findings	Section 5.6

## 5.3 FINDINGS EMANATING FROM SYSTEMATIC REVIEW (DATA SET A)

As mentioned in the previous chapter, a configurative systematic review was done to collect and synthesise data. The characteristics of the included studies are presented first, and then themes emanating from Data Set A from the systematic review process are presented and discussed. Levinsson and Prøitz (2017) found that configurative reviews are rarely used in education research, although they are thought to be beneficial for academic researchers (Goagoses & Koglin, 2020).

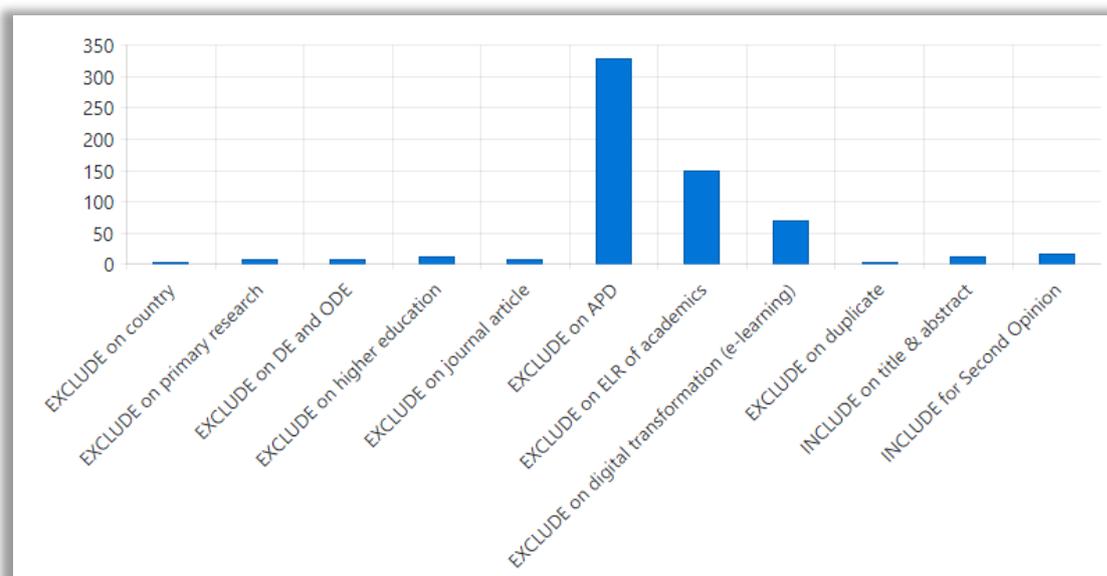
A systematic review method of data collection and synthesis was relevant for this study as it helped understand what is already known about the topic in research. As Lame (2019, p. 1653) pointed out, systematic reviews are a “way of synthesising scientific evidence to answer a particular research question in a transparent and reproducible way ” to reduce the risk of bias.

Database timelines in Table 4.4 in Chapter 4 show how many sources each database yielded. The flowchart in Figure 4.2 illustrates the process of screening and selecting the final papers and then synthesising the quality of studies included in the study (Table 5.2). Annexure 5.1 lists the included studies with more details and reasons for inclusion, according to the inclusion and exclusion criteria (Table 4.2). The PRISMA reporting guideline was consulted and used to ensure that the systematic review was properly followed. The findings are presented in tables and figures, with the annexures offering more detail.

The first screening, which involved screening titles and abstracts, yielded 45 articles that were screened for full text (Annexure 5.1). Data were extracted using the Data Extraction Tool (Annexure 4.3), including first and second level codes. Figure 5.2 shows that during the screening of titles and abstracts, most papers were excluded based on their relevancy to APD and the e-learning readiness of academics.

**Figure 5.2**

*Screening of titles and abstracts*



### 5.3.1 Characteristics of studies

#### ***Geographical characteristics of included studies***

Table 5.2 presents the studies included in the systematic review after the iterative process explained in Chapter 4, Sections 4.4.3 and 4.5.3. The study focused on developing countries, specifically African countries, as per the inclusion and exclusion criteria (Table 4.2) and search string in Section 4.4.3.2. Thus, the studies included displayed geographical characteristics.

**Table 5.2**

*List of studies included in the systematic review*

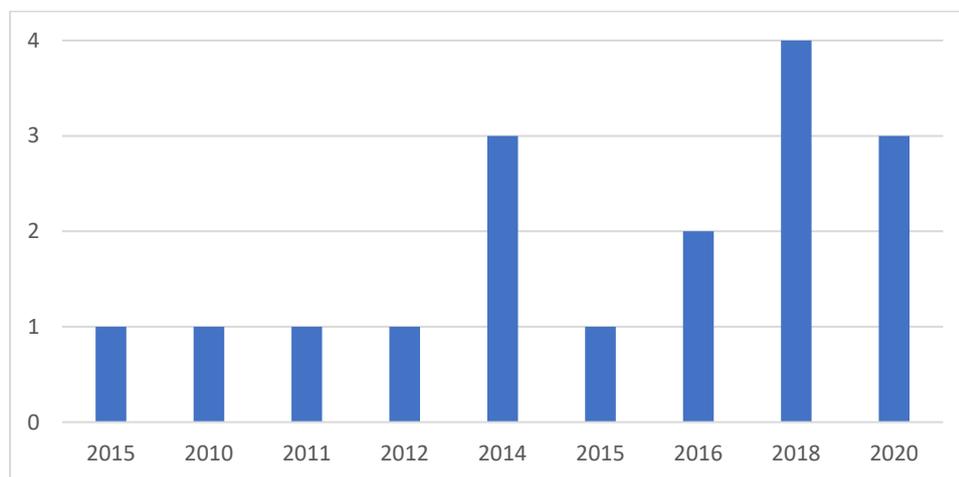
<b>AUTHORS, YEAR</b>	<b>TITLE OF STUDY</b>
1. Abusalim, N., Rayyan, M., Jarrah, M., & Sharab, M. (2020)	Institutional adoption of blended learning on a budget
2. Alomari, M. M., El-Kanj, H., Alshdaifat, N. I., & Topal, A. (2020)	A Framework for the Impact of Human Factors on the Effectiveness of Learning Management Systems
3. Bezuidenhout, A. (2018)	Analysing the importance-competence gap of distance educators with the increased utilisation of online learning strategies in a developing world context
4. Farid, S., Ahmad, R., Niaz, I. A., Arif, M., Shamshirband, S., & Khattak, M. D. (2015)	Identification and prioritization of critical issues for the promotion of e-learning in Pakistan.
5. Foley, A. R., & Masingila, J. O. (2014)	Building capacity: challenges and opportunities in large class pedagogy (LCP) in Sub-Saharan Africa.
6. Hassan, S. (2011)	The needs and perceptions of academics regarding their professional development in an era of educational transformation
7. Kanwar, A. S., Carr, A., Ortlieb, K., & Mohee, R. (2018)	Opportunities and challenges for campus-based universities in Africa to translate into dual-mode delivery.
8. Lautenbach, G. (2010)	Expansive learning cycles: lecturers using educational technologies for teaching and learning
9. Machika, P., & Dolley, F. (2018)	Framework for a learning management system at a university of technology with a weak information technology maturity system
10. Makoe, M. (2012)	Teaching digital natives: identifying competencies for mobile learning facilitators in distance education
11. Mbatha, B. (2015)	A Paradigm Shift: Adoption of Disruptive Learning Innovations in an ODL Environment: The Case of The University of South Africa
12. Ncube, S., Dube, L., & Ngulube, P. (2014)	E-learning readiness among academic staff in the Department of Information Science at the University of South Africa
13. Ndebele, C., Muhuro, P., & Nkonki, V. (2016)	Rurality and the professional development of university teachers
14. Roberts, J. (2018)	Future and changing roles of staff in distance education: a study to identify training and professional development needs
15. Shava, G.N. (2016)	Enhancing learner achievement through professional development: the Zimbabwean experience

AUTHORS, YEAR	TITLE OF STUDY
16. Singh-Pillay, A., & Naidoo, J. (2020)	Context Matters: Science, Technology and Mathematics Education Lecturers' Reflections on Online Teaching and Learning during the COVID-19 Pandemic.
17. Tshabalala, M., Ndeya-Ndereya, C., & van der Merwe, T. (2014)	Implementing blended learning at a developing university: Obstacles in the way

The included studies were selected based on the period of publication, that is, between 2010 and 2020, and the review revealed an increase in published research studies related to academic professional development, e-learning readiness and technology adoption in HEI between 2014 and 2020, with 2018 having the highest number of publications (Figure 5.3).

**Figure 5.3**

*Number of publications per year*



The review's data collection (database searches) was conducted between January and June 2021 and only included studies published in December 2020. There was an assumption that with the Covid-19 pandemic, there should have been a major increase in the studies reporting on technology adoption, APD and ELR of academics. Further research is needed to confirm or dispute this stance, but it is important to report on the experiences of academics during the Covid-19 pandemic period. Only one reviewed study by Singh-Pillay and Naidoo (2020) focused on matters relating to the adoption of technology during the pandemic.

Table 5.3 presents the characteristics of included studies, such as the theoretical frameworks used to guide each study, research questions, methodology, and participants. Some studies did not include some of these characteristics, as depicted in Table 5.3 (see Annexure 5.3 for more information on studies' characteristics). This type of information is important as it

positions the included studies within the study context and its relevancy to the research questions.

**Table 5.3**

*Characteristics of included studies (in alphabetical order)*

<b>AUTHORS, YEAR</b>	<b>METHODOLOGY (QUAL., QUANT. OR MIXED?)</b>	<b>TYPE OF INSTITUTION UNDER STUDY</b>	<b>MODE OF DELIVERY</b>	<b>COUNTRY</b>	<b>UNIVERSITY</b>
Abusalim et al. (2020)	Quantitative	Traditional institution	Blended learning	Jordan,	University of Jordan (UJ)
Alomari et al. (2020)	Mixed Methods	6 Traditional institutions	Blended learning	Kuwait, Germany & Turkey	Kuwait's HEIs
Bezuidenhout (2018)	Quantitative	ODeL	Blended learning	South Africa	Mega ODL university in South Africa
Farid et al. (2015)	Mixed Methods	Traditional institution & ODeL	Blended learning	Pakistan	Allama Iqbal Open University (AIOU)
Foley et al. (2014)	Mixed Methods	ODeL	Blended learning	Kenya	Institute of Open, Distance and e-Learning (ODeL), Kenyatta University
Hassan (2011)	Quantitative	Traditional institution	-	South Africa	Cape Peninsula University of Technology University of Limpopo (Medunsa Campus)
Kanwar et al. (2018)	Mixed Methods	Traditional institution & ODeL	Blended learning	Cameroon, Kenya and Rwanda	University of Rwanda (UR)
Lautenbach (2010)	Qualitative	Traditional institution	Traditional institution	South Africa	University of Johannesburg
Machika & Dolley (2018)	Qualitative	Traditional institution	Blended learning	South Africa	Vaal University of Technology
Makoe (2012)	Qualitative	ODeL	Blended learning	South Africa	University of South Africa
Mbatha (2015)	Qualitative	ODeL	Blended learning	South Africa	University of South Africa
Ncube et al. (2014)	Qualitative	ODeL	Blended learning	South Africa	University of South Africa

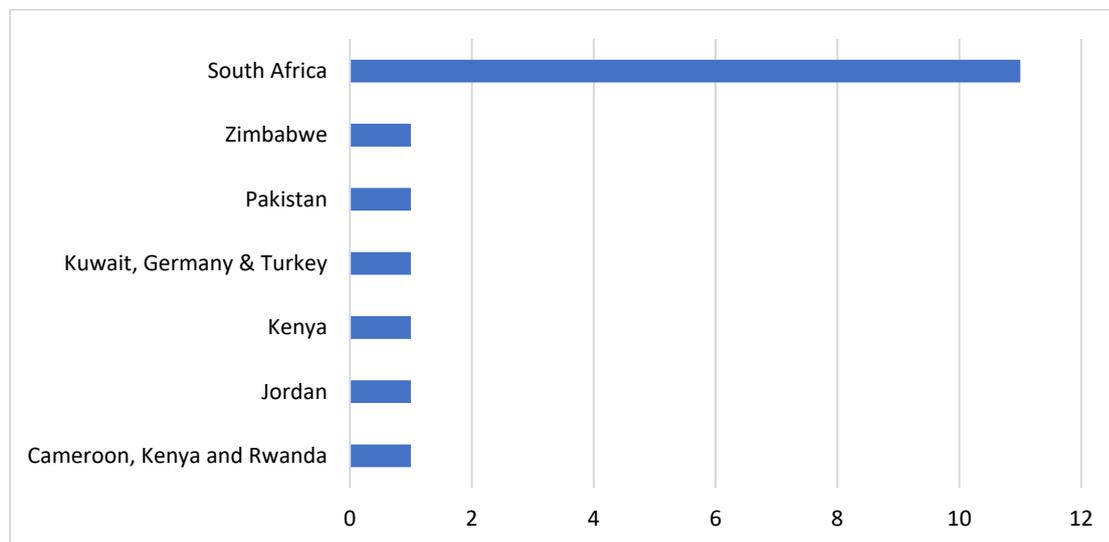
AUTHORS, YEAR	METHODOLOGY (QUAL., QUANT. OR MIXED?)	TYPE OF INSTITUTION UNDER STUDY	MODE OF DELIVERY	COUNTRY	UNIVERSITY
Ndebele et al. (2016)	Qualitative	2 Traditional institutions	Traditional institutions	South Africa	X
Roberts (2018)	Quantitative	ODeL	Blended learning	South Africa	University of South Africa
Shava (2016)	Qualitative	Traditional institution	Blended learning	Zimbabwe	University of Zimbabwe
Singh-Pillay et al. (2020)	Qualitative	Traditional institution	Blended learning	South Africa	X
Tshabalala et al. (2014)	Qualitative	Traditional institution	Blended learning	South Africa	X

*Note.* X – means that authors used pseudonyms/did not reveal the universities in their studies

Out of the 17 studies included in the systematic review, 14 studies indicated that the institutions under study were blended learning, and 12 were traditional (contact, face-to-face, campus-based) HEIs (Table 5.3). The review reveals that all seventeen journal articles reported on research conducted in seven developing countries, with 11 of the 17 set in South Africa (Figure 5.4).

**Figure 5.4**

*Number of studies in a country*



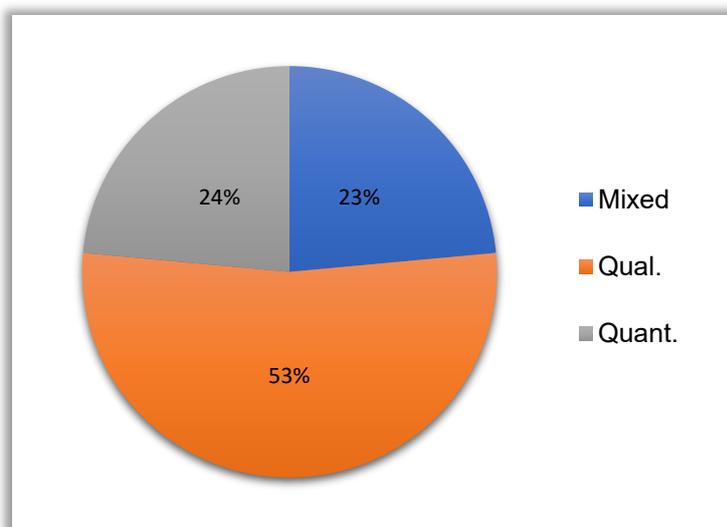
Five of the eleven studies in South Africa were conducted by researchers at the University of South Africa, one of Africa’s mega ODeL universities (Table 5.3). These characteristics also indicate the relevancy of the included studies to universities and countries under study (context). Although there were no identified studies from the National Open University of Nigeria, the included studies could offer the opportunity to formulate an initial understanding of the topic under study.

### ***Methodological characteristics of included studies***

Bond et al. (2020) reported that not all reviews include information on methodologies used in their selected studies. However, it is important to unpack the methodological approach employed in the reviewed studies because the research methodology impacts the outcome and results of a research study and the conclusions drawn. So, this section briefly presents the methodological characteristics of the included studies. Table 5.4 presents the methodological approach to research in the included articles.

**Figure 5.5**

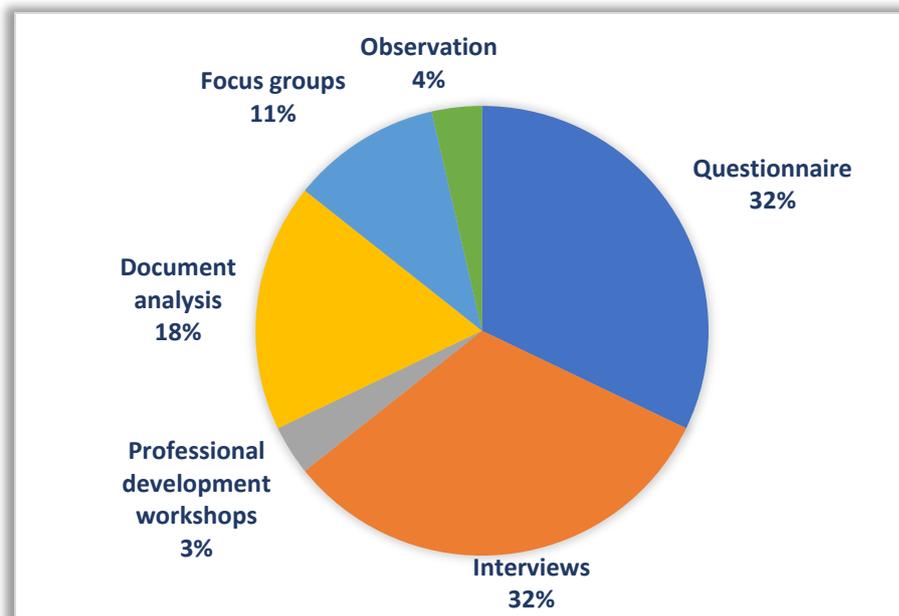
*Different research approaches*



Most studies (nine) followed a qualitative approach, four studies employed mixed methods, and another set of four studies followed a quantitative approach. To develop a greater understanding of the type of research, Figure 5.5 illustrates the data collection techniques and tools used to collect data.

**Figure 5.6**

*Data collection tools*



Four of the 17 included studies used questionnaires/surveys to collect their data, three studies used focus group interviews, four used interviews, and eight studies used a mix of instruments including observation, reflective journals, self-evaluation reports, other reports, policies and websites (document analysis), for their data collection (Annexure 5.3). However, interviews and questionnaires were used nine times (Figure 5.6). The significance of these characteristics directly impacts the deductions a researcher can make about the phenomenon under investigation. In this case, the inclusion of an analysis of policies relevant to this study assisted in understanding how policy is used to guide the preparation of academics in higher education in African and other countries.

The review revealed that four few studies did not specify their research question(s), that is. Alomari et al., 2020; Lautenbach, 2010; Makoe, 2012; Ndebele et al., 2016); they stated the purpose(s) of their research (Annexure 5.3). However, some of these studies mentioned the objectives of their studies, which are assumed to be linked to a research question(s). It was also interesting that about seven studies did not include definitions of the phenomena in their studies. Tshabalala (2014, p.102) argues that the “absence of a universal definition for blended learning allows HEIs to contextualise the concept according to their respective environments”. However, the challenge with a lack of a universal definition for concepts is that it generally creates confusion because of the different meanings affixed to a concept and compromises the opportunity for HEIs to learn from each other and clarify the confusion. In

terms of theoretical underpinnings, the review also reveals that eight studies did not mention and use any theoretical framework to guide their research (Table 5.4), particularly research on technology adoption.

**Table 5.4**

*The theoretical and conceptual frameworks used in the reviewed studies*

<b>AUTHORS</b>	<b>THEORETICAL FRAMEWORKS</b>	<b>SAMPLE FOCUS &amp; SIZE</b>	<b>MAIN TOPIC</b>
Abusalim et al. (2020)	Not mentioned/used	254 Students	Technology adoption
Alomari et al. (2020)	Not mentioned/used	256 Students	Technology adoption
Bezuidenhout (2018)	Systems theory (Biddle, 1986)	146 Lecturers	Competence of distance educators
Farid et al. (2015)	Not mentioned/used	404 Lecturers	Promotion of e-learning
Foley et al. (2014)	Not mentioned/used	20 Experts from academia and e-learning administration	Capacity building
Hassan (2011)	Not mentioned/used	70 Lecturers	Professional development of academics
Kanwar et al. (2018)	Diffusion of Innovations (Rogers, 1962) and Innovation framework (Wisdom et al., 2014)	106 Lecturers	Technology adoption (dual-mode delivery)
Lautenbach (2010)	Activity theory (Engeström, 2001)	12 Deans or directors of ODL centres 21 ODL staff from ten institutions implementing ODL 2 Staff from the Ministry of Higher Education overseeing ODL	Technology adoption
Machika & Dolley (2018)	Not mentioned/used	11 Lecturers	Technology adoption
Makoe (2012)	Not mentioned/used	90 Lecturers 400 Students	Technology adoption
Mbatha (2015)	Not mentioned/used	23 Lecturers	Technology adoption
Ncube et al. (2014)	Not mentioned/used	87 Training representatives (academic, professional and administrative staff), 41 Learner support personnel	E-learning readiness of academics and technology adoption
Ndebele et al. (2016)	Theory of Rurality (Balfour, De Lange and Khau 2012) and Social realist framework (Margaret Archer, 1995; 2000; 2007)	76 Lecturers	Professional development
Roberts (2018)	Systems theory (Laszlo & Krippner, 1998)	10 members of the senior management 20 Academics	Training and professional development needs of academics

<b>AUTHORS</b>	<b>THEORETICAL FRAMEWORKS</b>	<b>SAMPLE FOCUS &amp; SIZE</b>	<b>MAIN TOPIC</b>
Shava (2016)	Process of teacher change Model (Guskey 1986)	10 Lecturers	Professional development and learner achievement
Singh-Pillay et al. (2020)	Reflection on action and reflection in action (Schön, 1983)	3 Lecturers	Technology adoption (during the Covid-19 pandemic)
Tshabalala et al. (2014)	Technology Acceptance Model (TAM) developed (Davis, 1993) and the Innovation Diffusion Theory (IDT) (Rogers, 1983)	25 Academic staff members, heads of academic departments, as well as the dean of the Faculty	Technology adoption (blended learning)

### ***Population and sample characteristics***

Studies in the literature have shown that most technology adoption research uses students to explore workplace issues (Abayomi et al., 2016; Mosunmola et al., 2018). Although it is important to hear student voices in such matters, sampling students to study lecturers' performance, technology, and digital skills may result in bias. However, the articles included in this research mostly sampled lecturers. Most samples consisted of lecturers, which strengthens the relevance of the included studies for this study. For example, Abusalim et al. (2020) explored blended learning implementation in universities with low budgets. They administered a survey to 254 students at the University of Jordan (UJ), investigating student satisfaction with blended learning concerning IT infrastructure and teacher training for blended learning strategies.

Two studies, Alomari et al. (2020) and Machika & Dolley (2018) sampled both students and lecturers and examined the universities' learning management systems. Five studies, Farid et al. (2015), Kanwar et al. (2018), Makoe (2012), Ndebele et al. (2016), and Tshabalala et al. (2014) included a mix of participants that included deans or directors, heads of academic departments, training representatives, academics, professional and administrative staff (Table 5.4). The included studies reported on the real voices of a diverse population of participants, mostly academics.

### ***Geographical characteristics of included studies***

Table 5.2 presents the studies included in the systematic review after the iterative process explained in Chapter 4, Sections 4.4.3 and 4.5.3. The study focused on developing countries, specifically African countries, as per the inclusion and exclusion criteria (Table 4.2) and search string in Section 4.4.3.2. Thus, the studies included displayed geographical characteristics. In terms of theoretical underpinnings, the review also reveals that eight studies did not mention

and use any theoretical framework to guide their research (Table 5.4), particularly research on technology adoption.

### 5.3.2 Findings from the systematic review data set

The findings in this section are presented according to the study’s research sub-questions to answer the main research question: *How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?*

#### 5.3.2.1 Theme 1: Competencies and skills identified in studies as needed for online teaching/e-learning in distance education and blended learning institutions

Almost all studies in this systematic review addressed the competencies and skills necessary for online teaching and e-learning in distance education and blended learning institutions. For example, basic ICT literacy skills, considered essential for effective and meaningful teaching and learning in the ODeL environment, were identified by about seven of the studies in the review (Table 5.5).

Most studies in the review argued that online teaching requires different skills (for example, Kanwar et al., 2018; Makoe, 2012; Singh-Pillay & Naidoo, 2020). Also argued by Bates and Poole (2003), e-learning requires new pedagogical and technological skills to maximise its benefits of e-learning. Zawacki-Richter (2021) reported students' increased demand and desire for e-learning, which requires lecturers to acquire relevant skills to teach in online spaces. A list of some of the skills and competencies identified in the included studies as key for online teaching/e-learning in distance education and blended learning institution are presented in Table 5.5.

**Table 5.5**

*Skills and competencies needed for teaching in ODeL*

SKILLS	REVIEWED STUDY
Basic ICT/computer literacy skills	Farid et al., 2015; Lautenbach, 2010; Machika & Dolley, 2018; Mbatha, 2015; Pillay & Naidoo, 2020; Shava, 2016; Singh- Tshabalala, 2014.

Pedagogical skills	Abusalim et al.,2020; Bezuidenhout, 2018; Lautenbach, 2010; Machika, 2018; Singh-Pillay & Naidoo, 2020; Shava, 2016.
Facilitation and learning skills	Abusalim et al., 2020; Hassan, 2011; Makoe, 2012.
Using multimedia in education	Makoe, 2012; Mbatha, 2015; Ncube et al., 2014.
Expertise in ODL	Kanwar et al., 2018; Makoe, 2012; Mbatha, 2015.
Instructional design for online spaces	Bezuidenhout, 2018; Farid et al., 2015; Kanwar et al.,2018; Makoe, 2012; Ncube et al., 2014; Roberts, 2018; Singh-Pillay & Naidoo, 2020.
Expertise in ODL course production and administration	Kanwar et al., 2018; Roberts, 2018.
Content knowledge	Hassan, 2011; Roberts, 2018.
Assessment	Singh-Pillay & Naidoo, 2020

According to Berge (2008) cited in Bezuidenhout (2018), traditionally, academics have acquired and developed discipline-specific knowledge, skills and competence but not in education *per se*. They consequently tend to be subject experts rather than pedagogic experts, hence the need to develop pedagogical skills in ODeL. The Technological Pedagogical Content Knowledge (TPACK) framework created by Koehler and Mishra (2009) emphasises the balanced acquisition of relevant knowledge sets, such as content, pedagogy and technology. Disruptive technologies and emerging trends in HE have necessitated the mastery of new competencies and skills relevant to today's HE business. The Unified Theory of Acceptance and Use of Technology (UTAUT) argues that certain factors affect users' behavioural intentions to use new technology. Therefore, lecturers should acquire the necessary competencies and skills to operate effectively and successfully in higher education.

Singh-Pillay and Naidoo (2020) indicated participants' concern regarding the mismatch between lecturers' technology literacy skills and their pedagogical skills, arguing that their pedagogical skills remained unaltered while technology literacy skills have improved. This confirms the assertion made by Bates and Poole (2003) and Ncube et al. (2014) that e-learning requires lecturers to develop new pedagogies that would maximise the use of the new technology. Farid et al. (2015, p.167) also found that "shifting from the traditional teaching environment to the e-learning environment is difficult" for lecturers because they do not have the necessary know-how "to revise their course and teaching material from hard mode to the electronic mode." Kanwar et al. (2018) also reported that "instructors need up-to-date resources and training to successfully translate their teaching from traditional classrooms to the online environment" (p.147). The review revealed a need for more expertise in ODL (Kanwar et al., 2018; Roberts, 2018), with the focus on specific competencies and skills to use

multimedia in education (Mbatha, 2015) and new technologies to support distance education students who are isolated from their teachers and peers (Makoe, 2012; Mbatha, 2015).

Some studies highlighted that some HEI management believed that formal qualifications were enough for academics, especially having a doctorate qualification (Ndebele et al., 2016). However, having a doctorate qualification may not automatically translate into relevant teaching skills, as Hassan (2011) argued. Most doctoral programmes focus predominantly on research skills and not necessarily on teaching skills. Therefore, there is a need for a more focused approach to training and supporting lecturers to acquire the necessary teaching skills and competencies for online learning/e-learning mode. According to Shava (2016), there is no professional requirement for teaching in HEIs in the Southern African Development Community (SADC) region. The result is that most academics in HEIs do not possess teaching qualifications. Kember et al. (2010) and Coccoli et al. (2014), cited in Abusalim et al. (2020, p.1208), also argued that “Technology know-how alone does not ensure successful implementation of blended learning”, Abusalim et al. (2020) further arguing that instructors also need to know how to create active learning environments (pedagogically speaking). The TPACK framework emphasises the need for lecturers to acquire relevant content and pedagogical and technology knowledge to effectively teach and support students in higher education and distance education.

Ndebele et al. (2016) reported institutions’ struggle to recruit qualified staff, while Machika and Dolley (2018) suggested recruiting new blood with specific instructional design and administrator skills and “external specialists to help fast-track activities and support the development process as appropriate’ (p. 187). Bezuidenhout (2015) and Kanwar et al. (2018) found that there was a perception that ODL (and e-learning) was difficult, complex or time-consuming, but argue that this is a result of academics not being adequately equipped with the necessary pedagogical and technical skills.

### **5.3.2.2 Theme 2: The preparedness of lecturers for e-learning in African large-scale open and distance education (ODE) institutions**

Building on the first research question, Theme 2 is about the readiness of higher education (HE) academics in ODeL to adopt e-learning innovation. The systematic review revealed that many HE academics are unfamiliar with and comfortable using the necessary software to produce the course material (Farid et al., 2015). Almost all studies in this systematic review reported a lack of academic readiness for online teaching and learning. The lack of key skills and competencies was identified as one of the major barriers to adopting e-learning

technologies (Table 5.6). For example, the lack of expertise among institutional teaching staff in ODL was identified by Kanwar et al. (2018) as seriously impeding the readiness of academics for change and their capacity to adopt e-learning. Abusalim et al. (2020) and Alomari et al. (2020) indicated the lack of appropriate training related to e-learning technology as one of the main barriers challenging academics in implementing e-learning. According to UTAUT, effort expectancy and degree of ease associated with using the system (Venkatesh et al., 2003) will determine how lecturers use the new technology. Without appropriate training and development of skills and competencies to use the e-learning system, lecturers may find it difficult to accept and use the system, as it may affect their effort expectancy.

**Table 5.6**

*Factors affecting academics' e-learning readiness and adoption of e-learning*

<b>FACTORS</b>	<b>REVIEWED STUDIES</b>
Lack of ICT skill	Abusalim et al. (2020); Alomari et al. (2020); Farid et al., (2015); Foley (2014); Lautenbach (2010); Machika & Dolley (2018); Mbatha (2015); Makoe (2012)
Lack of understanding of e-learning, blended learning (and ODL)	Makoe (2012); Ncube et al. (2014); Ndebele et al. (2016); Tshabalala et al. (2014)
A mismatch between pedagogy and academics' technology skills (and students' learning styles)	Lautenbach (2010); Ndebele et al. (2016); Singh-Pillay & Naidoo (2020);
Lack of instructor appropriate training related to using e-learning/blended learning technology	Alomari et al. (2020); Abusalim et al. (2020); Hassan (2011); Makoe (2012); Ncube et al., (2014); Singh-Pillay & Naidoo (2020); Tshabalala et al. (2014)
Irregular or non-interaction with the LMS	Alomari et al. (2020)
Infrastructure, lack of electricity and internet access and connection	Abusalim et al. (2020); Bezuidenhout (2018); Foley (2014); Kanwar et al. (2018); Machika & Dolley (2018); Singh-Pillay & Naidoo (2020)
Lack of alignment between individual needs and institutional requirements	Ndebele et al. (2016)
Relevant policies	Kanwar et al. (2018)

Bezuidenhout (2018, p. 277) emphasised the importance of timeously empowering faculty to "integrate sound pedagogical principles with new technology". Farid et al. (2015) also pointed out that academics do not have the necessary knowledge of instructional design and production of course material for online delivery.

This review revealed the lack of understanding of e-learning and blended learning as one of the major problems in African HE ODeL institutions and other HEIs. Tshabalala et al. (2014)

and Ncube et al. (2014) reported that academics, deans, school directors, chair/heads of departments and other university staff “displayed little or no understanding of the concept of e-learning and blended learning”. Ncube et al. (2014, p. 361) further argue that the “perceived value or lack thereof may have a bearing upon the uptake of e-learning”. Some of the institutions represented in the review include traditional HEIs that have implemented distance education and thus have adopted a blended learning approach. Therefore, properly preparing and supporting lectures during training for the innovation or approaches is very important.

The findings show that lecturers interact with different technologies at varying levels, from technology to technology. Table 5.7 presents some of the technology tools HE academics use to teach and support distance education students in developing countries. However, most studies in the review did not mention specific technology tools academics use in their research. However, the LMS was identified as the main platform for e-learning by a few studies. This finding is in line with that of Zawacki-Richter (2021) and Bond et al. (2018), who found out that LMS was the most used platform for online education.

**Table 5.7**

*Technologies identified in the reviewed studies*

<b>TECHNOLOGIES</b>	<b>REVIEWED STUDIES</b>
Google educational apps	Mbatha (2015)
Social networks/media (YouTube, Twitter, WhatsApp, Facebook)	Makoe (2012); Mbatha (2015); Singh-Pillay & Naidoo (2020)
Mobile technology and smartphones	Mbatha (2015); Makoe (2012); Foley et al. (2014)
LMS	Abusalim et al. (2020); Alomari et al. (2020); Foley (2014); Machika & Dolley (2018); Ncube et al. (2014); Singh-Pillay & Naidoo (2020); Tshabalala et al. (2014)
SMART Boards	Abusalim et al. (2020);
Clickers	Abusalim et al. (2020);
Synchronous tools, such as web conferencing, Skype and group chats,	Tshabalala et al. (2014)
Asynchronous tools that include discussion boards, blogs and social networking sites	Tshabalala et al. (2014)

Interestingly, Mbatha (2015) found that many participants (UNISA lecturers) did not use social networks to enhance teaching and learning. Although this may have changed in recent times, this study demonstrates how the lack of relevant Technological Pedagogical Knowledge (TPK) may hamper the effective facilitation of learning. The review also revealed that most lecturers did not use LMS software since they were not obliged to use it (Alomari et al., 2020; Machika & Dolley. 2018; Ncube et al., 2014). The same trend of low usage of LMS has been largely reported in many African HEIs, such as in Zimbabwe (Chitanana et al., 2008; Dube & Scott,

2014), Mozambique (Unwin et al., 2010), Uganda (Mayoka & Kyeyune, 2012), Sudan (Elmahadi & Osman, 2013) as well as in South Africa (Modise & Van den Berg, 2021). The low usage of LMS in these contexts affects e-learning technology integration into the teaching and learning process.

### **5.3.2.3 Theme 3: The preparation and support of academics for e-learning in African large-scale open and distance education (ODE) institutions**

The third research question builds on the need to ensure that academics are fully equipped with the relevant skills and competencies and discusses the training and development of academics and how this has impacted the adoption of technology, in this case, the adoption of e-learning. This question specifically addressed how HEIs, especially ODeL institutions, prepare and support their academics to develop online teaching capacity for technology adoption.

There are some long-standing assumptions that HE academics are not “adequately prepared for their teaching role, have unsophisticated conceptions of teaching and learning, and have little knowledge of effective teaching practices, both in general and in their specific disciplines” (Amundsen & Wilson, 2012, p. 90). Another assumption is that many HEIs have prioritised research over teaching activities through rewards and incentives and providing relevant academic training. While HEIs do not prioritise and develop the necessary teaching capacity, both the lecturers and students will suffer, and the failure rate of e-learning initiatives could increase.

This review found that both senior management and academics members felt teaching was held in lower esteem than research (Ndebele et al., 2016, p. 140). This situation has led to a situation where senior academics assigned more teaching duties to junior academics to give themselves more time to engage in research, which led to less time spent honing pedagogical knowledge and skills. Hassan (2011) also revealed that in some instances, “academics who are not involved in research are seen as incompetent although they may excel at teaching” (p. 485). Professional development of academics has been found to be a key indicator of student satisfaction. Abusalim et al. (2020) reported that faculty training accounted for the majority of student satisfaction rates and that it has a significantly higher impact on the predictability of satisfaction than IT infrastructure. Abusalim et al. (2020, p.1208) also argued that technology skills must be accompanied by pedagogical skills (TPK) to ensure the successful implementation of blended learning.

Hassan (2011) also argued that having academic qualifications such as a doctoral degree does not automatically mean the candidate can effectively teach in the higher education environment. The review revealed a major need for institutions to invest in continuous, relevant and timely training and development of academics when embarking on an e-learning project. However, academic professional development is faced with challenges, as reported in Table 5.8.

**Table 5.8**

*Challenges affecting academic professional development*

<b>CHALLENGES AFFECTING APD</b>	<b>REVIEWED STUDIES</b>
Workload	Makoe (2012); Naidoo (2020); Shava (2016); Singh-Pillay & Tshabalala (2014)
Lack of resources and dwindling funds	Bezuidenhout (2018); Kanwar et al. (2018)
Lack of relevant institutional support (including technical support)	Bezuidenhout (2018); Machika & Dolley (2018); Tshabalala (2014);
Lack of APD-supportive policy	Ndebele et al. (2016)
Lack of compulsory training	Machika & Dolley (2018); Ndebele et al. (2016);
Leadership style	Lautenbach (2010)
Priority on research over teaching	Hassan (2011); Ndebele (2016); Roberts (2018)

Ncube et al. (2014, p. 363) indicated that “training interventions were provided at UNISA without prior determination of skills levels”. This was confirmed by Roberts (2018), who reported that the gaps in the ODeL lecturers’ competency levels were not continuously assessed. Bezuidenhout (2018) further reported that when data about the training gaps were available, the gaps did not receive the urgent attention they deserve when implementing an e-learning strategy. Bezuidenhout also reported that distance lecturers are not properly prepared, supported and equipped with needed knowledge, skills, and competencies.

Farid et al. (2015) and Bezuidenhout (2018) took a more pragmatic approach. They both looked at the prioritisation of challenges and suggested a systematic way of tackling the issues according to urgency and importance. For example, Farid et al. (2015) suggested that a hierarchal model is crucial for implementing e-learning. Bezuidenhout (2018) used importance-competency gap analysis to prioritise competencies that required urgent attention with the scarcity of resources. Capacity building of academic staff in developing world contexts is faced with scarce resources.

When universities blindly train for training, it may impact the success of e-learning and blended learning initiatives because academics are not adequately or appropriately prepared. Ncube et al. (2014, p. 363) support the idea of “training interventions that are customized according

to the skills level of the individuals in a discipline". Roberts (2018) further reported that as of 2017, a large-scale ODeL university such as UNISA did not have a competency framework for DE staff and that there was a "lack of detailed planning, monitoring and evaluation models for ongoing capacity development of DE staff members" (p.39).

As indicated in Table 5.8, challenges affecting academic professional development and thus technology adoption are linked with institutional support. The workload features a long-standing issue for academic professional development in HE and ODeL. It was also reported as a problem for lecturers to engage in professional development opportunities (Ndebele et al., 2016). Ndebele et al. (2016) found that the main driver for professional development at one of the universities they studied seemed to be the 'policy on promotion'. In this case, academics only attend the professional development to build a profile of attendance and perhaps evidence of attendance of such training and not necessarily that they have gained any new skills.

The challenge of 'policy on promotion' leads to a situation where academics "simply engaged in these professional development opportunities, not necessarily to empower themselves, but to meet institutional compliance requirements such as the criteria for promotion, to safeguard their job security" (Ndebele et al., 2016, p.136). There is a slow development of institutional policies and plans for building the capacity of distance education academics, as identified by Roberts (2018), which is considered a major hindrance to academic professional development and technology adoption in HE.

#### **5.3.2.4 Theme 4: The critical factors that affect the successful implementation of e-learning in open and distance education (ODE) and e-learning institutions**

This section seeks to understand the critical success factors identified in the reviewed studies as effective for the successful implementation of e-learning in open and distance education (ODE) and e-learning institutions. This section first presents and discusses some of the building blocks believed to be key in developing e-learning/blended learning modes of delivery in higher education and ODeL, followed by a discussion on the frameworks identified in the review.

Table 5.9 lists some of the factors that have been identified in the reviewed studies that negatively affect the development of appropriate e-learning implementation projects in African HE and ODeL institutions and other developing countries.

**Table 5.9***Factors affecting the development of successful e-learning implementation*

<b>FACTORS</b>	<b>REVIEWED STUDIES</b>
Lack of e-learning policy	Mbatha (2015); Ncube et al. (2014); Roberts (2018); Tshabalala (2014); Ncube et al. (2014)
Lack of clear understanding of the e-learning process	
Lack of formal (and structured) implementation process	Farid et al. (2015), Makoe (2012)
Lack of appropriate training and preparation of lecturers for e-learning/blended learning	Farid et al. (2015); Ndebele et al. (2016)

***Lack of e-learning policy***

Of vital importance is the need for a well-developed and efficacious ICT policy to guide the process, combined with proper planning for the adoption of e-learning. Mbatha (2015, p. 229) argues that “the challenges faced by academics when using disruptive learning innovations could be easily contained with the existence of a comprehensive policy.” Ncube et al. (2014) also found no institutional definition of e-learning at UNISA and argued that this emanated from the non-existence of an e-learning policy. The lack of an institutional definition of e-learning leads to a common misunderstanding of the term, supported by Tshabalala (2014), who reported on the need to advocate for establishing a policy on blended learning in HEI. The lack of an e-learning policy creates a lack of a clear understanding of the nature and scope of e-learning to confirm the appropriateness of ones’ skills set (Ncube et al., 2014). Ncube et al. (2014) further reported that “lecturers were unable to infer their competencies to execute e-learning tuition because there is no clear definition or barometer which can be used to measure one’s aptitude” (p. 364).

***Lack of understanding and awareness of e-learning and blended learning***

One of the major concerns found in these studies is the lack of understanding and awareness of e-learning. It is seen as a major hindrance for HEIs and their lecturers’ interaction with disruptive technological innovations, as discussed under Theme 2 (See section 5.3.2.2). The review found that both academics and members of senior management did not have a clear understanding of e-learning or blended learning (Hassan, 2011). This is a starting point in developing relevant framework(s), and it is a major concern that without proper understanding, the frameworks being developed (if any) may not be effective in preparing, developing and supporting

academics for implementing e-learning in open and distance education (ODE) and e-learning institutions in Africa and developing countries. Most of the included studies in the systematic review and literature (Table 5.9 and Table 5.10) report the need for awareness or enlightenment and understanding of what e-learning constitutes in higher education institutions.

There is major confusion or misunderstandings about e-learning innovation or the benefits thereof. What emerged was a focus on the challenges rather than finding solutions. This lack of awareness of e-learning was also reported by Gani (2018) in her study about the integration of online learning distance education, who found that there was a lack of awareness among academics, students and institutions. Gani (2018) explains that lecturer awareness includes the awareness of “technology as part of pedagogy to improve learning, student-centeredness and student support” (p. 172). Gani (2018) further argues that for a successful online learning integration in DE, institutions must have “awareness of the dimensions of infrastructure, pedagogical strategies and operational policies” (p. 172). Tshabalala (2014) also reported that even those who were comfortable using computers did not have the confidence to engage in blended learning due to a lack of adequate knowledge of blended learning and what it involves. According to Farid et al. (2019, p. 106), the integration of information and communication technology in education was still regarded as the emerging new paradigm of learning and training in developing countries around 2015. Given that the real value of e-learning lies not only in its ability to train just anyone, anytime, anywhere but also in the ability to train the right people to gain the right skills or knowledge at the right time, all stakeholders must understand and embrace e-learning (Ncube et al., 2014).

### ***Lack of e-learning/blended learning implementation process and leadership***

The review revealed a lack of a formal implementation process for e-learning and blended learning among African HEIs and other developing countries (Farid et al., 2015; Ncube et al., 2014) (Table 5.9). It was found that no clear communication and strategies were in place about exactly what institutions were considering when implementing blended learning. For example, Ncube et al. (2014) reported that institutions in their study were not clear “whether the institution is considering using blended strategies with a strong component of online tuition or it accords equal weighting to both electronic and print-based learning resources” (p. 364). Ncube et al. (2014) further highlighted that the nature, scope and extent of e-learning at UNISA were not known.

The review found that a top-down leadership style and strategy (Lautenbach, 2010) was a characteristic of lack of consultation by management with key stakeholders, such as academics, which relates to becoming the obstacle for buy-in from academics (Hassan, 2011) and thus successful implementation. Instructors are the key personnel in delivering knowledge, skill and education. Thus Farid et al. (2015) argued that their interest should be “considered as a prime factor for the success of teaching and learning”, especially in delivering online education. Ncube et al. (2014) also reported a feeling among lecturers that the speed at which things are done might negatively affect the e-learning project. For those institutions that opted for a blended learning approach, there seemed to be no dedicated team/unit that ensures the process of DE development and management and support for lecturers and students (Machika & Dolley, 2018).

Blended learning has been employed as a precursor for e-learning. Many African HEIs have established a distance education (DE) unit in their settings that supplement the face-to-face (F2F) delivery mode (Abusalim et al., 2020; Kanwar et al., 2018). However, it seems the DE unit operates using F2F strategies. Kanwar et al. (2018, p. 147) thus argue that there is also “no single, standard, manifestation of dual-mode, making ODL implementation context-specific and complex”. Some studies indicated that HEIs’ agenda was not clear whether institutions were inclined “towards minimizing the hybrid learning method in favour of a single mode of learning which is “paper behind the glass” or e-learning” (Ncube et al., 2014, p. 360). Moving from one mode of education to another requires strong yet flexible leadership, vision, clear strategy and a framework that provides clear guidance on the process.

### ***Lack of appropriate training and preparation of lecturers for e-learning/blended learning***

As widely reported in research, this review found that staff's knowledge, skills, and competence are crucial to the successful adoption of an e-learning innovation in HEI and ODeL (Kanwar et al., 2018) (Table 5.9). The lack of relevant pedagogical and technical skills as unpacked in the Technological Pedagogical Content Knowledge (TPACK) framework and resources adversely impacts the adoption of innovations such as e-learning in HE and ODeL (Bezuidenhout, 2018; Machika & Dolley, 2018; Tshabalala, 2014). The TPACK framework may act as the facilitating condition for lecturers to accept and use e-learning systems because the effort expectancy will not be high. Farid et al. (2015) reported that the lack of a process model for developing learning objects for online education could affect learning material design for online education. However, some challenges affect the adoption of e-learning, as presented in Table 5.10

**Table 5.10***Challenges affecting the successful adoption of e-learning*

<b>CHALLENGES</b>	<b>REVIEWED STUDIES</b>
Lack of awareness of e-learning/blended	Farid et al. (2015)
Lack of understanding of e-learning/blended	Makoe (2012); Ndebele et al. (2016); Ncube et al. (2014); Tshabalala et al. (2014);
Lack of relevant skills	Abusalim et al. (2020); Alomari et al. (2020);
Lack of relevant infrastructure	Abusalim et al. (2020); Bezuidenhout (2018); Foley (2014); Kanwar et al. (2018); Machika & Dolley (2018); Singh-Pillay & Naidoo (2020)
Lack of resources (funds, computers, mobile data, internet facilities)	Machika & Dolley (2018); Tshabalala et al. (2014)

Of utmost importance is the design of learning management systems (LMS) and other e-learning systems, tools, and platforms, which Machika and Dolley (2018) describe as factors that add to the workload that affects the lecturers' motivation levels in the adoption process. For example, in Uganda, Machika (2018) found that both students and faculty members indicated that the LMS was not easy to use. Mbatha (2015) also reported that UNISA's LMS was not user friendly. However, Machika and Dolley (2018, p.187) found that implementation of the LMS often failed due to academics' lack of "proper, needs-based training".

Machika and Dolley (2018) suggested that relevant training based on individuals' specific needs should be conducted and that "such staff receive follow-up training on a one-on-one basis with a trainer they trust" (p.188) or champion trainers with whom academics are familiar. It is vital that awareness and understanding of e-learning go hand-in-hand with developing the required skills and competencies needed for effective implementation. However, other challenges arise with cost and infrastructure (Table 5.10) among the highlighted challenges for the e-learning adoption process. The dwindling resources badly affect the training and development of lecturers and thus the readiness to successfully adopt and use e-learning systems for teaching and learning. With the background emerging from the systematic review, the next section presents and discusses findings from the interviews (Data Set B).

## 5.4 FINDINGS OF THE INTERVIEWS (DATA SET B)

This section presents the findings and discussion from the interviews.

### 5.4.1 Review of research participants and demographics

It is important to note that the purpose of this research study was not to compare findings between the two institutions but to get a collective result of the trends in training and development of academics for e-learning and their subsequent technology adoption in large-scale ODL institutions in Africa. However, there are instances where comparison may be necessary to put perspectives and interpretations into context. The aim was to document and share key lessons learnt from top large open universities in Africa (see Sections 1.3, 1.6, 4.2). Therefore, twenty participants were interviewed, twelve from the University of South Africa and eight from the National Open University of Nigeria. Although names and any information that could identify and trace responses to the participants have been removed, the names and references to the specific institutions have not been completely removed, as shown in Table 5.11, where the participants are labelled P1 to P20.

**Table 5.11**

*Profiles of participants*

PARTICIPANT	TITLE	AGE	GENDER	RACE	YEARS EMPLOYED BY THE INSTITUTION	NUMBER OF TEACHING YEARS AT THE TERTIARY LEVEL
<i>UNIVERSITY OF SOUTH AFRICA (UNISA)</i>						
P1 (M)	Professor	40-45	Female	W	9	8
P2 (M)	Professor	60-65	Male	I	18	0
P3 (CPD/M)	Doctor	46-50	Female	B	5	5
P4 (CPD/M)	Doctor	60-65	Female	W	17	0
P5 (A)	Professor	40-45	Female	B	3	3
P6 (A)	Ms	30-35	Female	B	7	7
P7 (A)	Doctor	56-60	Female	W	16	16
P8 (M)	Professor	56-60	Female	B	25	25
P9 (A)	Professor	60-65	Female	W	25	16
P10 (M)	Professor	50-55	Male	W	3	2
P11 (ICT)	Mrs	46-50	Female	C	13	13
P12 (M)	Professor	60-65	Male	W	40	30
<i>NATIONAL OPEN UNIVERSITY OF NIGERIA (NOUN)</i>						
P13 (A/M)	Doctor	46-50	Female	B	10	6
P14 (A/M)	Professor	60-65	Male	B	12	12
P15 (A/M)	Professor	40-45	Male	B	15	15
P16 (A/M)	Professor	50-55	Male	B	12	12
P17 (A/M)	Professor	55-60	Male	B	6	6

P18 (A/M)	Professor	55-60	Female	B	9	9
P19 (A/M)	Professor	50-55	Male	B	10	10
P20 (A/M)	Professor	50-55	Female	B	10	20

*Note.* \*P=Participant, M=Management, A=Academic, CPD=Centre for Professional Development, ICT=Information Communications Technology Department, B=Black, C=Coloured, I=Indian, W=White

The number of years each participant has been employed by their institutions shows an average of long years of service and teaching experience. Most of the participants from NOUN held both managerial and academic roles. Although these participants were purposively selected based on their teaching role and role in the e-learning process, of particular interest is the gender of participants from both universities. Participants from NOUN were predominantly males, while participants from UNISA were predominantly females. The average age of participants from both universities was 53, and the youngest participant was between 30 to 35 years of age. Although the demographics of participants did not play a major role in their selection, it is important to take note of their profiles and their experiences in ODL and e-learning environments, as this directly impacts the quality of data and type of information shared during interviews.

The average ages of the participants show some maturity in their careers, together with their titles. Out of the 20 participants, only two participants did not yet have doctorate degrees; four participants had the title of Doctor, while sixteen participants had progressed to the Professor level. This trend highlights both universities' recruitment policies and approaches as age was one of the moderating factors in UTAUT for adopting new technology. Recruitment trends in ODeL were also one of the 'strong' issues that participants alluded to during the interviews, and it is a sub-theme discussed in detail in Section 5.5.3. Most of the participants indicated that they had either taught in HE campus-based institution before joining UNISA or NOUN; some indicated they had taught at the school level, while others had been recruited from the government and private organisations.

The above description illustrates the trend of individuals joining the institution in non-academic positions and later shifting to academia and vice versa. As explained in Section 4.4.2.3, the sample from both universities included academics, individuals from various management sections, individuals from departments responsible for staff training and development, and individuals from the ICT department. This data is significant in understanding the trends in continuous academic professional development and adoption of emerging technologies for teaching and learning

### 5.4.2 Overview of the Atlas.ti codes and categories emerging from the interviews

As explained in Chapter 4, coding was conducted via Atlas.ti software yielded 86 first-level codes, and the number of codes was finally reduced to 65. These codes were grouped into ten categories and three major themes (Table 5.12, Annexure 5.6).

**Table 5.12**

*Code Groups/Categories*

#	CODE GROUPS/CATEGORIES	NUMBER OF CODES
1.	Academic support, training and development	11
2.	E-learning	5
3.	Covid-19	3
4.	E-learning competencies	8
5.	E-learning implementation (process)	10
6.	E-learning readiness	5
7.	General HEIs challenges	10
8.	Leadership and change management	3
9.	Participant characteristics	5
10.	Technology adoption	5

Table 5.12 demonstrates which items within the code categories received much attention from participants between the two universities. For example, the categories that received considerable attention within the discussions were academic support, training and development, e-learning implementation process, e-learning competencies, and general challenges faced by academics in the two universities. Although this study is qualitative, it is important to present this numeric data to highlight some major discussion topics during the interviews. Table 5.13 illustrates the frequency of the codes (top 15 codes). This table essentially shows that participants (together with the interviewer) may have spent a considerable time talking about or focusing on these issues (see, Annexure 5.6 for more frequencies).

**Table 5.13**

*Frequency of the top 15 codes*

#	CODE	COUNT
1.	Challenges of e-learning	106
2.	Institutional leadership	60
3.	Training and development	57
4.	Monitor and evaluate the skills	54
5.	Key competencies and skills	43
6.	Training to use technology to teach	42

#	CODE	COUNT
7.	Student support	41
8.	Benefits of e-learning	41
9.	Government's role	37
10.	During Covid-19	37
11.	E-learning policy	37
12.	Technological tools and systems	32
13.	Support strategies for lecturers	31
14.	Challenges of professional development	30
15.	Digitisation (ODL to ODEL)	28

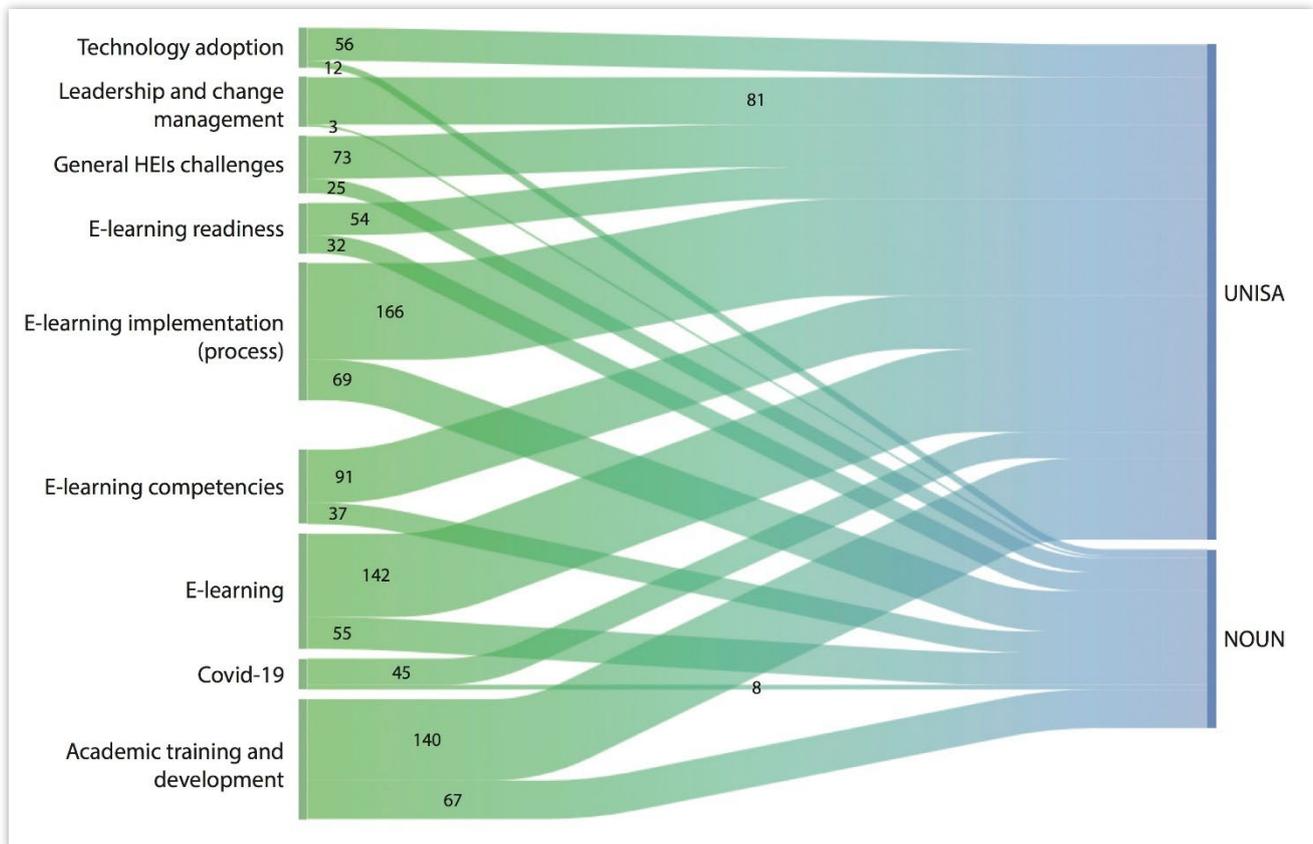
This list does not suggest that these categories are more important than others. Using co-occurrence tools in Atlas.ti allows you to “find out which topics are mentioned together or are in proximity to each other” (ATLAS.ti 9 Quick Tour – Windows, 2021). It is also interesting to see how these categories are distributed between the two cases, although without necessarily comparing the two cases, as that was not the aim of the study; also, the number of participants from both universities was not evenly distributed.

While numerical/quantitative data in qualitative research studies can be controversial and dangerous (Maxwell, 2010; Moalusi, 2019), numeric data can be used in qualitative research to highlight thoughtful insights and strategically complement the process orientation of the research. Maxwell (2010, p. 480) further points out that numeric data in qualitative research “does not inherently make the research a mixed-method study”.

The pieces of numeric data in this study are used to put the discussions and voices of the participants into context and highlight the various perspectives and opinions from both universities. The Sankey diagrams, a type of flow diagram for visualisation, which emerges from the Atlas.ti analysis, illustrate relationships between codes and their frequency. It highlights some similarities and differences between participants based on the codes, as in Figure 5.7.

**Figure 5.7**

*Sankey Diagram (categories)*



These similarities or differences presented in the diagram do not suggest causal relationships as in quantitative research but merely indicate who is what or how attention is given to certain issues within qualitative research. The essence of the findings of this study is based on the experiences and perceptions of the participants as outlined in the conversations that took place through interviews, drawing insights into what may be the underlying key issues for the success or failure of e-learning implementation projects within large-scale DE African HEIs.

The Atlas.ti software also allows one to further visually present data through Word Clouds. Word clouds have been used to analyse qualitative data for more than a decade in teaching and learning and e-learning (Jayashankar & Sridaran, 2017). They are popular and fun ways to display text data in visual and graphical form (DePaolo & Wilkinson, 2014). Figure 5.8 depicts word clouds at the category level. What is fundamentally meant by the figure is that participants used specific words more frequently to describe their lived experiences, academics' professional development, and e-learning preparedness in their contexts. For example, Figure 5.8, like Table 5.14, shows that the word "learning" was mentioned 367 times,



Word clouds are a useful way to tell a story and an excellent indicator in presenting proof of accounts and evidence of this research and strengthening the research's trustworthiness, as explained in Section 4.7 of Chapter 4.

### 5.4.3 Themes emanating from the interviews (Data set B)

As discussed in Chapter 4 (Section 4.5.2), the semi-structured interviews were conducted online via the Microsoft Teams and Zoom platforms. Four major themes were identified with sub-themes, as outlined in Table 5.15. The interview themes are also attached in Annexure 5.4 to include the topics under each sub-theme for a bird's view of this data set.

**Table 5.15**

*Themes and sub-themes from the interviews (Data set B)*

THEMES	SUB-THEMES
<b>THEME 1:</b> E-learning competencies and teaching with technology in higher education institutions in ODeL contexts	<b>Sub-theme 1.1:</b> Key e-learning and digital skills competencies and skills
<b>THEME 2:</b> Academic support and training in ODE contexts	<b>Sub-theme 2.1:</b> Training and development of academics in the African HEI and ODeL context <b>Sub-theme 2.2:</b> Benefits of academic professional development in African ODeL institutions <b>Sub-theme 2.3:</b> Challenges of academic professional development in African ODeL institutions
<b>THEME 3:</b> Academics' e-learning readiness and technology adoption	<b>Sub-theme 3.1:</b> Recruitment trends in African ODeL higher education <b>Sub-theme 3.2:</b> Appropriate time to prepare lecturers for e-learning <b>Sub-theme 3.3:</b> E-learning preparedness of lecturers <b>Sub-theme 3.4:</b> Technology Adoption <b>Sub-theme 3.5:</b> Benefits of e-learning <b>Sub-theme 3.6:</b> Challenges of e-learning
<b>THEME 4:</b> Impact of Covid-19 on academic professional development, e-learning readiness and technology adoption in African higher education and ODeL	

The first theme discussed below is E-learning competencies and teaching with technology in higher education institutions in ODeL contexts.

#### 5.4.3.1 *Theme 1: E-learning competencies and teaching with technology in higher education institutions in ODeL contexts*

Theme 1 emerging from the interview data set is linked to the first research question (Table 5.15) and highlights key competencies relevant and necessary for e-learning in ODeL in higher

education (HE) contexts. The participants voiced their concerns about the general level of skills and capabilities of lecturers and how this, in turn, affects the way students are supported and empowered throughout their academic learning journeys. The theme discusses the participants' key e-learning and digital competencies and skills. Ferrari et al. (2012) believe that digital competence is a 'multi-faceted moving target' that constantly evolves as new technologies appear. Makoe (2012) argues that lecturers need to be trained on how to use new and emerging devices, systems, software applications, online platforms and tools and integrate them into their daily practice.

The study found that most participants believe that e-learning is still new and requires more conceptualisation and understanding of the African context. This thinking was evident throughout the interviews with participants from both universities, that *"e-learning is a bit challenging and still not very clear to us here in the African context"* and that *"it is still a work in progress"* (Participant 18).

Research identifies the e-learning competencies as e-awareness, digital literacy, media literacy, informational literacy and technological literacy (Janssen et al., 2013; McRobert, nd). The key e-learning and digital competencies relevant for HE and ODeL were identified by the participants as:

- Basic computer skills
- Digital literacy and skills
- Online examinations and assessment
- Design and development of learning materials
- Facilitation of learning and teaching with technology
- Student support using technology

**Basic computer skills** were among the e-learning and digital competencies that are urgently needed by academics in both universities and others in similar contexts. For example, most participants indicated that basic computer skills were still a major issue with some lecturers in their institutions, as indicated by the following comments:

*"I have realised that many professors do not know how to present and share the screen and do a presentation...and they try, but even little things like changing a password are just very difficult."* (Participant 1)

*“All those providing online learning must have at least basic knowledge of computer literacy.” (Participants 16)*

The interviews were conducted in the first months of 2021, almost a year after the outbreak of the Covid-19 pandemic. Most of the participants indicated that the lack of computer skills was highlighted during this period (see Theme 4). Many academics identified skills such as uploading question papers for online examinations as a challenge, especially during a pandemic when they needed the skill most. An example was when some academics did not “know where their students’ assignments were, how to find the marks” (Participant 1). Electronic filing as a basic computer skill was also an issue where some participants narrated how some of their colleagues failed to properly organise their electronic files. In the process, they either lost important documents or were able to locate them. Lack of basic computer skills, according to one participant, increased the request for technical assistance by academics from the ICT department:

*“...so that is when you hear people needing constant ICT support for things that really do not need ICT. You hear them saying my computer is not working. Not necessarily that their computers are not working. It is just that they do not know where to find things” (Participant 4)*

In order to gain students’ attention and increase interaction in online learning environments, knowing how to use various tools for packaging your lesson is important, even using such functions as the camera. Presenting learning materials was also a major key competency requiring specific digital and computer skills. However, participants in this study reported that many academics did not know how to do basic things that “*you would expect them to know*”, such as “*converting a document to PDF or how to zip a folder and “reset their passwords using Microsoft, or how to sync with VPN” (Participant 11).*

**Digital literacy** is among the most highly researched and discussed 21st Century skills in literature, as unpacked in Chapter 3 (Section 3.5) of this thesis. Digital literacy involves the ability to handle technological devices (hardware and software) and use them innovatively for teaching and learning (Machin-Mastromatteo, 2012), without which it may be difficult for HE academics to acquire the necessary e-learning competencies (Falloon, 2020). Since most lecturers raised concern about the lack of basic computer skills, it was clear from the interviews that most lecturers did not understand digital literacy or have the relevant digital literacy skills. One participant responsible for the training and development of academics at UNISA indicated that lecturers need basic digital literacy skills and that “*academics tend to confuse the digital*

*literacy skills with computer skills*”, emphasising the need for academics to understand the online space, *“copyrights related to online environment”* (Participant 5), *“ability to collate different information sources”* (Participant 6). Digital competence is directly affected by digital literacy, as Falloon (2020) argues, clearly involves more than knowing how to use devices and applications. Digital literacy is also considered a key concept for lifelong learning. According to Ferrari et al. (2012, p. 79), digital competence is a ‘multi-faceted moving target’ that constantly evolves as new technologies appear, requiring lecturers to continuously update their digital literacy and competencies.

Knowing how to use the internet as part of the digital literacy skills required by academics was lacking among academics. As indicated in Chapter 2 (Section 2.2.2.4), age is one of moderating factors identified in UTAUT by Venkatesh et al. (2003) and by Afonso et al. (2012), playing an important role in the users’ use of technology. Some lecturers from both universities did not know how to use digital devices to teach. Age was identified as the major culprit as *“some middle-aged academics tend to give their mobile devices to their children to operate to achieve academic goals... Let us have our teachers explore the internet with their mobile devices...”* (Participant 20). Knowing how to manoeuvre the internet is an important skill that lecturers should possess to transfer to the students.

### ***Online examinations and assessment***

Both NOUN and UNISA participants raised the concern of lack of skills for online examinations. This was also mainly evident during the Covid-19 pandemic lockdown, where all of the universities’ operations and teaching activities were migrated online, specifically using the universities’ LMS and platforms. It is important to remember that most of these observations and problems about the skills of lecturers were in existence prior to the pandemic. The interviews revealed that ODeL institutions were not as open and flexible enough as they still forced students to write examinations at specific times of the year. This, according to the participant, is a lost opportunity for institutions to reap the benefits of online examinations:

*“We cannot support our students effectively, and we will not be able to assist them appropriately because we use technology, but we use assessment practices that are like contact universities. That is why examinations have been a crisis at [this university] during Covid-19 lockdown”* (Participant 8)

The lack of knowledge and skills to effectively and appropriately assess students' work on online platforms was identified by most participants as a major problem in their universities. Technology has made it easy not only to automate some assessment activities for lecturers but also to give personalised feedback to each student. Nevertheless, it became clear from the interviews that *"some academics do not even utilise available marking software to provide that technologically enabled feedback."* (Participant 6).

### ***Design and development of learning materials***

Skills and knowledge to appropriately design courses for online consumption and effectively implement them were also identified as lacking during the interviews. This was also highlighted by Hassan (2011), who found that academics may understand the terminology of the educational generation (that is, new technology innovation), some even being adept at design. However, many academics falter at the level of implementation. There seems to be a practice with HEIs adopting e-learning and blended learning. The paper-based learning materials are digitised and uploaded onto the digital platform without being properly processed for online spaces.

One participant argued, *"to develop a study guide on paper and then put it online is stupid"* (Participant 4). Some participants described this as *"paper behind glass"* (Participants 6) or *"paper behind the screen delivery of teaching"* (Participants 6). This view was held by a few participants in this study that *"the starting point in ODL is instructional design"* (Participant 8). If the learning material is appropriately designed, it will lead to distance education students becoming independent learners. Therefore, some participants felt that the focus should be on instruction and that the technology needs to support the instruction. Farid et al. (2015, p.167) also found that *"shifting from the traditional teaching environment to the e-learning environment is difficult"* for the lecturers because they do not have the necessary know-how *"to revise their course and teaching material from hard mode to the electronic mode"*.

One of the key characteristics of digital learning and distance education is clear communication and clear language. As indicated by one participant, if the presentation of content is not done properly, it is easy to lose students' interest and engagement in online learning environments. Clear communication was therefore highlighted as part of instructional design skills needed for ODeL HEIs lecturers:

*"... the ability to deliver your content in a short, precise manner in order to keep the student engaged."* (Participant 6)

*“So, the content must be such that it can keep the student learning and engaged and motivated. (Participant 15)*

This participant felt that it takes an extra skill to design and develop learning materials that can keep students actively engaged in the learning activities in the online learning environment. Most participants reiterated the importance of understanding instructional design processes and designing learning resources that fully address objectives in a technology-enhanced learning environment. The training was seen as crucial to acquiring the necessary skills:

*“I think all lecturers...should go through the transition or the training or the capacity building that will make you know what facilitation or online education is, or pedagogy, how you develop the learning resources, how you interact with your students online, the nature of assignments and interaction you want them to do with the learning resources should all be built into the instructional design.” (Participant 18)*

The lack of appropriate instructional design skills in HEI and ODeL has major implications, one of which was highlighted by one participant as the issue of attrition, which has also been highly reported in the literature (Beer & Lawson, 2017; Hamshire et al., 2019):

*“Lecturers need to know how to reach out to the distant learner and also how to engage him and keep his interest because one of the issues with the distance learning is the attrition rates... the learners could start, but if they are not fully engaged and do not feel they have the commitment required, they could just drop along the line.” (Participant 18)*

### ***Facilitation of learning and teaching with technology***

This study found that many academics can use technology for their research, yet they are not keen on learning how to use the same technology for teaching and learning. The core business is teaching and learning, and research should be done to support and enhance the teaching and vice versa. However, research has been prioritised over teaching in higher education and ODeL (Chen, 2015), making it difficult for lecturers to fully develop themselves in the art of teaching. Some participants highlighted that most lecturers in their institutions were not looking at improving their teaching and utilising the technologies and the platforms. It was reported

that the focus of many lecturers was not on being an effective teacher and helping the student but more on research (Sub-theme 2.3):

*“As long as the research scores them points and money, that is all that matters to them [some lecturers], the focus is not on being a brilliant teacher and not helping the student but more focused on research, so in some instances, some people suck at teaching.”* (Participant 11)

The study also found that one of the key competencies necessary in ODeL, as perceived by the participants, was the understanding of pedagogy and technology for ODeL delivery in African higher education. Understanding how technology impacts pedagogy, Technological Pedagogical Knowledge (TPK), as Koehler and Mishra (2009) define it, is very important, especially in ODeL, where teaching and learning depend heavily on technology alluded by some participants. Lecturers may know the content of their discipline, but they also need to understand how to deliver that content online because they may need to present the same content in diverse ways so that learning can be enhanced.

*“You need to find a way of engaging him with assignments, videos, animations, practical lab simulations, etc. So, these things are challenging and still not very clear to us here in the African context.”*  
(Participant 18)

Facilitation of learning in online learning environments and teaching with technology were some of the competencies identified by participants as crucial for ODeL institutions. One participant indicated that *“when academics are confident in using the technologies, they will use them more”*. The same participant further mentioned that being skilful in using technology to teach would enrich the content:

*“... and then that would enrich the content of their modules, whatever the content, it would be rich. We produce students that are well equipped with skills.”* (Participant 3)

Academics must develop a well-balanced and integrated knowledge of content, technology, and pedagogy, technological pedagogical content knowledge (TPACK), where truly meaningful and deeply skilled teaching with technology can be achieved (Koehler & Mishra, 2009). Gani's (2018) study found that “the majority of the participants [lecturers at UNISA]

made use of additional online resources” (p. 143) which remarkably enhanced students’ grasp of the learning content.

### ***Student support using technology***

At the heart of distance education and e-learning is the ability to support students effectively, especially in distance education settings where human interaction is limited (Moore, 1989, 1997). Therefore, one of the key competencies identified in this study was making effective use of technology to support their students. Although challenges were highlighted, impacting the way students are supported in ODeL HEIs (Sub-theme 3.6), many participants agreed that improvement of student support is urgently required. One participant argued that relevant student support skills need to be addressed:

*“...so that they [lecturers] know how to reach out to the distant learner and how to engage him and keep his interest because one of the issues with distance learning is the attrition rates. And not all the learners could start, but if they are not fully engaged and do not feel they have the commitment required, they could just drop along the line.”* (Participant 18)

Research shows that to increase students’ success and student retention, higher education institutions need to enhance the quality of the student support services that they design for their students (Britto & Rush, 2013; Sanchez-Elvira Paniagua & Simpson, 2018). Peters et al. (2018) argue that to achieve this, HEIs need to re-imagine and re-invigorate student support services for online learning. The importance of lecturers knowing how to use social media to teach and support students was also highlighted by many participants. The idea is that many ODeL and HEIs learners spend the most time in online and social media spaces (Basitere & Mapatagane, 2018) and that integrating social media in HE teaching will enhance the students’ learning. It is vital to use various digital tools to facilitate students’ learning and support them online and via social media.

The entry of younger students into ODeL HEIs (Case et al., 2018; Meehan & Howells, 2018) requires a different approach to student support and new skill sets that will enable institutions and lecturers to successfully implement e-learning appropriate student support strategies. It was interesting to note the mentioned e-learning technological tools and systems during interview conversations with participants, as listed in Table 5.16.

**Table 5.16**

*Technological tools used by lecturers*

TECHNOLOGICAL TOOLS & SYSTEMS	
Blogs	Open Educational Resources (OERs)
Big Blue button	Platforms
Cell phone	Podcasts
Desktop	Radio
Mobile devices	Sakai
DLMS	Smartphones
Emails	SMS
Facebook	Social Media
Google	TV
Instagram	Twitter
JRouter	Webinar
Linux	WhatsApp
LMS	WiFi
Microsoft Teams	YouTube
Moodle	Zoom

As illustrated in Table 5.16, there is an array of tools that participants at the two institutions have put in place for teaching and learning activities. However, the concern raised in the interviews is that most lecturers were not using most of the available tools, as it has not been compulsory for lecturers to incorporate them into their practice. Further details on this issue are discussed under Sub-theme 3.5, dealing with technology adoption.

*"So, in terms of the tools, I feel that it is all very well to have the tools, but if you do not know how to use the tools, then the tools are useless."*  
(Participant 1)

*"...the university LMS was already there...but I do not think it was compulsory."* (Participant 12)

Learning management systems are at the centre of e-learning innovations in higher education institutions (Anderson et al., 2013) because most (if not all) online teaching and learning activities are conducted via the university's LMS, including all types of interactions such as student-teacher, student-student and student-content (Moore, 1989). Lecturers need to continuously learn and upgrade their skills to use these systems and tools to teach and support their students in distance education and online learning environments. It will not benefit the current learners in Africa or any developing country if the knowledge transfer employs old and outdated methods and tools when the world is technologically driven.



theme presents findings and discussions on the state of academic support and training in higher education in ODeL contexts.

#### **5.4.3.2 Theme 2: Academic support and training in higher education in ODeL contexts**

This theme is aligned with the third and fourth research questions (see Table 5.15). The first sub-theme focuses on the training and development of academics in the African HEI and ODeL context, specifically looking at how academics can be prepared for e-learning. Theme 2 has three sub-themes, each of which is discussed below

- Sub-theme 2.1: Academic support and training in higher education in ODeL contexts,
- Sub-theme 2.2: Benefits of academic professional development in African ODeL institutions, and
- Sub-theme 2.3: Challenges of academic professional development in African ODeL institutions.

##### ***Sub-theme 2.1: Training and development of academics in African higher education and ODeL context***

The general understanding among participants in this study was that academic professional development (APD) is important in enabling a smoother acceptance and adoption of technology for teaching. The belief among the participants was that if academics have the necessary skills and are familiar with the technology that is being implemented, using that technology to teach should not be a problem. This speaks directly to effort expectancy, which increases when the available skills do not match the required level of skill and knowledge for using technology in their practice. According to Roberts (2018), Africa may have plenty of ODL experts since the oldest ODL institution in the world is in Africa. However, from this study, it is clear that academics in African institutions need to develop the appropriate skills and knowledge for effective e-learning delivery.

Lecturers must be properly trained to use the tools available within the institution; otherwise, it has little benefit if the institution invests in technologies, systems and tools that are not properly and optimally used for the purpose for which they were acquired. Hence the need for a continuous upskilling of academics to ensure that they are equipped with the relevant competencies. To achieve the required level of skills, some participants indicated that a hands-

on approach with follow-up or refresher sessions would best develop the prerequisite skills needed for using technology in their teaching.

*“So, it must be a hands-on course. It must not be just theory, and there must be many follow-ups because you learn something and then two months later you know you have learned it, but you have forgotten, and you need just a refresher....”* (Participant 9)

It was evident from the conversations with participants that there is a need for a practical approach to the training workshops provided for teaching skills. Most participants also reiterated the importance of ‘training and retraining’.

*“So, in a nutshell,... all learners and teachers [lecturers] today need to be grounded in e-learning through training and retraining, and how to use the infrastructure in the e-learning.”* (Participant 13)

Regular and continuous training was also highlighted as a key success factor for successful e-learning projects in the African HE context.

*“Regular orientation and capacity building programs, training and retraining of skills as you know you have new ways of doing things and technology solving problems almost every day. So, to keep up with the trends and as well as to be more efficient, the academic staff needs to be trained and constantly retrained in work.”* (Participant 15)

This training and retraining process was described as necessary even for the professors. The process should be continuous so that as new technologies and new methods emerge, lecturers are given the opportunity to acquire the relevant skills and knowledge for ODeL delivery. However, these findings revealed that there was not enough relevant and regular training happening at these universities specifically aligned to the e-learning initiatives. Some participants highlighted that although tools may be available, there has not been a compulsory mandate and training to use the tools.

*“There needs to be compulsory training,...in providing support to lecturers”* (Participant 6)

Incentives as a tool to encourage attendance of training and development programmes such as a certificate or something similar was also suggested by some participants from the University of South Africa. Interestingly, most National University of Nigeria participants indicated that the university heavily depended on incentives for some e-learning activities. One participant strongly believed that upskilling of teaching skills *“should be incentivised as done with research. It must be linked to your career pathing within the university.”* (Participant 8). The issue of incentives was also clearly articulated in the NOUN’s 20025 draft E-learning Strategy and Policy. While some participants were concerned about the lack of adequate, relevant training, others were concerned with the number of randomly planned workshops and programmes that were not linked to the real needs of the institutions and lecturers.

*“There are ad-hoc and once-off workshops, then once people do it, they go back to their inboxes and forget about what they have done. So, it is not effective because it is not a structured programme.”* (Participant 8)

The universities should be developing capacity and capabilities for lecturers to know what needs to be done and how to do it. A few participants also stated the importance of allowing lecturers the opportunity to practise the skills they have learned. One participant indicated that it is important that *“academics own their training personal development.”* (Participant 20). The interviews revealed that the ability to acquire new skills must be met with the opportunity to make use of these skills in teaching. Learning to teach with technology requires a hands-on approach and opportunity to practise is supported by the constructivist approach to learning (Ebil et al., 2020) and learning by doing (Reese, 2011). Moye et al. (2014, p. 22) argued that *“knowing something and knowing how to do something are very different things”*. Another participant indicated that putting academics in a position where they are forced to use technology has proven to be effective. This particular participant recalled how the Signature modules at UNISA was one way of forcing both lecturers and students to make the shift from analogue and paper-based teaching to digital teaching and learning. The Signature modules were designed as prototype modules for online learning (Baijnath, 2014), these were offered fully online in six colleges at the University of South Africa and were used as examples to develop more online modules.

Some of the strategies suggested by participants to advance the training and development of lecturers and ensure that they are well prepared for the e-learning innovation include making sure that those tasked with the responsibility to train the lectures are also adequately and continuously trained. When trainers of the trainers such as staff training centres/units and departments are not keen on adopting new ways, it could be damaging to the university's

vision. However, some participants believed everyone aligned to the ODeL HEI by employment should receive relevant training and be prepared for the e-learning initiative to *“ensure that all of us have a common understanding of what this university is about.”* (Participant 12).

An unsupportive work environment has serious implications for lecturers, ODeL HEIs and, most importantly, students. The findings revealed that some of the approaches and strategies for lecturers’ training and developments that worked well in the past are neglected as time goes by. There is no coherent, consistent commitment to APD in ODeL HEIs in African contexts. This has led to inadequate support for the students. As highlighted by participants, institutional support included issues relating to technical support by the institution’s relevant personnel such as ICT and others, relevant resources, training, incentives, and appropriate infrastructure. Institutional support was also one of the most talked-about topics by the participants in this study (see Table 5.4).

*“You struggle with your VPN, or the LMS is down, or the intranet is down, you cannot get it going, and ICT takes weeks to come back to you to fix it... Things like that... are really frustrating if you want to do something and cannot.”* (Participant 9)

*“That is very key; the university must invest in infrastructure. From internet facility to laptop or whatever, the thing you can give to your staff to keep them well, not that they will be using their salary to fund the delivery of e-learning when they are working for the institution.”* (Participant 13)

Collaborations and capacity-building partnerships with other institutions were also seen as effective tools to support lecturers. However, some of the participants indicated that relevant support and training necessary to deliver content and teach online was not forthcoming from the institution, as indicated by this participant.

*“I was one of the people who was expected to do an OER, and well, it went through a review process and so on, and we got a little bit of training on how to write the OER, but that is as far as it went.”* (Participant 9)

Some of the international partnerships and collaborations mentioned for capacity building include the University of Maryland Global Campus (UMGC), the University of Oldenburg for

the University of South Africa and the Open University (OU) in the United Kingdom (UK), the Commonwealth of Learning (COL), regional bodies such as the Institute in Africa for the National Open University of Nigeria, including various local institutions and governmental support within the African borders for both universities.

The correct levels of competencies must be fostered through relevant research and need analysis. This is important as it will guide the type of training designed to address the needs of the academics; as one participant pointed out:

*“We must start embracing research for development. So, if there is a gap, let us identify it empirically. We all need to do a needs assessment. Let us take some SWOT analysis. Let us look at this issue so that we can properly channel development.”* (Participant 20)

This argument was supported by a few participants who also believe that it is important to evaluate the level of skills acquired in a workshop or any training programme. The training providers need to go beyond client satisfaction surveys which only deal with venues, food catered for and presenters' skills and not necessarily on how the training was useful. This also means that the training must be relevant to the lecturers' needs and aligned to the modules they teach; this way, lecturers can choose appropriate technology tools to teach and support their students. Other training strategies identified also included using e-learning and technology champions in the institution.

*“...in the college of [name withheld], they have somebody that helped you, you could just walk over, and he/she will help you.”* (Participant 4)

While using champions to train others to use technology to teach may have some advantages, Some of the lecturers who are early adopters of technology (e-learning) tend to meet the challenge of not receiving appropriate support from the institutions, particularly if they are reaping the benefits of academic professional development as presented in the next sub-theme.

### ***Sub-theme 2.2: Benefits of academic professional development in African ODeL institutions***

Under this sub-theme, participants were asked to list some benefits of professionally developing lecturers in higher education for e-learning, especially in ODeL institutions. Some

of the identified benefits included those related to various HEI stakeholders, including students. The benefits that emerged in the interviews ranged from flexibility, efficiency, student engagement and more. Table 5.17 illustrates the benefits identified and discussed by the participants, together with a sample of the comments from participants.

**Table 5.17**

*Identified benefits of APD in Africa ODeL institutions*

#	IDENTIFIED BENEFIT	SUPPORTING PARTICIPANT RESPONSES
1	<b>Delivering quality teaching and learning</b>	“By quality, I mean, when academics are confident in using the e technologies, they would use them more to enrich the content of their modules and produce students who are well equipped with relevant skills and ready to face this 4IR era.” (Participant 3)
2	<b>Best practice</b>	“If we are looking to have a global best practice and good quality delivery, you must not push aside this professional development of the lecturers. So, it makes us universally acceptable if we have well-skilled lecturers.” (Participant 20)
3	<b>Efficiency</b>	“So, it also improves the efficiency in the system as well as the delivery system.” (Participant 18)
4	<b>Better student support approaches</b>	“Honestly, we get many benefits from this [training development], the lecturers will now have very excellent commendable learner-driven [capabilities], because it is when they are well-trained that they will be able to attend to the needs and wants of the learners but if they are not trained, the pedagogy that is expected will not be there.” (Participant 19)
5	<b>Enhanced ‘classroom’ management</b>	“... for them to now be effective in class, engagement through this ICT learning capacity-driven [approach]. There will be a better way for the lecturers who are managing their classrooms effectively, enhanced classroom management.” (Participant 19)
6	<b>Flexibility and being proactive in the use of emerging technologies</b>	“Being able to react more readily and adapt to a changing and dynamic world, because technology changes every few years.” (Participant 7)
7	<b>Using different technology platforms to teach and support students</b>	“And they learned a lot on using different platforms...they can come up with better ideas and they may contribute to it.” (Participant 10)
8	<b>The smooth running of educational activities in the face of sudden disruptions such as the Covid-19 pandemic</b>	“And when this issue of Covid-19 started, you say it was very easy for [this university] to go online and migrate, no stoppage in the calendar or the institution and the learning, and everybody was engaged through Covid-19. This is what is expected.” (Participant 13)
9	<b>Increase student enrolment</b>	“The idea here is that students will gain confidence and trust the institution and its teaching staff to train and develop them with relevant skills envisaged for their careers and workplaces. The reputation and brand of the institution become trusted and thus

#	IDENTIFIED BENEFIT	SUPPORTING PARTICIPANT RESPONSES
		increased enrolments.” (Participant 17)
10	Cost-effectiveness	“You do not need to contract out your training since you have them in-house. The institution can generate revenue by training staff of other institutions. The professionals within the university develop software and platforms for e-learning delivery.” (Participant 14)
11	Empowerment	“I think they feel empowered to do what is expected from them to do.” (Participant 9)

Continuous professional training and academic development were seen to have many benefits, some of which are discussed in Chapter 3, Section 3.6.3. Best practices were also identified as one of the key benefits of APD in African ODeL HEIs. The next sub-theme also briefly discusses the challenges of academic professional development in African ODeL institutions.

### ***Sub-theme 2.3: Challenges of academic professional development in African ODeL institutions***

Although discussions with participants on the challenges academics face in higher education and ODeL in African institutions took up the bulk of time during interviews, this section presents the challenges emerging from the findings. As illustrated in Table 5.13, the challenges of e-learning and the challenges related to the professional development of academics were top of the discussion list.

This section focuses on challenges that impact successful academic professional development. There were general common challenges such as access to the Internet, connectivity, bandwidth, data, cost of education, and lack of digital devices, discussed under Sub-theme 3.6. These challenges, although they significantly influence the adoption of technology and e-learning in African and developing country contexts, they are not necessarily unique to HE, and they are extensively researched and reported on. There were, however, other challenges that directly affect the intake of technology and e-learning in African HEIs, which have a greater chance of being turned into opportunities to demarcate opportunities and examples of ‘good practice’ that can be tapped into for purposes of improving the success of e-learning initiatives and adoption by lecturers. Participants reported the following challenges:

- Lack of prioritisation research over teaching activities and relevant training
- Lack of adequate funding for academic professional development
- Age as a factor for academic professional training

- Lack of relevant training for teaching
- Workload of academics
- Too much lecturer autonomy

### ***Lack of prioritisation research over teaching activities and relevant training***

Most of the participants in this study raised their concerns about prioritising research over teaching activities and training, indicating that HEIs tend to invest more in research and development than in training for teaching and learning.

Although the research should inform teaching and learning in higher education, teaching practice should also inform research. Research should be about improving the skills and pedagogical methods and approaches. According to Hassan (2011, p. 486), “universities reward output in research more than it does teaching and learning”. The lack of prioritisation of teaching and learning skills over research skills was strongly highlighted as one of the major challenges of APD in HE. Linked to the prioritisation of research over teaching was the lack of incentives for research, as seen in the comment below:

*“I feel that [this university], maybe other institutions too, are focusing on incentives in developing lecturers more in research than in teaching and learning...if they would award lecturers for the teaching and learning research, that could also work wonders because then you can combine both of them...but they give incentives for research.” (Participant 4)*

Prioritising research over teaching was raised as a key challenge. Participants pointed out that the professional development of academics as teachers should critically focus on training academics on how to teach in an academic institution, develop curricula, support learners, and assess student performance. The systematic nature of academic professional development is necessary to maintain, improve and “broaden knowledge and skill necessary for the execution of professional and technical duties” (Brereton, 2004, p. 15) throughout the academics’ working life. However, it is a serious concern that university management may be complacent about supporting and ensuring that appropriate capacity is developed for ODL delivery.

### ***Lack of adequate funding for academic professional development***

The challenges of funding were reported to be more prevalent in developing countries, where funding and support from the government and other organisations are said to be shrinking (Musundire & Mumanyi, 2020). Linked to the prioritisation of research over teaching was the belief that there is a lack of adequate funding in African ODeL HEIs for professional training and development of academics. Few participants also raised this concern:

*“The economy’s situation forces the government to cut down funding, but it is also the time when education should be given a priority because that is the way out. However, the [HE] sector funding is being cut down.”*

(Participant 20)

Some participants believed that their governments were not doing enough to support academics in upskilling their teaching competencies; however, other participants believed their governments provide funding for different things within the university, including capacity building, but a concern was raised that the universities do not properly facilitate the funds. The challenge raised was that capacity building funds are not used for what they are meant for, and there was a fear that this funding would also be completely cut in the future, as seen in the comment below:

*“They [government] give much funding also for capacity development. There is a big fund for capacity development. I do not know why it is not used to do the work it is meant to do, and maybe part of the problem is that the leaders who are supposed to facilitate that fund or control that fund do not know where to start where to go.”* (Participant 8)

This particular participant is one of the participants who were part of the management team in his/her university at the time of the research. Corruption was also insinuated and blamed for the mismanagement of training funds in African HEIs. This funding issue is linked to the quality of leadership in ODeL HEI, which is discussed in Theme 3.

### ***Age as a factor for academic professional training***

The variables of age in training and the development of academics were identified as a major factors in the study. The average age of participants in this study was 53.5 years, with only one participant in the 30-40-year age brackets, as indicated in Table 5.11. The issue of age

also directly links with the recruitment trends and approaches of ODeL HEIs, as discussed in Sub-theme 3.1. Age has been identified in various theories of technology adoption and UTUAT (Venkatesh et al., 2003) as a moderating variable and gender, experience and voluntariness of use. It seems that age is considered a major factor when learning new things, therefore a factor in APD, which was the feeling of many participants in the interviews:

*“They [lecturers] definitely need to be resilient because it is not easy, especially for somebody older, like me learning these new technologies and Zoom and Teams and all those things.”* (Participant 4).

*“...but old people like me and some of my colleagues, you know it is hard to teach an old dog new tricks.”* (Participant 9)

Participants from both universities believed that their universities had many older academics compared to younger academics and that their institutions should recruit younger academics and train them properly for an ODeL context. Some participants from the National Open University of Nigeria indicated that their university has already started recruiting and investing in younger recruits. The willingness to learn new skills was linked to age, as there is a belief that most academics, especially professors, are not willing to learn new skills or develop additional competencies. From the comments, age as a moderating factor for technology use (Venkatesh et al., 2003) also directly impacts the effort expectancy. Older academics tend to think that using technology or learning to use technology may be difficult.

### ***Lack of relevant training for teaching***

One of the challenges of APD in ODeL higher education is the lack of relevant training for teaching skills, which according to Suwaed and Rahouma (2015), leads to poor quality of higher education programmes. One participant indicated that one of the international capacity building programmes in which she had participated had exposed her to theories of distance education and technology tools:

*“The online course was for e-learning, but they did not teach you specific things technology-wise; you learned the theory, and I think that was very important.”* (Participant 1)

The same participant indicated that the capacity building programme focused on DE theories of teaching and learning rather than on specific skills in teaching with technology. Another

participant reiterated the issue of irrelevant training available for HE academics, blaming it on the lack of resources for training:

*“Because there are no resources, there are no proper programmes geared towards preparing [lecturers for e-learning]. I am talking about practical programmes where at the end you walk away with a course that you have developed or learnt to facilitate.”* (Participant 8)

This participant indicated that academics need hands-on training that teaches them how to develop learning materials for online spaces. This matter was discussed in Sub-themes 1.1. and 2.1. A similar issue was raised by another participant, who believed developing learning materials for online delivery is different from designing for face-to-face. Design and development of learning materials were also raised as the key digital competency required for today’s ODeL HE academic (Theme 1). Therefore, relevant training is critical for institutions that embark on e-learning initiatives.

Some participants indicated that most of their careers were founded in non-ODeL environments; thus, they require relevant training on how to teach in ODeL spaces. This is also an issue related to recruitment practices in ODeL HE (Sub-theme 3.1), as shown in the comment below:

*“When I first came to this university, the only way knew how to teach was by standing in front of a class and all of a sudden, I was not standing up in front of the class anymore, and I thought, well, I do not know how to teach.”* (Participant 1)

*“... after the outcomes, it is assessment; by the time you get to content, it is right at the end, whereas when you teach in contact university, you start with content. So, the way the whole thing [ODeL] is packaged, it is difficult to understand it if you have not been trained.”* (Participant 8)

Other participants specifically highlighted that relevant training was needed for the administration of online examinations, which was required during the Covid-19 pandemic lockdown:

*“Administration of the online examination was difficult for some to adapt to that change. So, there needs to be adequate training for that.”*  
(Participant 6)

Academics’ lack of relevant skills clearly impacts how they teach and support students; the negative is that this situation could lead to the non-use of new e-learning systems that the universities have put in place.

### ***Workload of academics***

The concern of workload of academics has been part of discussion and debate for many decades and has been reported as one of the major factors affecting APD (Janib et al., 2021; Steenkamp & Roberts, 2020). It still proves to be a big issue even today. Both academics and non-academics in this study reported that academics in two of Africa’s large-scale ODeL HEIs were overworked. The following comments attribute workload as one of the major factors impacting the training and development of academics in HE.

*“So, lecturers’ workload may be on the standpoint of our institution. I would not know the general situation in other universities, but I know that the workload of academics should be determined. Until we determine the workload, we would not be able to remove or reduce drudgery in our activities in our teaching activities.”* (Participant 20)

*“...because of the time factor. At [this university], we have a lot of admin work, and so we are already so busy that I think academics are very overwhelmed, and just finding the time to fit all of this in may be a bit difficult.”* (Participant 10)

*“It is not fun because there is a lot more on the lecturers’ desks already”*  
(Participant 3)

One participant discussed how her department's amount of work and modules is divided among six academics, whom she said are already old. She further explained that this makes it difficult for them to attend any training. Although there are teaching assistants, lecturers still have to oversee the module and do some teaching, moderation, and research activities. Thus most of them feel they have been allocated far too much work.

It is important to note that these African ODeL higher education institutions, such as UNISA and NOUN, deal with huge student module enrolments. For example, one module at UNISA has as many as 20 000 enrolled students.

Administrative tasks were a major issue that prevented lecturers from attending training and development commitments. Workload, in general, affects the quality and execution of lecturers' other tasks and responsibilities. This further affects the overall adoption of new technologies, including e-learning and appropriate student support, as warned one participant:

*“When a too heavy workload burdens you, you get disenfranchised and discouraged. You do not even want to put in much effort because you have too much on your hands. So, what you do is superficial. You quickly have to just pick on this and pick on that; you are not deep. Then they are not too comfortable handling it [e-learning]. Some will simply switch off when the workload is too heavy, and then employ the services of others because the load is just overburdened; they also may feel inadequate.”* (Participant 20)

As the above comment implies, the workload is said to bear psychological issues for lecturers. Many lecturers clearly indicated that they do not have enough time to attend to other training and development, which is a major concern as upskilling continuously happens in line with the current changes in higher education.

### ***Too much lecturer autonomy***

An interesting observation by one of the participants was that the lecturers are given too much autonomy, which affects their attendance of training offered or suggested by the institution. This notion interlinks with the idea that most of the training offered by the university is not compulsory, hence the leeway for lecturers. This was an interesting viewpoint as a non-academic participant raised it. It seems lecturers *“train as and when they choose to train”* (Participant 11). Lack of compulsory training in ODeL (see Sub-theme 1.1) was also identified as a challenge for APD and e-learning in African HE. Lack of compulsory training was also identified in the systematic review studies (Machika & Dolley, 2018; Ndebele et al., 2016) as problematic. There is a need for HEIs to rethink their approach to training and development of academics, both at individual and institutional levels.

### **5.4.3.3 Theme 3: Academics' e-learning readiness and technology adoption**

At the heart of e-learning initiatives is the approach to prepare lecturers to teach and support students through e-learning and online learning technologies. However, many African ODeL HEIs are faced with challenges to ensure that learning is a success. Based on research questions 2 and 4 (Table 5.15), this theme unpacks the thoughts and ideas of participants in this study about academics' e-learning readiness and technology adoption in their institutions. Theme 3 further has six sub-themes:

- Sub-theme 3.1: Recruitment trends in African ODeL higher education
- Sub-theme 3.2: Appropriate time to prepare lecturers for e-learning
- Sub-theme 3.3: E-learning preparedness of lecturers
- Sub-theme 3.4: Technology adoption
- Sub-theme 3.5: Benefits of e-learning
- Sub-theme 3.6: Challenges of e-learning

#### ***Subtheme 3.1: Recruitment trends in African ODeL higher education***

This sub-theme presents findings on recruitment trends in African ODeL higher education, which has been an interesting point of discussion by participants in this study, receiving 27 mentions in the analysis done in Atlas.ti (see Annexure 5.6). The general idea in this theme is that most academics lack relevant digital skills to effectively adapt and adopt e-learning due to the recruitment approaches of HEIs in the ODeL context. Recruiting qualified lecturers to teach online courses is critical in planning and managing online programmes (Brannagan & Oriol, 2014; Yang & Cornelious, 2005) since the ODeL institutions serve a global community (Schnitzer & Crosby, 2003). However, there is concern that distance education institutions have a limited pool of skilled people from which to recruit, particularly as universities tend to recruit candidates not trained and skilled to teach in DE and e-learning environments, as implied in the following comment:

*“Many of our lecturers are not trained in how to use technologies in teaching and learning...and part of the reason is that we recruit people who come from other institutions, especially face-to-face institutions”*  
(Participant 8)

There are also concerns that many recruited people do not have an ODL background. When they have to teach in ODeL spaces, they tend to continue working as they had done using traditional approaches and methods, and *“they get very uncomfortable”* (Participant 8). Some participants from the University of South Africa highlighted that the institution is the only comprehensive ODeL institution in South Africa and that *“the other universities are trying to get onto the bandwagon”* (Participant 1). Competition to hire the relevant skilled workforce is increasing at ODeL institutions, especially with the outbreak of the Covid-19 pandemic that put pressure on many universities to move education programmes online and through distance mode. The concern is that universities hire *“people who tell us in interviews and on their CVs that they can do these things. However, once you have signed a contract, you realize that they know nothing. They do not know how to use the technology to teach”* (Participant 12).

To respond to the misrepresentation of skills in candidates' curriculum vitae, few participants from both institutions suggested testing. Participants from NOUN indicated that this practice has already been implemented at their university, as shown in the comment below; however, some participants from the University of South Africa reported that UNISA has not begun with the testing of skills at recruitment level:

*“In Nigeria, for instance, it has even made a requirement for you as a lecturer in the university, you have to demonstrate some competencies; otherwise it becomes difficult to fit in very quickly.”* (Participant 15)

There are clear consequences of not recruiting the right calibre of candidates. The concerns raised by many participants are that recruiting people who do not have relevant skills affects the already-dwindling resources and that those who suffer most are the students who receive sub-quality teaching and support services. Participants from both universities indicated that their universities are now attracting young people to join academia. Age was identified as the major factor affecting the non-use of new technologies to teach and also non-attendance at training programmes (Sub-theme 2.3). However, ODeL HEIs are starting to hire younger academics who are techno-savvy and are not afraid to work with technology (Sub-theme 3.5).

*“I think nowadays we are appointing more younger people in the college, but old people like me and some of my colleagues are quite old...”*  
(Participant 9)

*“...but now the open university is attracting young people.”* (Participant 17)

Academics may struggle to adopt new e-learning innovations due to a lack of relevant skills or the perceived difficulty in attaining the necessary skills (Bhuasiri et al., 2012; Engelbrecht, 2003). Understanding the ODL and e-learning environment is one of the key factors for success; therefore, institutions should revisit their recruitment practices and policies. When capable people have the necessary know-how, they get comfortable using new technology and are motivated to do even more to advance their practice. Linked to developing the necessary skills and competence is the time needed for lecturers to be prepared for e-learning technology in higher education in ODeL contexts.

### **Sub-theme 3.2: Appropriate time to prepare lecturers for e-learning**

This sub-theme directly links to the second and fourth research questions (Table 5.15). E-learning requires appropriate, practical and timely training and development as it directly affects the teaching and support of students in distance education. Academic professional development (APD) is a necessary tool to sharpen the craft of teaching in the distance higher education. This sub-theme was a response to the question “When an e-learning innovation is introduced in a university when is the most appropriate time for lecturers to acquire the relevant digital skills?” and the follow-up question “how was this done at the participants’ institutions?” (Annexure 2.3). These questions produced the same answers from all the participants, with all saying that training for e-learning or any new technology system must be conducted ideally before or at the beginning of the intervention:

*“I think immediately or even before e-learning innovation is introduced to the university. So, it is important that training starts very early, as soon as possible, before it is rolled out.”* (Participant 1)

*“From the beginning, do not wait when you conceptualise the need to have e-learning once it is part of your own academic brief and your university vision. So, with that kind of orientation, anybody coming must understand that this is what it is and understand we need to now begin our corporate culture in the online learning.”* (Participant 19)

*“For them [lecturers] to be able to work online and with e-learning technologies, it has to be just-in-time. So, let us train them as and when they are doing it.”* (Participant 3)

Some participants felt it is important to train and prepare lecturers to teach in an e-learning context before the university implements the new e-learning system. At the same time, some think training must be done concurrently with the implementation process. The feeling was that it is easier when academics are involved from the point of acquisition or development of an innovation “*because this makes it [e-learning] acceptable and adoption will be fast,*” as argued by Participant 20. The idea is that by the time the new technology is deployed, the lecturers are familiar with it, and they can easily and swiftly move in teaching in the specific model. However, according to some of the participants, this does not seem to have been the case with the implementation of e-learning in these two universities. Most e-learning implementation projects are not aligned with the readiness of lecturers in terms of the relevant skills required to make the necessary change and adoption.

Research supports the notion of preparing the lecturers for e-learning before the actual system is implemented (Holomisa & Dube, 2014). As such, a readiness assessment should be done at the beginning to help users develop the required skill sets (Coopasami et al., 2017). Aligned with this sub-theme is the level of e-learning preparedness of lecturers needed by each of these two African ODeL HEIs.

### ***Sub-theme 3.3: E-learning preparedness of lecturers***

Subtheme 3.3 builds on the findings presented in the previous section and directly responds to the research sub-question two on how prepared academics are in open and distance education (ODE) and e-learning institutions for e-learning? The lack of relevant skills for e-learning by HE academics is a major problem, as many participants in this study argued. The Covid-19 pandemic took the world by surprise in unimaginable ways, with most lecturers being caught unprepared for the move online. However, the response to the question “...how prepared are lecturers in your institution for online teaching?” (Annexure 2.3) brought conflicting responses between the two universities. Table 5.18 shows the participants’ perceived levels of preparedness for e-learning.

**Table 5.18**

*Perceived e-learning preparedness of lecturers (according to participants’ rating)*

<b>PARTICIPANT</b>	<b>RATING OF E-LEARNING PREPAREDNESS</b>
Participant 1 (M)	8
Participant 2 (M)	4
Participant 3 (CPD)	5
Participant 4 (CPD)	2

<b>PARTICIPANT</b>	<b>RATING OF E-LEARNING PREPAREDNESS</b>
Participant 5 (A)	5
Participant 6 (A)	6
Participant 7 (A)	6
Participant 8 (M)	3
Participant 9 (A)	4
Participant 11 (ICT)	5
Participant 12 (M)	-
Participant 13 (A/M)	8
Participant 14 (A/M)	9
Participant 15 (A/M)	6
Participant 16 (A/M)	5
Participant 17 (A/M)	8
Participant 18 (A/M)	5
Participant 18 (A/M)	7
Participant 19 (A/M)	8
Participant 20 (A/M)	-

*Note.* \*M=Management, CPD=Centre for Professional Development, A= Academic, ICT, A/M=Academic & Management

This question aimed to reveal individuals' opinions and perceptions of how ready they think they and their colleagues were for e-learning implementation. The findings revealed that most participants from UNISA felt they were not properly prepared for the e-learning innovation. Two participants, one from each university, felt that they could not give a rating or make an assertion without the assessment information. Although some participants from NOUN indicated a lack of relevant resources, including digital skills relevant for e-learning, most felt they were adequately prepared for e-learning implementation in their institution and that the pandemic did not affect them that badly, as indicated in the following comments:

*“...but in terms of preparedness tools, what is works ... I will say that we have not arrived at a comfortable zone yet; we are doing what we could; for instance, during the lockdown in 2020, we had lectures all through, not all our courses, but at least we were able to maintain certain courses all through that period and people, we did the bit of online examination. So, I would not say we are doing badly, but I will not be able to give you a certain scale.”* (Participant 20)

Participants from UNISA indicated that no specific process was followed in preparing the teaching staff for a new e-learning system. Given that this was based on the participants' opinions, with no empirical data, on average, the UNISA participants rated their level of readiness for e-learning to below 5, and NOUN participants rated their level of e-learning readiness to about 8. Only two of the eight participants from NOUN indicated that they needed

to do more than they were doing to be ready for e-learning. However, looking at the overall interview discussions, lecturers are generally not well trained in the necessary digital skills in preparation for e-learning in these two African ODeL HEIs. This could mean that there are challenges with b the issue of technology adoption among academics in their institutions.

### ***Sub-theme 3.4: Technology Adoption***

There is an alarming rate of failure of e-learning systems in the African higher education sector, as reported in the literature (Sections 3.2 and 3.3). Therefore, this subtheme looks specifically at factors that affect the actual use of technology. The findings revealed that the actual use of technology in delivering modules online and supporting students was limited among lecturers in both universities, especially before the Covid-19 pandemic. As discussed in Theme 4 (Section 5.3.3.4) and reported in the literature (Zawacki-Richter, 2021), the Covid-19 pandemic forced many lecturers to use various technology tools to learn and teach and assess support students online. Koehler and Mishra (2009) argue that lecturers should ideally acquire and develop the necessary skills and knowledge to place them at the desired state of Technological Pedagogical Content Knowledge (TPACK). Appropriate, relevant skills were seen as facilitating and moderating factors towards the adoption of e-learning.

Some participants reported that the lack of relevant competencies, skills and knowledge to use some tools was a major issue affecting the successful adoption of an e-learning innovation. Others blamed the poor design of systems and platforms that affect how fast the lecturers and students adopt the new technology (Sub-theme 3.6). However, there was concern among participants that most lecturers were in the habit of not using university tools and systems such as the LMS for teaching and learning. Another concern is that institutions, especially UNISA, prior to the Covid-19 pandemic outbreak did not mandate the use of these tools. The findings in this study also indicate that e-learning may not have been actively pursued at both universities, as seen in this comment:

*“I think for as long as I have been here and the university’s LMS has been around, there has always been that opportunity for people to do e-learning, but they did not” (Participant 11)*

One of the major stumbling blocks for technology adoption by academics in higher education in the ODeL context is the lack of understanding of e-learning (Sub-theme 3.6). It was revealed that many participants, including some individuals from management, have little understanding of what e-learning entails, and this has had a huge impact on how e-learning

is adopted, as discussed in the systematic review data set. Of the moderating factors identified by Venkatesh et al. (2003) and discussed in Chapter 2 (Section 2.2.2.4), age seemed the most common factor with a significant role as a direct determinant of lecturers' acceptance and usage behaviour in the institutions in this study.

### ***Sub-theme 3.5: Benefits of e-learning***

The participants in this study all believe that many benefits come with implementing e-learning in their institutions. Most of them highlighted the benefits for their students, including massification of education and access to learning materials and assessment strategies. Some participants indicated the ability to design different support strategies for learners and have immediate access to the evidence available that can be used to make decisions to benefit learners as key benefits of e-learning. Table 5.19 outlines what most participants identified as benefits of e-learning in their contexts.

**Table 5.19**

*Identified benefits of e-learning in Africa ODeL institutions*

<b>#</b>	<b>IDENTIFIED BENEFITS OF E-LEARNING</b>	<b>SUPPORTING COMMENTS BY PARTICIPANTS</b>
1	Massification of education	"We have students dispersed everywhere across the country. Nigeria [and South Africa] is a large, geographically dispersed country. Thus, e-learning has helped to reach people at very remote places." (Participant 15)
2	Efficiency, automation and productivity	"So firstly, it is about efficiency, right? So, if you are running a big enterprise and a big system, you are doing it online... instead of using mail to send something, things get lost stolen." (Participant 2) "...the exam component actually because of a large size of students in NOUN, for instance, some exams are automatically marked." (Participant 15)
3	Instantaneous communication (feedback)	"For me, it is the immediacy. A student can ask a question, and you can immediately respond to the student." (Participant 9). "Automatic marking and automatic feedback to the student immediately after they have completed the assessment." (Participant 11)
4	Assessment	"The other important thing in learning is the more opportunities you have for assessment, the better and deeper your learning... instead of writing one test and having one assignment for the entire semester. Students can even have a test every week." (Participant 2)
5	Student engagement and interaction	"They [lecturers] can decide that they set up a group for the students, or they allow the students to set up those groups and then communicate with one another. Then they share in the teaching and learning experience." (Participant 11)
6	Develop quality learning materials	"They (academics) can use technology to enrich the content" (Participant 3)

#	IDENTIFIED BENEFITS OF E-LEARNING	SUPPORTING COMMENTS BY PARTICIPANTS
7	Access to quality free learning material	"Advantages include access to educational resources from outside the institution on a global and instant basis, a quick and easy way to create, update and revise course materials through low-cost, off-the-shelf software." (Participant 7)
8	Closing the transactional distance in distance education	"These benefits make the distance not to be experienced as a distance, even with some of my students, a student in Ethiopia, USA, Botswana, they used to think that they are just here. They are in South Africa because I connect with them on Teams and Zoom." (Participant 5)
9	Ubiquity of learning	"...I think one of the major things is that the students can study from anywhere in the world. Even where they do not have venue-based exams, they can write exams online from everywhere." (Participant 7)
10	Learner-centred	"E-learning further accommodates different learning styles and supports learning with a variety of media. Additionally, it may increase flexible interaction with students..." (Participant 7)
11	Effective communication and support for students	"You can immediately upload anything onto the university's LMS under the announcements, and it is there for students to see." (Participant 9)
12	Students develop 21st Century skills	"E-learning has provided necessary skills for the 21st century. You have to have those skills. So, if you are not going to use [or learn to use] technology in this time, you will be left behind." (Participant 8)
13	The flexibility of teaching and learning	"E-learning learning is the way out because you can see and do it in your time and at your pace, and you still retain the employees that you have." (Participant 18)

Many participants highlighted that an important benefit was the student-centred element that e-learning brings to the ODeL and the ability and opportunity to use e-learning technology to actively engage distance education students. Some participants commented on the fact that e-learning has made face-to-face interaction possible for DE students and lecturers via online meeting tools, as highlighted by this participant; *"e-learning has given us the real-time face to face element although digitally, especially in ODL environment that is one thing that was missing in distance education"* (Participant 12).

E-learning can transcend those cultures where women are not prioritised or are not able to attend face-to-face tuition due to family responsibilities, religion and other reasons, in that these women can study in the 'comfort' of their homes, at their own time and pace, without interfering with their cultural and traditional roles in their homes and communities, including people of remote rural areas.

### **Sub-theme 3.6: Challenges of e-learning**

This sub-theme presents the specific challenges of e-learning as identified by the participants in this study. As already explained, the challenges, much time was spent on this aspect during the interviews. The code "challenges of e-learning" was mentioned 106 times, 46 times more



The challenges are discussed further in this sub-theme, combined with the factors seen to affect the successful implementation of e-learning in African higher education institutions in other developing country contexts:

- Lack of awareness of e-learning within the university community
- Lack of understanding of e-learning and blended learning approaches
- Lack of relevant skills
- Lack of resources for lecturers and students
- Poor design and functionality of the LMS and other technology tools
- Leadership, cultural shift and change management
- Auditing, monitoring and evaluation of the skills
- E-learning policy

These challenges and factors are briefly discussed below.

#### ***Lack of awareness of e-learning within the university community***

Lack of awareness of e-learning within the university community was one of the challenges most discussed. Gani (2018) also found a sizeable lack of awareness among the academics and students at the University of South Africa (Section 5.3.2.4). Participants from both universities, especially from the University of South Africa, reported not knowing the e-learning vision and plans until the leadership implemented them in their universities. However, most participants from NOUN agreed that e-learning was part of the institution's mandate from its resuscitation in 2002. However, some of them indicated certain e-learning systems, tools and practices that they were still not aware of. The following comments came from participants from both universities about the issues relating to awareness of e-learning in and outside their universities.

*“The majority of us who are unable to navigate this online space, we tend not to be aware of what is out there.” (Participant 5)*

*“That is an erratic nature of the power supply in the country sometimes could limit what you could do, I think those are the major challenges, and then also lack of awareness is a challenge.” (Participant 18)*

These responses indicated that lack of awareness was about what was happening within the institutions and what was available for teaching and learning outside the institutions. Institutions should prioritise awareness of e-learning among their stakeholders. This lack of awareness of e-learning within the university's community became obvious in the first interview question (Annexure 2.3), which enquired about their institutions' official introduction of e-learning. Many participants from both universities gave conflicting responses to the interview questions, especially this one. For example, from UNISA, some participants thought the e-learning approach was officially implemented in 2004, some thought it was in 2012 or 2018, but it is thoroughly documented that the university officially implemented the e-learning in 2013 (Baijnath, 2014, Ngubane-Mokiwa, 2015):

*"They started with it, you know, here and about, when I came here back in 2004."* (Participant 4)

*"I would say it was 2012; that is when the approval of the concept and the policy, and so on went all the way up to Senate and the Council and received the approval."* (Participant 2)

*"So, when it started, I think around 2009-2010"* (Participant 8)

Although a few participants from UNISA were aware and also knew the dates as to when the e-learning was implemented, as indicated by the comment below:

*"UNISA moved from distance education to open distance e-learning, which I think was in 2013 when they added e-learning"* (Participant 7)

On the other hand, the majority of the participants from NOUN believed that the e-learning approach was implemented at the inception of the institution around 2002. However, similar conflicting responses were also received from this group of participants. One participant said e-learning was implemented in 2004, while another participant said in 2014 or 2016, as indicated by some of the responses below.

*"NOUN has been in the journey of e-learning as far as I am concerned, right from the very early earliest, maybe even say from 2008. However, it had not taken foothold seriously until shortly before 2016, and it is still making progress in that direction."* (Participant 15)

*“I can say that from the beginning because the philosophy of the university is about to open and distance learning.” (Participant 19)*

According to Mtebe and Raphael (2013), the Moodle system was adopted in 2008 at NOUN. It was only around 2016 that the institution went fully online (Economic Confidential, 2016), confirmed by Participant 15's comments above. So, both universities were operating in blended mode until they were forced to move fully online due to the outbreak of the Covid-19 pandemic in 2020. Linked to the lack of awareness of e-learning initiatives within the university community is the misunderstanding of e-learning and blended learning, visible in the above response and discussed in the systematic review data set. This is where most participants seemed to confuse the ODL approach to e-learning and blended learning, which is discussed in the next section.

### ***Lack of understanding of e-learning and blended learning approaches***

Linked to the lack of awareness of e-learning projects within the university contexts, as indicated above, there seems to be a lack of understanding of e-learning and blended learning by the university's stakeholders, including leadership and management, lecturers and students. Not only did some of the participants simply not know when the e-learning was officially implemented at both institutions, but others also seemed to equate the implementation of a learning management system or the new or updated roll-out of a computer software program or system to e-learning, as shown in the comments below:

*“I can say officially e-learning was introduced 2018 because that is when we saw the rollout of Microsoft Office 365.” (Participant 3)*

*“E-learning has been the mode of delivery in the university. As the name connotes national open university of Nigeria, is it has been a distance learning institution all along.” (Participant 13)*

Most participants spoke of e-learning in a confused way; others simply referred to e-learning as ODL, distance learning, or blended learning. UNISA seemed to have focused on teaching lecturers about the functionalities of the LMS, with no relevant education, information and awareness of what e-learning entails and how the institution translated that into teaching, assessment and learning. One participant indicated that *“e-learning is not ICT; e-learning is about pedagogy”* (Participant 8). It also seems ICT departments are more involved in choosing technology for teaching and learning, which causes major problems. However, some

participants were clear about what e-learning is, and some were already trying various tools and social media to teach and support their students.

Both universities have been operating in a blended learning mode. Some learning materials are printed and handed over to students during registration and posted to students, and some material is stored on the LMS for students to access. However, the LMS was mostly used as a storage facility and not necessarily for teaching activities or engaging students through the LMS, as shown by the comments below:

*“UNISA has been doing a bit of a blended learning, and the plan was to gradually to go fully online, but then Covid-19 came.”* (Participant 1)

The dual-mode institutions have become the norm, and distance learning is no longer regarded as the unique domain of open universities (Daniel, 2012). However, this trend is not only prevalent in developed countries; the uptake of ODL in many institutions, particularly in developing countries, although slow, has also been happening (Kanwar et al., 2018, p. 141).

### ***Lack of relevant skills for e-learning***

The lack of relevant skills for e-learning has been the major theme in this thesis, as reported in all the data sets. Lack of certain skills badly impacts the quality of teaching and learning and student support, as discussed in Theme 2, Section 5.5.3.2. Using technology to support students and assess their learning requires sharpening specific skills that the lecturers reported not to possess. Assessment, a vital part of the teaching and learning process, requires considerable expertise (Goode, 2020), and continuous training, especially with educational technologies constantly changing. Higher education operates in an ever-changing environment where technology is updated almost instantaneously, necessitating that all HE stakeholders keep abreast with new and emerging technology.

### ***Lack of resources for lecturers and students***

As with the lack of relevant skills, the lack of resources for lecturers and students was also highlighted in the systematic review data set (Section 5.3.2.2) and literature (Section 3.3). Participants from universities reported their frustration at not being equipped with the relevant resources. Resources such as digital devices, internet, mobile data or WiFi to access content and teach online were among the most-needed resources. Lack of appropriate e-learning systems and infrastructure was also reportedly experienced, especially during the Covid-19

pandemic lockdown, when people started working from their homes and needed access to specific systems, as these participants highlighted:

*“...if they [institutions] want to arouse the interest of academics. For instance, if your infrastructure is poor, and you expect your lecturers to work with these tools, they [lecturers] get discouraged. If things do not move smoothly and you get discouraged, and if the thing keeps recurring, then the tendency is that people switch off.”* (Participant 20)

*“You find the area itself is not connected; there is no technological infrastructure to enable good connectivity. So, the bandwidth is very low. The students' gadgets buffer a lot. So, even if a person has about 60 gigs of data, it just gets depleted quickly due to the connectivity challenges around the area; even where I am staying, I am staying in a township. We do not have access to fibre.”* (Participant 5)

The cost of mobile data was also reported as a challenge for both learners and lecturers in HE in the African context.

### ***Poor design and functionality of the learning management systems***

Learning management systems (LMS) are the lifeline for online teaching and learning in HE. Research shows that LMS was one of the technological innovations that changed the face of distance education delivery (Bervell & Arkorful, 2020; Hicks, 2014). However, the poor design of the myUNISA LMS has been reported in research as a major issue. Modise (2016, p. 94) found that the design of discussion forums in myUNISA LMS was “inhibitory, thus sometimes causing confusion and misunderstanding” in communication between students and lecturers and among students. Some participants in this study also confirmed this,

*“its [LMS] shortcomings is that it is not a very interactive platform, besides the discussion forum that's within myUNISA.”* (Participant 6)

One of the participants indicated that one of the major issues with Sakai-based LMS at UNISA was that it was not regularly updated.

*“...we found that there was nothing wrong with Sakai. Maybe we just needed to upgrade. Maybe we just needed to reconstruct and reconfigure the infrastructure.” (Participant 11)*

One of the strengths of any HEI is the faculty’s competency, knowledge and skill to effectively use the available technology to teach and support students. Koehler and Mishra (2009) argue that this can redress some of the students' problems. According to Garrison et al. (2000), to achieve the educational experience and deep and meaningful (collaborative-constructivist) learning experiences, all three presences (social, cognitive and teaching presences) must come together. However, to create this deep and meaningful learning requires that lecturers creatively use technology combined with excellent knowledge of content and application of pedagogy. However, even with the relevant skills, if the design and functionality of the systems and tools are not good, it will frustrate even the most skilled academics or students. Therefore, it is important that those for such systems consistently improve their designs and functionality.

### ***Leadership, cultural shift and change management***

As indicated in Table 5.11, this study included members of the academia and individuals from management from both universities and individuals involved with training and development. These views were considered representative of various stakeholders from both universities. Most challenges identified in this study have been directly linked to leadership and change management. According to Zawacki-Richter (2009), the management of change, particularly leadership in distance education and strategy, was among the gaps that needed attention. Lack of proper direction and guidance for the leadership was seen as one of the major stumbling blocks for e-learning adoption among academics, as reported by some participants:

*“One of the fundamental issues is that leadership is often not clear about the vision for e-learning. In any big complex institution, you need to be very clear. The vision has to be clear at the top...another key challenge is the cultural shift that needs to happen.” (Participant 2)*

Frick and Kapp (2009) reported that misalignment between institutional direction and units regarding APD in universities might be due to a lack of direction from the institutional leadership and a lack of clear vision of the role and function of APD within their institutions. Consultation and involvement of lecturers in key decisions that affect their work seem to be another major concern for many participants. Awidi and Cooper (2015) identify e-learning mission and vision statement, and consultation as some of the best e-learning practices (see

Annexure 3.3). Participants from the academic and management side reported a lack of consultation with academics during the e-learning implementation process in their institutions. This concern was also more prevalent among the University of South Africa participants.

*“it is a challenge that we are having as an institution, that new technologies are introduced without consultation [with lecturers].”*

(Participant 6)

As already mentioned in the section, the University of South Africa is currently in the process of implementing the new Moodle LMS, and even with this process, at least two participants from UNISA reported that there had not been proper consultation with the relevant stakeholders, as shown in the comment below:

*“Moodle did not come from the people on the ground...So, there was never a conversation between us and management.”* (Participant 11)

Paul (2014) argues that the attitude of chairs of departments and deans is critical in managing and leading e-learning innovation and implementation projects. Getting buy-in from all relevant stakeholders for a new technology system requires that those in the lead be conscious of all relevant stakeholders and involve them as much as possible. These matters are referred to in the literature in Chapter 3, Section 3.8.1.

Another major issue related to the leadership and management of these African ODeL HE was the e-learning implementation process. One participant indicated that clear communication and consultation about key issues such as the e-learning approach carries some weight when it comes directly from leadership to all relevant stakeholders, especially the academics. This suggests that when the institution's leadership and management are clear about the e-learning vision and strategy, it should be easy for them to articulate it and freely engage all relevant stakeholders, as seen in the comment below:

*“I think, well, from a high-level perspective, it must be clear across the institution that this [e-learning] is what we are doing... to achieve that, we will have a constant revision and debate about it in all university structures, especially the academic structures.”* (Participant 12)

Most e-learning initiatives fail due to the issues relating to the leadership and management of the implementation process of e-learning and the adoption thereof by academics in HE,

specifically in African ODeL contexts. Another issue that has received much attention from participants was the issue of the auditing, monitoring and evaluation of the skills discussed in the next section.

### ***Auditing, monitoring and evaluation of the skills***

As earlier indicated, the purpose of this research was not to compare the two of Africa's mega universities but rather to draw some lessons learnt from their e-learning experience and journeys. However, due to the differing viewpoints and reports from participants from both universities, some findings may appear comparative.

From the discussions around this challenge, most participants from UNISA indicated that the gaps in their competency levels were not continuously assessed. However, most participants from NOUN indicated that there is active monitoring and evaluation of skills in their institution. From this challenge also flows the assumption that if training gaps are not continuously and accurately identified, a situation may arise in which the university is training for the sake of training. This study found that the major issue with higher education institutions not auditing, monitoring or evaluating their skills is that leaders have no way of ascertaining the state of their institutions, and therefore cannot design appropriate and relevant training and skill development programmes. The lack of detailed planning, monitoring and evaluation models for ongoing capacity development of distance education staff members is also among the trends reported in the literature (Roberts, 2018). This trend or practice tends to contribute to the reported failures of e-learning projects.

According to the Atlas.ti coding reports, monitoring and evaluating of the skills as a code received 54 mentions in this study, meaning this was the fourth most talked about the matter in this research (see Table 5.4). Many participants hinted that their institutions do not monitor the level of skills that academics in the institution possess or perhaps evaluate the impact of training interventions, as seen in the comments below:

*“They don't monitor, that's the problem because when we started e-learning, we thought we must get a baseline to know where we start and then start with the lecturers, and there was not any tests or anything”*  
(Participant 4)

*“I don't think they monitor that at all. They throw us in at the deep end, and then they expect us to swim. That's the way I see it.”* (Participant 9)

Another matter is that there seems to be no clarity on whose responsibility it is to monitor and evaluate the university's skills and competencies. Some of the participants suggested line managers and chairs of departments (CODs), some mentioned teaching and learning coordinators or training and professional development departments, yet others thought it was the Human Resources (HR) department's responsibility. Participants suggested combining skills audit with a performance management system and allowing CODs to gather this information during the performance appraisal period.

*"I think the Integrated Performance Management System (IPMS) plays a big role to ensure that the skills are optimally used because on the IPMS and in your IPMS interview, you need to report on what you have done as far as e-learning is concerned and the use of the LMS and so on," (Participant 9)*

However, the other challenge is that where monitoring happens, not much is done with the information. From the interview discussions, it appears there is a degree of reporting on skills training and development that happens in the institutions, specifically at UNISA; however, it does not seem like this reporting is linked to any strategic plan or vision, as confirmed by these participants; *"I know as the tuition managers, we monitor the training that our staff goes on and that kind of thing, but that is where it stops. I don't know if anything else happens with that information."* (Participant 9)

However, some participants from NOUN indicated that their university links lecturers' performance to their online activities and students' performance. These participants also indicated that the Dean of Faculties and the *"director of Academic Planning which is also housed in the Quality Assurance"* (Participant 16), do the skill evaluations and report to the Senate and the university's Council. Other participants suggested using data analytics to monitor performance and identify proper training intervention (Larrabee Sønderlund et al., 2019), as indicated in the comments below:

*"It's quite easy to monitor the activity of somebody who does things online. You have recordings, and of course, we can look at the students' performance. There is a lot of analysis carried out to see how the students are doing course by course, and therefore how the lecturers are doing, so all these statistics are available...and many tools that allow*

*us to come up with statistical information that helps to actually assess the performance of each and every matter.” (Participant 17)*

There are benefits to auditing, monitoring, and evaluating the institution's skill and knowledge sets. Although most participants from NOUN indicated a positive response regarding the monitoring and evaluation of skills, others believed that monitoring and evaluation of skills at NOUN does not exist. Identifying gaps in competencies that are important and require urgent attention will help institutions successfully implement and run the e-learning project.

*“Those institutions with good institutional research capacities do this quite regularly with annual surveys and qualitative research and so on, or they will do surveys for developmental purposes. Most HR departments would do some kind of survey to see what the skills need development, and then they would be better placed to organise career development plans or learning development plans for their staff.”*  
(Participant 2)

This is an example of good practice that other ODeL institutions and HEIs should follow, as it brings valuable benefits to the institutions, their employees and students, and other stakeholders. There was conflicting reporting in terms of this matter from the NOUN participants, but the general feeling was that monitoring plays a major role in determining the institution's direction with regard to training and skill development of academics for successful e-learning implementation. Linked to the auditing, monitoring and evaluation of skills and training interventions is the consequential return on investment (ROI), which allows university leadership to ensure that the institution optimally uses the acquired skills; this is discussed next.

### ***Return on Investment (ROI)***

In corporate business, Return on Investment (ROI) is defined as “a performance measure used to evaluate the efficiency or profitability of an investment” (Fernando, 2021, para. 1). According to Fernando (2021), ROI tries to directly measure the return on a particular investment relative to the investment's cost. Regularly monitoring and evaluating skills available in an institution links with the notion of giving academics an opportunity or ‘forcing’ them to practise what they have learnt or ‘ploughing back’ by training other colleagues, ensuring that the institution's resources, invested in the training and skill development of academics, actually profit the institution. However, from the previous discussion, it was found

that there is little or no auditing, monitoring and evaluation of skills, so to realise ROI for training and skill development is difficult.

*“How do we optimally maintain the momentum we have created just to leave you to go and finish it [training] and then come back, and then you have no support, no engagement. It's a waste. Moreover, aside from that, it's about how do we now encourage you and support you to develop materials online or transform offerings for online? So, it has to be programmatic.” (Participant 2)*

Although there are training and development activities, the institutions do not have ways of checking if these skills are used to benefit the students and the institution. As emerging from the interview data, there was no evaluation of skills before and during the e-learning implementation processes.

*“I don't think that they do. I have done that [capacity building programme], but I'm sitting in management, and yes, I know all of the things from the course, but I'm not actually using it. I think some chairs of departments do a check-up and spend some time with the staff, but not at the moment; they don't do that.” (Participant 1)*

*“When you make an input, you like to know that the input is properly utilised. Many of us have attended those training, but whether those skills are actually integrated into the learning or teaching procedure, we don't really monitor that. I think it's an area where attention also needs to be given.” (Participant 18)*

Andriotis (2017) argues that evaluating whether trainees have learned something is critical in determining ROI on training investment. Some of the participants pointed out the importance of monitoring and evaluating the training and skill development to ensure ROI for the institutions.

*“And then you monitor, plan further, and study what has happened; if someone has gone on the programme when you come back, someone should be paying attention to this cohort of people we have developed we've invested in.” (Participant 2)*

Andriotis (2017) explains that successful training programmes do not simply happen; they are products of careful planning, budgeting, resource allocation and evaluation. E-learning projects depend on heavy financial investments, and with a scarcity of resources, it is important that HEI leadership clearly and carefully maps out the e-learning project and properly prepares academics for its success. However, to drive the process, the development of an e-learning policy has been identified as key in implementing e-learning in higher education.

### ***E-learning policy***

The e-learning policy was found to be a fundamentally important building block for a successful e-learning project and in identifying relevant professional development interventions for the preparation of academics (De Freitas & Oliver, 2005) (Section 3.8.2). The findings from the document analysis of the e-learning policies of both institutions (Section 5.4.2) revealed that the content in the policies was not adequate for successful guidance and direction of e-learning. Interestingly, contrasting responses to the question about e-learning policy were received from participants from both universities in the interviews.

Although some of the participants said their institution had a policy, no one could produce any evidence thereof. One of the major problems relating to the definition of e-learning and adoption thereof in African ODeL HEIs is that there seems to be no clear institutional definition of e-learning culminating from the non-existence of an e-learning policy, as one participant indicated:

*“There is no clear strategy. There is no clear policy. There are no clear plans. And that’s what you need. You start at the very highest level. The vision has to be clear. The direction has to be clear. It has to be formulated properly in terms of policies and plans.”* (Participant 2)

*“It [my institution] has a teaching and learning policy, which has an E part to it. But we don’t have a specific policy called the e-learning.”*  
(Participant 1)

The University of South Africa developed the ODL policy in 2008, moving from correspondence to open distance education and later amended this policy to include e-Learning in 2018.

Nevertheless, some participants believed that the current policy does not offer much guidance as far as e-learning is concerned.

*“They adopted ODeL, and they changed all the policies, and we had to look at all the policies, but I don't think they have really changed the policy so much that it became practical... what happened is they changed the ODL policy into ODeL and added a little bit of this and that of e-learning in there. And for me, I think it's superficial, and I think there could go deeper and more, give more guidance” (Participant 4)*

Participants indicated that the e-learning policy in both universities needs to be updated as education technology and other educational trends constantly change, especially with the effect of the pandemic on all educational services, which is discussed in the next theme.

#### **5.4.3.4 Theme 4: Impact of Covid-19 on academic's professional development, e-learning readiness and technology adoption in African higher education and ODeL institutions**

This theme is linked to this study's second and fourth research questions (Table 5.15). Although this doctoral study began before the Covid-19 pandemic struck in 2020, the interviews only took place during the pandemic world lockdown, and it was interesting how the conversations on changes around academics' professional development, e-learning readiness and technology adoption were interlinked and attributed to this period. No country was adequately prepared to handle a pandemic such as Covid-19, as Dwivedi et al. (2020) argued, not even developed countries. The Covid-19 pandemic was identified as one of the major factors affecting academics' professional development, e-learning readiness and technology adoption.

Although the pandemic raised many challenges in countries around the world, most participants reported a change of attitude toward technology. Many educational institutions were forced to operate online, hence the change of attitude; this is shown by the comments below:

*“And then all of a sudden, it just wasn't even an option, people had to stay at home, and everything was online after that.” (Participant 1)*

*“...but I think in 2020, we were forced because of Covid-19 to go fully online. The university has been struggling for years to ensure online learning, but it was only when they were forced in 2020 that they changed.”* (Participant 9)

The advent of the pandemic revealed the true level of digital and technological knowledge and skills evident in institutions. It was during this period that those responsible for the training and development of staff at UNISA were overwhelmed with requests for technology-related skills, as indicated by the following participants' comments from both universities:

*“We were overwhelmed with training requests”* (Participant 7)

*“... this COVID-19 stimulated that, we had training by the open university that lecturers and non-academic staff participated in this online capacity building.”* (Participant 20)

As indicated in discussions in the previous sections of this thesis, a lack of digital literacy skills, computer skills, instruction design and teaching skills were among the major issues facing the successful implementation of e-learning (Sections 5.3.2 and 5.5.3). In 2020, when the lecturers were forced to continue teaching and supporting students online, training and e-learning skills development was taken seriously. There was a feeling among the participants that the pandemic somehow assisted many of them to come out of their comfort zones and attend to the long-neglected areas of their work, that is, upskilling specific teaching skills. In essence, the pandemic was seen as prompting the change resulting in benefits to higher education institutions and their academics, as highlighted by the following comments:

*“In fact, if we didn't have this crisis of the Covid-19 pandemic, we probably have been delayed even another five or 10 years. So, one advantage of this pandemic is that it forced us, forced the government, to look at how you equip students to learn online?”* (Participant 2)

*“...due to Covid-19, students were forced to submit assignments online and write exams online during 2020. So, actually there are no excuses anymore, everybody will have to get on board.”* (Participant 7)

Many participants believed that the pandemic facilitated increased requests for training and accelerated the adoption of e-learning and other educational technologies among academics in these ODeL institutions. The overnight move to online spaces facilitated the adoption and use of technologies for teaching and learning (Modise & Van Den Berg, 2021). The Covid-19 pandemic was thus seen as a good accelerator, and through it, HEIs are starting “to see interest developing within colleges, where academics are upskilling themselves or trying different things that they wouldn’t have tried before.” (Participant 4) and “to adopt a much more online delivery of our material and assessment.” (Participant 6).

The three data sets used in this research to present the findings are reflected in the next section, seeing how the three sets of data align with each other and considering the similarities and contradictions between the findings from the three data sets.

## **5.5 FINDINGS FROM DOCUMENT ANALYSIS (DATA SET C)**

This section presents the findings from analysing two policy documents selected from the National Open University of Nigeria and the University of South Africa. Due to the limited number of documents studied, only one theme emerged in this data set: “*the development of a comprehensive e-learning policy in HE and ODeL*” (Section 5.5.2). As argued by Rapley (2018), when studying the text, a researcher should be interested in how the text, in this case, the policy, structures and organises specific issues that it raises, and how the text seeks to persuade the researchers “about the authority of its understanding of the issue” (p. 137). As previously indicated, two major policies were studied (Section 4.5.4), which included

- UNISA’s 2018 Open and Distance eLearning (ODeL) policy, and
- NOUN’s 2005 Draft eLearning Strategy and Policy for National Open University of Nigeria (NOUN).

### **5.5.1 Characteristics and overview of the selected policies**

This section aims to briefly present the characteristics, a brief overview, and content of the policy to place the policies in context.

#### ***UNISA’s 2018 Open and Distance eLearning (ODeL) Policy***

UNISA’s 2018 policy on Open and Distance eLearning (ODeL) is an extension of the ODL policy that the institution’s Council approved on 3 October 2008. The ODL policy was then

revised and approved in 2018 to include the e-Learning element, thus giving birth to the current ODeL Policy. UNISA's ODeL Policy makes references to a few other policies such as the Curriculum Policy, Teaching and Learning Policy and Tuition Policy, Assessment Policy, Framework for Professional Development for staff compliment and capacity development, to unpack teaching and learning, assessment, the design of learning materials in more detail and other matters. However, reading through these policies, I found them irrelevant and inadequate for this study because they did not address the issues under study, that is, preparing academics for e-learning implementation.

### ***NOUN's 2005 Draft eLearning Strategy and Policy***

The Draft eLearning Strategy and Policy for National Open University of Nigeria (NOUN) (2005) were prepared during the eLearning Workshop organised by the Regional Training and Research Institute for Open and Distance Learning (RETRIDAL) at NOUN to “define the approach to eLearning and specify some guidelines and broad policies that will promote and inform the development of its use” (Draft eLearning Strategy and Policy for National Open University of Nigeria, 2005, p. 1).

According to NOUN's 2005 Draft eLearning Strategy and Policy, the university had not made any substantial progress with using the e-learning medium in its educational programmes, hence the action to draft the e-learning policy. However, the policy is still in draft for more than 15 years. The next section presents the theme emerging from the two policy documents analysed for this study.

#### **5.5.2 Theme 1: The development of a comprehensive e-learning policy in higher education and open and distance e-learning**

Developing a comprehensive e-learning policy in HE and ODeL contexts became the main emerging theme based on the two policies studied and guided by literature. Rapley (2018) explains that one needs to think about what is there and what is not there when analysing documents. This theme was birthed from the perceived silences, gaps or omissions as informed by literature and the findings from the interviews.

It is clear from the literature (Chapter 1 - Section 1.2, Chapter 3 - Section 3.8) that policy is lacking in promoting e-learning (Bhuasiri et al., 2012; Farid et al., 2015; Nawaz, 2012). This

was evident in the policies included in this study. One of the findings in this study about these policies is that they lacked the persuasion Rapley (2018) referred to, that is, the authority of the policies' understanding of e-learning, and the general understanding of e-learning, as revealed in the interviews and studies included in the systematic review. Although the aim of this study was not to compare the two universities in the interest of reporting on the elements addressed in each policy, a comparison was almost inevitable and somewhat necessary in order to put the findings in context.

The National Open University of Nigeria's draft eLearning Strategy and Policy, although rather outdated based on the current trends and rapid technological developments in HE, was found to be more comprehensive than UNISA's ODeL policy. The NOUN's draft e-learning policy is clearly identified and defined as the sole "*authoritative source of guidance to faculty and administrative staff in the use of e-Learning as a component of the activities of the institution*" (NOUN's Draft eLearning Strategy and Policy, 2005, p. 1). Although UNISA's ODeL policy outlined the purpose of the policy as "*to provide a shared understanding of ODeL and direct its implementation within a blended model of learning and teaching*" (UNISA ODeL Policy, 2018b, p. 1), there is, however, no further information or suggested readings or other policy documents that address this shared understanding of ODeL in the institution. It was also found that the NOUN's draft e-learning policy clearly identifies the use of blended learning alongside e-learning, whereas UNISA's ODeL policy only provides the relationship between blended learning and e-learning and presents blended learning as possible support for e-learning. However, there is no clear statement on whether the university has planned on going the blended learning route or not.

The National Open University of Nigeria's draft e-learning policy also clearly addresses such elements as the development and online delivery of materials for some targeted programmes. However, this is not indicated in the UNISA's ODeL policy. A referral is only made to other policies, such as the Tuition Policy (UNISA's ODeL Policy, 2018), which does not give more information on e-learning or blended learning programmes. The National Open University of Nigeria's draft e-learning policy goes as far as identifying the need for the establishment of an eLearning Unit and outlining the roles and responsibilities of this unit in ensuring that the university fully harvests the benefits of e-learning innovation. The NOUN draft e-learning policy also clearly outlines how e-learning adoption will be encouraged through incentivisation for participation by academics:

*"... remunerated for the assistance and additional effort put into creating eLearning material and conversion to eLearning programmes where this*

*is outside the normal responsibilities and workload of the individuals. This remuneration will be in line with the University's existing policies for overtime and extra workload.” (Section 11, p. 6)*

Technologies to be used in the delivery of e-learning and the roles of various stakeholders are also clearly outlined in NOUN's draft e-learning policy. Interestingly, although not in detail, this policy clearly mentions the “training and change management” plans, communication strategies, and the proposed broad implementation plan and timeframes. Although the Draft eLearning Strategy and Policy for NOUN seems somewhat comprehensive, it is outdated, as it was drafted in 2005 but has not been updated or revised. It is also not an official document as it is still in draft form. The other challenge is that the institution does not currently have an e-learning policy, as it is a draft policy. The draft policy document cannot necessarily be enforced, which may affect the level of adoption of e-learning. This concern was raised by one of the participants (see Sub-theme 3.6) and has brought about some confusion. Another concern was that NOUN's draft e-learning policy was developed by the Commonwealth of Learning, which gives the sense that some of NOUN's staff might not have ownership of the policy.

To sum up, this document analysis found that the institutions studied do not have e-learning policies that guide e-learning activities, including the design of learning materials for online consumption, appropriate training and development of specific sets of skills and knowledge for e-learning, and other forms of preparation of the academics for e-learning. The following section presents the discussion and reflection on the overall findings and data triangulation.

## **5.6 REFLECTION ON THE OVERALL FINDINGS AND TRIANGULATION OF DATA**

This section reflects on all data collected from the configurative systematic review, interviews and document analysis of policies. Although the systematic review findings/themes were presented in the form of the research questions, the sub-themes within this data set had some similarities with the interview data set, which produced four major themes with sub-themes (Annexure 5.4), as outlined in Table 5.20. From the analysis above, each data set highlighted similar themes, with a slight difference; thus, the section unpacks the convergence or divergence of findings.

**Table 5.20**

*Comparison and overview of major themes originating from systematic review, interviews and document analysis data sets*

<b>SYSTEMATIC REVIEW (DATA SET A)</b>	<b>INTERVIEWS (DATA SET B)</b>	<b>DOCUMENT ANALYSIS (DATA SET C)</b>
<b>MAJOR THEMES</b>		
Competencies and skills identified in studies as needed for online teaching/e-learning in distance education and blended learning institutions.	E-learning competencies and teaching with technology in HEI and ODeL context.	The development of a comprehensive e-learning policy in higher education and open and distance e-learning.
The preparedness of lecturers for e-learning in African large-scale open and distance education (ODE) institutions	Academic support and training in ODeL HEIs contexts.	
The preparation and support of academics for e-learning in African large-scale open and distance education (ODE) institutions	Academics' e-learning readiness and technology adoption.	
The critical factors that affect the successful implementation of e-learning in open and distance education (ODE) and e-learning institutions	Impact of covid-19 on academic professional development, e-learning readiness and technology adoption in African higher education and ODeL	

As illustrated in Table 5.20, major themes emerged from the systematic review of data, document analysis and interviews. The research findings are fairly similar across all data sets. The participants' lived experiences from the interviews were detailed and aligned with most of the participants' experiences in the included studies in the systematic review. The emerging theme in the document analysis of policies (see Section 5.5.2) also aligns with the discussions under the sub-themes dealing with e-learning policy and policy development in HE and ODeL contexts. As there was not much detail in the policies on training and development of academics for e-learning, the only matter to address was based on what Rapley (2018) describes as the perceived silences, gaps or omissions from the text (Sections 5.5.2).

One of the major building blocks for the success of academic professional development for e-learning implementation and adoption is a robust policy (Janssen et al., 2013); however, the participants attested to the lack of policy that effectively could guide the implementation of e-learning in their institutions (Sub-theme 3.6), findings which are widely reported in the 17 studies included in the systematic review (Table 5.9). Literature showed that lack of preparation and proper support of faculty members (Aboderin, 2015; Frick & Kapp, 2009;

Ncube et al., 2014) are among the top factors affecting the success of e-learning innovation projects in higher education and distance education institutions

This study confirmed what is already reported in the literature that many HEIs that embark on e-learning initiatives mostly start with the blended learning mode (Baijnath, 2014; Masalela, 2011). However, both data sets revealed an alarming lack of understanding of e-learning and blended learning (Sub-theme 3.6, Table 5.9), a lack of awareness of e-learning, and a clear institutional definition of these concepts. Brown, Anderson and Murray (2007) point to the lack of a generally accepted definition of e-learning in institutions which restricts the successful implementation of e-learning. This comes as a major concern, as institutions cannot successfully move forward without a vision and mission based on a clear understanding of the goals, as pointed out by Participant 10, who argued that if you do not have a clear vision and mission, *“you can’t reach your goal, because you don’t know where you are going”*. According to Bates and Sangra (2011), most of the HEI institutions they researched had no institutional plan and no clear and measurable goals for learning technologies.

This study proposes that an e-learning readiness definition relevant to the higher education ODeL context should be developed. Adapted from Borotis and Poulymenakou’s (2004) definition, literature and the synthesis of the findings from the three data sets in this study, e-learning readiness (ELR) is thus defined as “the mental or physical readiness of an organisation with the relevant and available technological and digital skills and knowledge for the meaningful e-learning experience” (see Section 1.12).

Borotis and Poulymenakou’s (2004) ELR definition highlights that the readiness to do something depends on many factors, most importantly the ability to do what is expected or required. Although good mental and physical health or readiness is a necessary key element in adopting the new technology, academics and students require more than just mental and physical fitness if the e-learning goals are to be successfully attained. Thus, the necessary technology skills and knowledge must be readily available and applied in teaching and learning for educational institutions. However, I believe that it would not be of much benefit to any institution or organisation if their staff were mentally and physically fit and ready for the e-learning but they did not possess the relevant knowledge and skills required to conduct the teaching and learning process online. Hence, the adaption of this definition for this study.

An organisation’s absorptive capacity is defined by Wisdom et al. (2014, p. 484) as the “capacity to utilise innovative and existing knowledge” and is positively associated with technology adoption. The available technology knowledge and skills may require prior training

or be available due to prior training in preparation for new technology. The availability of these skills suggests that some form of training took place before in preparation for new technology use. The findings reveal that even academics who are comfortable using computers do not have the confidence to engage in blended learning due to a lack of an e-learning definition and adequate understanding of e-learning or blended learning, the notion supported by Tshabalala (2014) (Section 5.3.2.4).

A balance between pedagogical and technical skills was highlighted in both data sets (Table 5.6) as necessary for e-learning in African HE ODeL institutions. A lack of expertise by staff members has also been reported in research by Oye et al. (2011) and Tarus et al. (2015), who points out that in light of the lack of expertise, lecturers need to be trained and equipped with online learning skills. Mishra and Koehler (2009, p. 61) explain that “effective teaching depends on flexible access to rich, well-organized and integrated knowledge from different domains”. TPACK brings the realisation that teaching practice is changing and that the emergence of educational technology tools should not be seen as a separate entity but rather be integrated into the teaching and learning process.

The issue of training and development was extensively explored and widely reported on in both the data sets. There is an admission of a lack of appropriate training by participants that was also confirmed by the findings in the reviewed studies (Kanwar et al., 2018; Machika & Dolley, 2018). The major concern reported in both the interviews and the systematic review is that HEIs do not actively assess, regularly monitor or evaluate the knowledge and skills academics possess, which often leads to inappropriately designed training interventions. This also led to erosion of the already dwindling resources for training and development (Sub-theme 3.1). Funds spent on irrelevant training are a wasted resource. In addition, participants strongly believed that teaching and learning in HEIs are not prioritised and rewarded as much as research outputs, a finding that concurs with the reviewed studies (Hassan, 2011).

Monitoring and evaluation of training and skills were reported both in the interviews and systematic review data sets (Sub-theme 3.6, Roberts 2018) as one of the major hindrances of proper preparation of academics for e-learning and their technology adoption. The participants also revealed that lecturers are not given enough time or space to put to use newly acquired skills into practice after attending a training intervention. However, this was not reported in the systematic review. In essence, participants confirmed some of the long-time assumptions and beliefs on academic professional training and development (APD), e-learning readiness (ELR) and technology adoption (TA), and this was evident from Data Sets A and B. Effective academic professional development, e-learning readiness and technology adoption will

continue to be adversely affected by the challenges that African HE ODeL institutions face, for example, infrastructure, skill shortage, resources and the general attitude of various stakeholders.

In the interviews, most participants felt the conversations were timely and a source of honest reflection about their own technological and pedagogical skills and that of the institutions to fully operate in online environments and how this impacted their ability to effectively support students. At the centre of ODeL systems is the need for better student support systems and services, this was clearly reported in both data sets. This was also confirmed in Goode's recent study (2020, p. 267) that "students remain positioned as beneficiaries of continuously improving the teaching and learning practices of academic staff."

The trajectory of UNISA was alluded to by some participants who explained in detail the journey UNISA took from correspondence education to ODL and now ODeL. Some participants told the same stories from NOUN, who described the institutions' birth, closure, and resuscitation to what it is today as an ODeL university (Section 5.4.3.3). However, what seems to be lacking behind these developments is the coherent development of policy that speaks to the current and emerging trends in the HE sector in Africa and possibly the world. For example, most participants from both universities were not aware whether their institution had an e-learning policy (Sub-theme 3.6), and where a policy existed, it was still in draft form, as in the case of NOUN. With UNISA, however, some participants argued that the institution simply changed the name of the policy, and not much work was done to revise the content of the policy (Sub-theme 3.6).

There is also a visible pattern in the time the institution (UNISA) updated and revised its policies; for example, the Tuition Policy was approved in 2005 (UNISA Tuition Policy, 2005) and revised in 2013, the ODL policy came into being in 2008 and only revised in 2018 (UNISA ODeL Policy, 2018), even though the institution decided to officially adopt e-learning in 2013, five years earlier. NOUN's Draft E-learning Policy was drafted in 2005 and has not yet been adopted by the institution, that is, 15 years later. The aim of the study was to look at the e-learning policies and see what is addressed and how it is addressed, but the reference to other policies was considered outside the scope of this study.

In her study, Gani (2018, p. 176) argued that "lecturers and students should clearly understand their roles and responsibilities regarding the use of online learning". Interestingly, in this study, it was revealed that most lecturers were not properly prepared for online learning and lacked a proper understanding of e-learning/online learning. It is not only the lecturers that lack this

important understanding; it was also revealed that some of the members of the institutional leadership and some of the professional staff members lack understanding of e-learning and blended learning. The authority of the policies with regard to the understanding of e-learning was also not clear in the policies studied in this study, especially with UNISA's policy. Therefore, the need for e-learning education and awareness has been revealed in all three data sets in this study (see Sections 5.3.2.4, 5.4.3.3, 5.5.2).

The policies referred to in the ODeL Policy of UNISA also do not add much to the understanding of e-learning and how academics are prepared or trained and developed toward building capacity relevant to e-learning. However, other documents that could have offered a better understanding of the e-learning and blended learning approaches at UNISA, such as UNISA's Executive Deans Conceptual Understanding of ODeL (University of South Africa, 2015) (see Section 1.2.2) and other such documents that seek to unpack the e-learning and blended learning approaches at UNISA also do not offer much clarity on the matter.

## **5.7 CONCLUSION**

Chapter 5 presented the findings derived from the empirical data (interviews) and secondary data (systematic review and document analysis). Aligned to the research questions, this chapter unpacked the themes emerging from all data sets with similarities and differences in the data sets is presented. All data sets revealed a level of awareness, education and understanding of e-learning and blended learning that needs to happen in African HE ODeL institutions so that HEIs can properly prepare their academics and gain a better appreciation of what these modes of education have to offer. HEIs need to develop policies that are coherently aligned to their vision and missions for e-learning. Research and adequate stakeholder consultation will play a major role in ensuring that proper and relevant policies are effectively developed and aligned to HEIs' academics' needs. The chapter concluded with a reflection on the overall findings of this study and unpacked how the data were triangulated. The next chapter presents the summary of lessons learnt through this research, draws conclusions and offers recommendations for various stakeholders within the African higher education and other developing countries in ODeL contexts.

## CHAPTER 6

### DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

*“The important thing is to never stop questioning [or learning].” Albert Einstein*

#### 6.1 INTRODUCTION

This research sought to investigate how academics are professionally developed, prepared, and supported for educational digital transformation in Africa's large-scale open and distance education institutions. The study focused on the implementation of e-learning in large-scale African HE ODeL institutions, specifically the University of South Africa (UNISA) and the National Open University of Nigeria (NOUN). The study followed a qualitative research approach with combined methods of empirical investigation through semi-structured interviews and secondary data through configurative systematic review and document analysis that examined existing research and policies on the topic under study within the African and developing country contexts.

This chapter draws the synthesised findings from the data presented in Chapters 4 and 5 and the literature review presented in Chapters 2, 3 and 4. Presentation is given in how the findings answer the research questions and the development of recommendations for various stakeholders. Therefore, the chapter presents a summary of the literature and theoretical frameworks that underpinned this study. The chapter further presents critical reflections on various aspects of the research process, including the limitations against which the research was undertaken. This chapter then concludes with recommendations and suggestions for further research.

#### 6.2 SUMMARY OF LITERATURE REVIEW

The literature review was presented in Chapters 2 and 3, with Chapter 4 citing literature that explained and supported the chosen methodological design and path taken in this study. The selected theoretical frameworks that guided this study were dissected and presented in Chapter 2. As explained in Chapter 2 (Section 2.1), theoretical frameworks in this study were purposely selected to strengthen (Abend, 2008), guide (Adom et al., 2018; Osanloo & Grant, 2016) the research process, and enhance the empiricism and rigour of this study (Adom et al., 2018). The original Unified Theory of Acceptance and Use of Technology (UTAUT) framework by Venkatesh et al. (2003) was chosen to guide the study with regard to the adoption of

technology. UTAUT has four key elements (performance expectancy, effort expectancy, social influence and facilitating conditions) and four moderating variables (age, gender, experience and voluntariness of use) (Section 2.2.2), some of which were confirmed through the empirical data in this study.

The pandemic has revealed an urgent need for proper skill development of academics at individual and institutional levels (Section 5.4.3.4) to cope with the forced transition to moving the teaching and learning process online. The technological pedagogical content knowledge (TPACK) framework (Section 2.3) was also selected to guide the knowledge and skillsets required and relevant for teaching and learning in the digital context. Mishra and Koehler's (2006) TPACK helps lecturers and decision-makers acquire the relevant knowledge required to effectively and successfully teach using technology. TPACK's core elements (PCK, TPK and TCK), as discussed in Section 2.3.2, overarched the discussions throughout the interviews (Section 5.4.3). Participants in the interviews referred to the specific key sets of knowledge and skills they felt they lacked or needed to successfully teach and effectively support their students in online teaching and learning environments.

As discussed in Chapter 3 (Section 3.6.4), distance education is framed within larger socio-economic and political contexts, making it susceptible to the sequence of global crises (Evans & Haughey, 2014). Hence the emergence of the Covid-19 pandemic (Chan et al., 2020) greatly impacted how HEIs reacted to the pandemic. It emerged that African HE ODeL institutions, although they face serious infrastructural challenges when a decision is made to adopt and implement a new technology to ultimately improve performance (Section 2.2.3), leadership and management need to ensure that at least the minimum resources are in place and that the general facilitating conditions are conducive for such an innovation (Section 3.8).

Research literature presented in Chapter 3 shows that developing countries faced many challenges affecting their ability and capacity to optimally reap the benefits of e-learning and blended learning (Bonk & Graham, 2012; Simonson & Seepersaud, 2018). This was also confirmed by this study's participants' real-life lived experiences. Within this discussion, it came to light that lack of preparation and proper support of faculty members (Aboderin, 2015; Friek & Kapp, 2009; Ncube et al., 2014) were among the top factors affecting the success of e-learning innovation projects in HE and DE institutions. Leadership style and culture, together with "a lack of a comprehensive institutional strategy based on a shared vision; the absence of a situational analysis of the environment to assess the viability of the project in terms of resources" (Masalela, 2011, p. 1) were also identified in the literature as facilitators of attitudes and user preparedness (Section 3.8).

The academic research literature on e-learning readiness or preparedness (Section 3.7) often focuses on macro factors such as the financial, business, and ICT infrastructure, not on the academic staff's immediate training needs (Adiyarta et al., 2018). Table 3.1, which presented the comparison of factors related to e-learning readiness by Mosa et al. (2016) in Section 3.7, clearly shows that training and skill development relevant to e-learning is an afterthought, prevalently reported in many e-learning readiness models. Literature also shows that e-learning is still in its early adoption and implementation stages in developing countries (see Section 3.3). Chapter 3 concluded by highlighting the interrelationship between key concepts in this study - academic professional development and support, preparation of academics for digital transformation – specifically e-learning, e-learning readiness of lecturers, and the subsequent successful implementation and adoption of e-learning technology in higher education and distance education.

Literature also significantly contributed to the building and interpretation of findings in this research, as seen in Chapter 4. Research design, paradigms, including the selection of participants (Section 4.4.2) and selection of studies in the systematic review (Section 4.4.3) and policies in document analysis (Section 4.4.4) and the choice of research instruments would not have been of good quality had it not been for the support and guidance from literature.

### **6.3 SUMMARY OF EMPIRICAL STUDY**

This study involved data collected through interviews, a configurative systematic review and document analysis of policies. Although there is a level of overlap of summaries from the three data sets, this section begins with a summary from the secondary data systematic review and document analysis that helped shape the interpretation and understanding of the primary data from the interviews. The section then concludes with a presentation of the summary of findings from the interviews.

The systematic review data analysis revealed four themes relating to higher education academics' e-learning readiness and adoption of e-learning and the status of academic professional development (see Section 5.3.2). The studies selected for the systematic review had a good mix and representation of participants, including students, deans or directors of open and distance learning centres, heads of academic departments, academics, training representatives, and professional and administrative staff (Table 5.11). The review also represented studies conducted in other countries that could not be included in the interviews,

such as Zimbabwe, Cameroon, Kenya, Rwanda and Pakistan, and various types of higher education institutions. The themes in this data set reported various skills and competencies needed in higher education in distance education, e-learning and blended learning contexts. Skills identified in the research included basic computer skills, pedagogical skills, and instructional design for online spaces (see Section 5.3.2.1). The second theme reported the readiness of higher education academics in ODeL to adopt the e-learning innovation (see Section 5.3.2.2) and attributed the lack of digital skills and competencies as the major barrier to adopting e-learning technologies in developing countries.

Misunderstanding of e-learning and blended learning and a lack of comprehensive e-learning policies were also major problems for African higher education ODeL institutions and other HEIs. This specific finding was found to be common across all three data sets (see Sections 5.3.2., 5.4 and 5.5). In addition, training and development of academics were reported to be receiving less attention from the institutions' leadership, resulting in a lack of ICT-enabled teachers in the education sector (see Section 5.3.2.3) and thus slowed the uptake of e-learning-related technologies. Theme 3 and 4 of the systematic review data set further revealed general challenges faced by higher education institutions in African and other developing countries, extensively reported in research (see Section 5.3.2.4). Some of these challenges include a lack of resources for both lecturers and students, such as the cost of data, internet access, bandwidth and lack of digital devices (see Annexure 5.2).

The semi-structured interviews involved twenty purposely selected participants in a multiple case study (see Section 4.4.2). Eighteen out of twenty participants had a doctoral qualification, and 14 of those were Professors, with a mix of representations from academics, management, and individuals from ICT and training departments. Four major themes and several sub-themes relevant to all the research questions were identified, which were also well aligned with literature and theoretical frameworks. The first theme from the interviews in Section 5.4.3.1 identified the key e-learning skills and competencies and teaching with technology in HEI and ODeL contexts. These e-learning skills and competencies include basic computer skills, online examinations and assessment, design and development of learning materials, digital literacy and skills, teaching with technology (Technology Pedagogical Knowledge - TPK) and student support. These skills were also, to a large extent, similar to those identified in the reviewed studies (see Section 5.3.2.1). Theme 2 of the interviews dealt with the academics' support and training in ODeL HEIs contexts and that relevant people are timely trained to use the new technologies, including those who offer training for academics (Section 5.4.3.2). In this theme, it was found that academics' teaching training needs were not

prioritised and adequately funded or incentivised as much as the research activities within the two institutions under study.

Theme 3 findings of the interviews highlighted the importance of ensuring that everyone in the institution is made aware and educated about what e-learning entails and is thus adequately prepared through relevant training interventions based on real needs (see Section 5.4.3.3). The findings from the interviews concluded with the theme unpacked through the participants' voices, how the Covid-19 pandemic impacted academic professional development, e-learning readiness and technology adoption in African higher education and ODeL (see Section 5.4.3.4).

The document analysis data set included an analysis of e-learning policies from the two institutions under study that revealed an urgent need to revisit the current e-learning and blended learning policies. The dataset had only one theme relating to the development of e-learning policy in the face of e-learning implementation. The document analysis data set findings (see Sections 5.5) clearly showed that e-learning and related policies were not regularly updated and revised in response to the current trends and technology developments in HE and ODeL. For example, the National Open University of Nigeria is still operating with a draft policy document written in 2005, and of concern is that this policy has not been adopted and officially approved by the institution (see Section 5.5.1). On the other hand, the University of South Africa's ODeL policy was adapted from their 2008 ODL policy in 2018, five years after the university officially implemented e-learning. The analysis of these policies also found that the two policies lack authority and clarity and that they did not include a comprehensive definition of e-learning. The document analysis findings were similar to the interviews and the systematic review findings (see Section 5.6). The study, therefore, revealed that most higher education institutions in Africa and other developing countries operate the e-learning mode without proper e-learning policies in place.

### **6.3.1 Reflection on Research Methodology**

The interpretative research paradigm and qualitative approach with a multiple case study formed the methodological approach for this research (Section 4.3). As can be seen from the above discussion (Section 6.3), with guidance from literature, the research design assisted in choosing appropriate research methods that adequately answered the research questions. As pointed out in Section 4.3.1, the interpretivist paradigm allowed flexible and adequate interaction with participants and their lived experiences as they happened in their natural setting (De Vos et al., 2011).

As indicated in Section 4.5.1, the study involved a pilot study that helped in reviewing and revising the interviews questions. The pilot study interview schedule started with 24 questions, but with the feedback from the participants, the questions were refined and reduced to only 20 improved items (Annexures 2.3 and 4.5). Of importance is the trustworthiness of the research study. In this document, all processes and steps taken from the beginning were extensively reported on, following Lincoln and Guba's (1985) and Amankwaa's (2016) principles and guidelines on transferability, credibility, dependability and confirmability.

Methodological triangulation was employed using a configurative systematic review, semi-structured interviews and document analysis for data collection, and some of the trusted data analysis software programs, such as Atlas.ti and EPPI-Reviewer. With great care, justification of the choice of these tools was presented in Chapter 4, together with how ethical foundations were adhered to throughout the study. Systematic reviews were conducted to understand what research existed on the academics' professional development and e-learning preparedness and included studies conducted in other African and developing countries. The interpretation and understanding of the interview's findings were built upon the information and knowledge gained from the systematic review and document analysis.

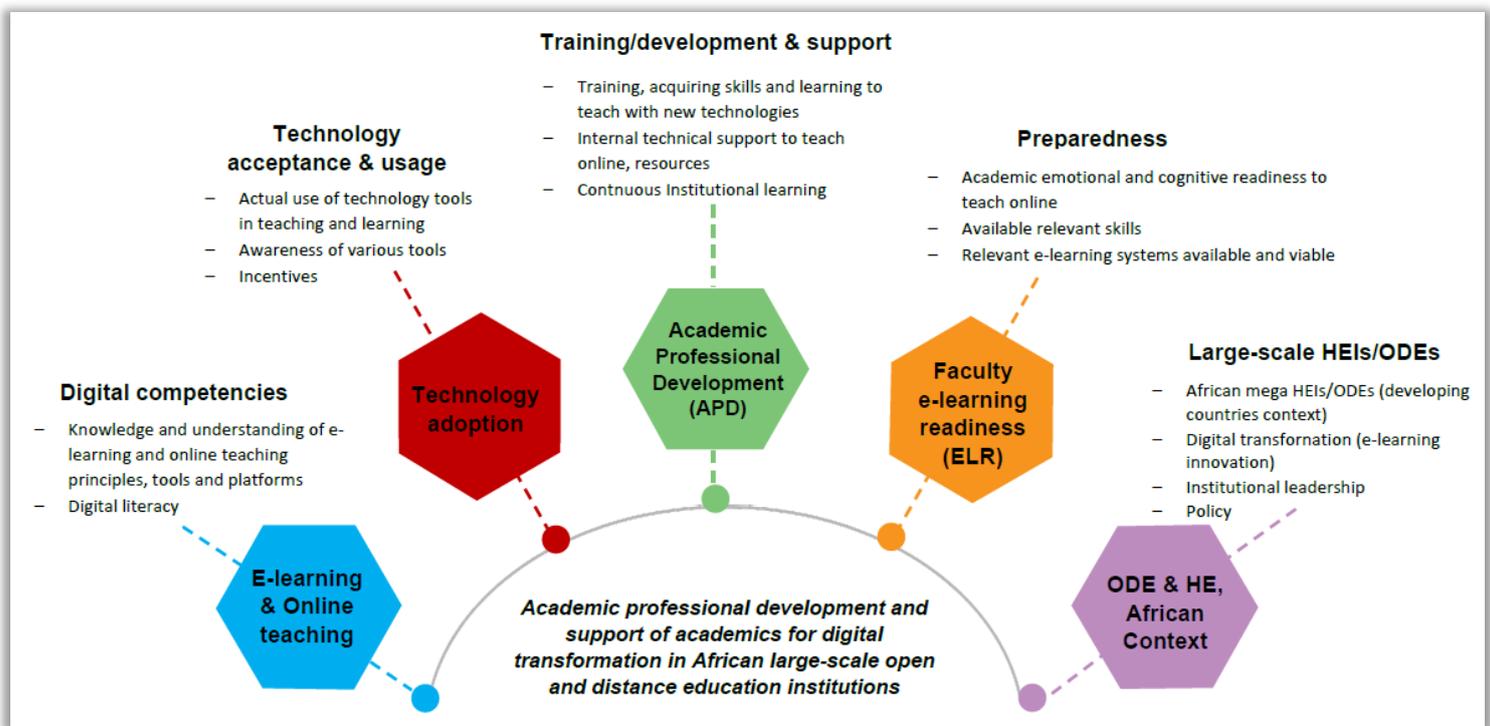
The section below presents the synthesis of research findings, major similarities, and contradictions between the literature review and the empirical study.

#### **6.4 SYNTHESIS OF RESEARCH FINDINGS**

This section presents the synthesis of research findings drawn from the themes outlined in Chapter 5 (Sections 5.3, 5.4 and 5.5), the theoretical framework in Chapter 2 and the literature review in Chapter 3. The findings are grouped into four categories: academic professional development, e-learning competencies, e-learning readiness and the subsequent technology adoption of academics in higher education and ODeL institutions in Africa and other developing countries. As illustrated in Figure 6.1, the four main categories include a fifth category to position the study within a specific context. The findings must be understood within the contexts within which the research was undertaken.

**Figure 6.1**

*Contextualisation of the research findings*



The findings confirmed the interplay of the two frameworks underpinning this study, in that the study revealed certain key facilitating and moderating factors that greatly impact the success of the e-learning projects. The findings also revealed that factors such as relevant e-learning competencies that comes through intentional training and skill development (TPACK) (see Section 2.3.3), e-learning policy and leadership, recruitment practices, age and others directly impact on the academics' behavioural use of technology (UTAUT) (see Section 2.2.3). Essentially, professional development equips academics with relevant e-learning competencies, skills and knowledge that prepare them for the adoption of e-learning. There is a great interconnection and interdependency between the four major categories of findings, as will be seen in the following discussion.

#### **6.4.1 Academic professional development in HE and ODeL institutions in Africa and other developing countries**

As indicated in Figure 6.1, the findings positioned academic professional development at the centre as it greatly affects both the adoption of e-learning technology and e-learning readiness of academics within the ODE and HE contexts in Africa and developing countries.

This study found that the intentionality of academics to adopt and use any new technology depends on their knowledge and skills to use that technology, in this case, a variety of

educational technologies, including an LMS (Section 5.4.3.2). The general understanding among participants in this study was that academic training and development is an important enabler of technology acceptance and adoption in teaching and learning. Both data sets in this study (Chapter 5) agreeably position training interventions in the key stages of the e-learning implementation project (that is, at the beginning and during the project and even after the implementation stage) and that the training intervention must be designed to address relevant needs (Sections 5.3.2.3, 5.4.3.2 and 5.4.2).

The challenges that participants faced included prioritisation of research over teaching activities which affected the relevant training and adequate funding for the professional development of academics (Sub-theme 3.6). In addition to challenges, a lack of relevant skills and training in using technology fostered fear of change (Sections 5.3.2.4 and 5.4.3.3). These findings are in line with what is reported in the literature, such as the belief by Wilson (2012) that lecturers are generally not adequately prepared for their teaching role and have little knowledge of effective teaching practices.

Leadership was also a major factor in how training and development were managed in African HE and ODeL institutions (Sub-theme 3.6). This finding was linked to how these institutions do not regularly audit, monitor and evaluate the skills of academics (Section 5.4.3.3) to inform the design of training interventions. This notion was also supported by Isabirye and Dlodlo (2014) and Bagarukayo and Kalema (2015), who contended that academic staff members often find themselves burdened and frustrated due to the haphazard nature with which e-learning innovations are implemented, which have happened without proper training interventions that are aligned to institutional skills gaps.

#### **6.4.2 E-learning competencies relevant for teaching in higher education and ODeL institution in Africa and other developing countries**

The interviews and systematic review data sets highlighted key competencies relevant and necessary for e-learning in ODeL in higher education (HE) contexts (see Section 5.3.2.1 and 5.4.3.1). Digital competence is believed to be a “multi-faceted moving target” that constantly evolves as new technologies appear (Ferrari et al., 2012) and require continuous updating and upskilling (Makoe, 2012). Basic computer skills and digital literacy were found to be lacking among academics. Table 5.5 in Section 5.3.2.1 lists some of the competencies and skills thought to be relevant and necessary for academics in higher education and ODeL environments in Africa and other developing countries. Some of the challenges to the successful implementation of e-learning identified in the study include a lack of key skills such

as pedagogical skills and knowledge, a mismatch between pedagogy and academics' technology skills, facilitation of learning, as listed in Tables 5.6 and 5.10, which are seen as important for e-learning by participants and research (see Section 3.5). Without these skills, this study found that academics are not confident and comfortable using new e-learning systems, leading to the reported failure of e-learning projects within higher education and ODeL institutions in Africa and other developing countries.

#### **6.4.3 E-learning readiness of academics in higher education and ODeL institution in Africa and other developing countries**

The findings on the e-learning readiness of academics in this study highlighted faulty e-learning implementation processes as one of the weaknesses in leadership that lead to the failure of e-learning projects in African HE and ODeL institutions. As indicated throughout this thesis, including the problem statement (Section 1.4) and empirical research findings (Section 5.4.3.3), another major issue in the e-learning implementation process is the lack of measurement of the academics' readiness for e-learning. Based on the study findings, e-learning preparedness also means that the academics are not just emotionally and cognitively ready to teach online, but that the relevant skills are also readily available (Figure 6.1 and Figure 6.2) to be used in the teaching and supporting students' learning. The study revealed that having technical skills is does not indicate that academics are ready for e-learning. Digital literacy was highlighted as lacking among academics as even academics who were comfortable using computers did not have the confidence to engage in e-learning/blended learning due to a lack of adequate knowledge of e-learning/blended learning (Tshabalala, 2014) (see Section 5.3.2.4). Therefore, the study revealed that digital literacy also plays a major role in preparing academics for e-learning and the subsequent adoption thereof.

ODeL institutions generally have a limited pool of skilled people to recruit, resulting in many candidates from residential institutions and the private sector who have no experience and knowledge of the ODeL environment being recruited (see Section 3.6.2 and Sub-theme 3.1). Some of the factors affecting HE academics' e-learning readiness are listed in Table 5.6 and include lack of ICT skills, lack of understanding of e-learning, a mismatch between pedagogy and academics' technology skills and relevant policies, to name a few.

#### **6.4.4 Technology adoption of academics in higher education and ODeL institution in Africa and other developing countries**

In this study, technology adoption in HE and ODeL institutions means using technology to do work, teach, learn, support students, and even conduct research (Figure 6.1). Linked to digital

literacy, technology adoption also means that academics are aware of the available technology tools and can choose appropriate tools for teaching and supporting students in their modules. However, a lack of understanding of e-learning (Sub-theme 3.6) was one of the major stumbling blocks for technology adoption by ODeL HEIs. Lack of relevant competencies, skills and knowledge to use some of the technological tools was also highlighted as a major issue for adopting e-learning innovation (Kanwar et al., 2018) (see Section 5.3.2.4). However, the study also found that it was not compulsory for lecturers to use the learning management system (LMS) for teaching and student support prior to the Covid-19 pandemic (see Sections 5.3.2.3 and 5.4.3.3) which hampered the adoption process of LMS and other e-learning technology systems.

This study revealed various factors that affect the effective adoption and use of technology by academics in HE and ODeL institutions in Africa and other developing countries. The factors include lack of resources and infrastructure (Section 5.4.3.3), lack of training (see Section 5.4.3.2) and lack of e-learning policy (see Section 5.3.2.4). Concerns were raised about the lack of digital devices, internet, mobile data or WiFi to access content online and funding for training (Table 5.6). The study also found that the actual use of technology in delivering modules online and supporting students was limited among lecturers in both universities prior to the outbreak of the Covid-19 pandemic. However, the pandemic's subsequent lockdowns forced many educational institutions to continue offering educational services on digital platforms (Theme 5.4.3.4, and Section 3.8), forcing lecturers to acquire relevant skills to teach and support their students. So, in essence, the pandemic was found to have positively and effectively facilitated the adoption of technology in HE and ODeL environments. This section presented the synthesis of findings based on the contextualized themes, and the next section presents research conclusions in response to the research questions.

## **6.5 THE RESEARCH CONCLUSIONS**

The detailed results of the study presented in Chapter 5 and the synthesis of findings in Chapter 6 provide descriptive answers to the following main research question "*How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?*" This research study explored how large-scale open and distance higher education institutions in Africa professionally developed, prepared and supported their academics for educational digital transformation such as e-learning. The University of South Africa (UNISA) and the National Open University of Nigeria (NOUN) were the main cases under study. The study also involved a systematic review of related research in other African countries and developing countries such as Zimbabwe, Kenya, Cameroon,

Pakistan and Rwanda (Table 5.3, Annexure 5.3). To explore and fully answer the main research question, a synthesis of findings is presented for each research sub-questions.

### **6.5.1 Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?**

The study's findings showed that most lecturers from the two institutions under study did not have adequate skills and competencies required for e-learning and blended learning. The key skills and competencies for e-learning, identified from the systematic review and the empirical study, include basic computer skills, digital literacy and digital competencies, design and development of learning materials, teaching with multimedia tools, skills for assessment of students' learning in online platforms and pedagogical skills (Sub-theme 1.1; Table 5.5). Aligned to the studies in the reviewed literature and participants' views, these skills and competencies have major benefits in the face of new technology innovation (Table 5.17, 5.19). In the context of the implementation of e-learning technologies in distance education institutions in developing countries, it is critical that not only lecturers understand and know how to use digital technologies to communicate and support students but also know how to choose which media is relevant and fit for teaching and supporting students (Section 5.4.3.1). The findings showed that the TPACK framework could also help identify necessary knowledge sets that academics should acquire to effectively teach and support students in an e-learning environment.

### **6.5.2 How prepared are lecturers for online teaching/e-learning in African large-scale open and distance education (ODE) institutions?**

Linked to the long-standing assumptions in literature that lecturers are generally not sufficiently prepared for their teaching role (Ncube et al., 2014; Ndebele et al., 2016), this study revealed that African large-scale open and distance education (ODE) institutions' academics are therefore not well prepared for online teaching and e-learning. The lack of basic computer skills, the mismatch between pedagogy and academics' technology skills, lack of understanding of e-learning and blended learning and other factors identified through the empirical research is evidence that most lecturers were not adequately prepared for e-learning implementation in their institutions (Sections 3.7 and 3.8, and Table 5.6). The forced move of HEIs to continue education provision in digital spaces as a result of the Covid-19 pandemic and its subsequent lockdowns also revealed skill gaps among academics exposing the academics' level of unpreparedness for e-learning (Sections 3.6.4 and 5.5.2). On average, the participants from UNISA rated their e-learning preparedness to be 4 out of 10 while the participants from NOUN rated themselves on average 7 out of 10 (Table 5.18). It was clear

that most participants from UNISA felt they were not adequately prepared for implementing e-learning.

### **6.5.3 How are academics professionally prepared and supported for e-learning in African large-scale open and distance education (ODE) institutions?**

Regarding the preparation of lecturers for e-learning in the African higher education and distance education context, it emerged from the empirical research that training and updating various skills is vital (see Section 5.4.3.3). The empirical research showed that the e-learning training must be relevant, timely, and preferably happen before implementing an e-learning system. The findings also showed how UTAUT frameworks could be instrumental in assessing which variables such as age, effort expectancy or facilitating factors (see Sub-theme 2.1, 2.3 and Section 5.3.2.2) may be at play within an institution before and during the implementation of an e-learning system.

The empirical study identified various challenges that affect the preparation of lecturers for e-learning and the subsequent adoption thereof (Tables 5.6, 5.9 and 5.10). The identified challenges resulted from the lack of baseline research and auditing of the academics' skills sets, which were argued to be critical in designing relevant needs-based training interventions. This study also revealed that skill auditing and needs assessment are key steps that need to happen before or at the beginning and throughout the e-learning implementation process (Sub-theme 3.6). Figure 6.1 and Figure 6.2 (see Sections 6.4 and 6.5.5) contextualise this study's key findings and reveal academics' training and development as central to the successful e-learning preparation and subsequent adoption by academics.

### **6.5.4 What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions?**

This study revealed that open distance e-learning institutions in Africa and other developing countries are faced with many challenges that affect the preparation of academics for e-learning (Table 5.8), academics' e-learning readiness (Table 5.6) and academics' adoption of e-learning (Table 5.10). The empirical research identified these challenges as essential for the successful implementation of e-learning in African higher education and ODeL contexts and other developing countries, as illustrated in Figure 6.1. Therefore, this study identified factors that are affecting the successful implementation of e-learning in open and distance education (ODE) institutions within the African higher education and ODeL contexts and other developing countries, as presented in Table 5.9 and extensively discussed in Chapter 5 (Sections 5.3.2.4

and 5.5.3) as a clear understanding of e-learning, formal and structured implementation process, e-learning policy and appropriate training and preparation of lecturers. The systematic review and empirical research revealed that the institutional leadership must urgently deal with the management of e-learning projects and lack proper resources. However, without the relevant resources and proper tools of the trade, even the most qualified and skilled people become 'disabled' (Sub-theme 3.6).

The document analysis of policies revealed that the National Open University of Nigeria was using an old and outdated draft policy document, while the University of South Africa's ODeL policy was also outdated and not comprehensive enough (see Section 5.5.2). An e-learning policy has been identified as the backbone and a necessary building block for the successful implementation of e-learning in African open and distance education (ODE) institutions (see Sections 5.3.2.4 and 5.5.2). However, the empirical research also revealed academic professional development and support of academics as the vehicle through which academics can be prepared for the implementation of e-learning (see Sections 6.4.1 and 6.5.3). It was highlighted in this study that the glue that holds all the factors together is strong leadership with a clear vision (Sub-theme 3.6). These findings align with the findings from the systematic review (see Section 5.3.2.4) and are also consistent with previous research (see Sections 3.5, 3.6, 3.7 and 3.8).

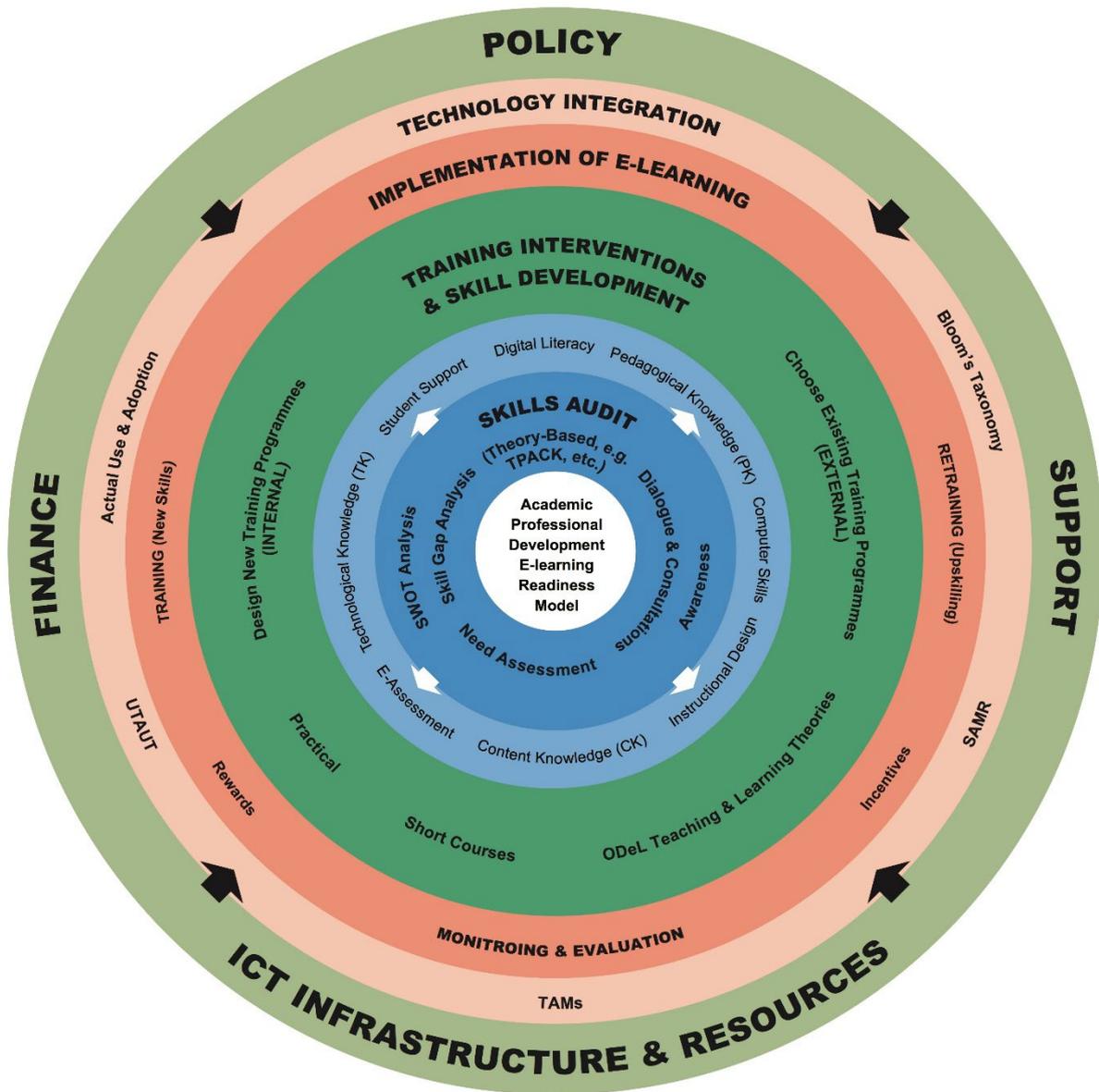
#### **6.5.5 How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?**

The relevant technological, pedagogical and content knowledge greatly impacts the quality of teaching and support of students in distance education and e-learning environments. The acquisition of relevant skills and knowledge related to e-learning further enhances the acceptance and adoption of e-learning systems or any new technology in distance education and e-learning environments. However, the findings of this study, in line with other research, revealed that African higher education ODeL institutions do not properly and adequately prepare their academics for the implementation of an e-learning system. It emerged from the study that most lecturers lack proper Technological Pedagogical Content Knowledge (TPACK) to effectively teach and support students in online education, which means that they are either slow to adopt the e-learning technology or do not adopt it at all. A clear understanding of e-learning was also one of the factors affecting technology integration by lecturers and the successful implementation of e-learning projects in African higher education ODeL institutions. In response to this research study's main question, the proposed e-learning readiness model is considered appropriate for academic professional development during e-learning

implementation in higher education and ODeL environments, as illustrated in Figure 6.2 below, followed by a description of what the model entails.

**Figure 6.2**

*The e-learning readiness model for professional development in higher education and the ODeL environment*



*Note.* The author's construct conceptualised from research findings and literature

### 6.5.5.1 Overview of the model

The empirical research undertaken in this study confirmed that the professional development of academics had not been given the attention it requires during the implementation of e-

learning projects with African ODeL higher education institutions. The nature of technology in distance education and e-learning is fluid and ever-changing. It is thus in the best interest of open and distance education institutions to continue updating their institutional knowledge and skills, both the pedagogical, content and technology knowledge and skills (TPACK).

Based on the findings in this study, the e-learning readiness model for professional development in higher education and ODeL environment (Figure 6.2) highlights the approach and key steps that the researcher argues should be taken to appropriately prepare lecturers for successful e-learning implementation projects. This model results from an extensive review of literature both in Chapter 2 and secondary data collected through a systematic review and policy analysis in Chapters 4 and 5 and the findings emerging from the empirical research (Chapter 5). This model is designed to specifically zoom in on the preparation of lecturers for the implementation of e-learning in higher education and ODeL context in African countries and other developing countries. The model does not focus on other micro and macro-level factors. The researcher believes that such factors have been adequately addressed in the literature and are not the primary focus and theme of this research.

The white arrows indicate the logical flow of activities/steps, while the black arrows highlight other internal and external factors influencing the e-learning readiness process. The circular shape of the model illustrates the ongoing nature of training and skill development of lecturers alongside the everchanging technology in higher education. The colours of the layers have no specific meaning but merely help visualise the demarcation and positioning of the activities/stages.

#### **6.5.5.2 Skills audit and skills gap analysis**

The skill audit and skills gap analysis is regarded as the most important e-learning readiness stage and lecturers' preparation for e-learning. This finding was strongly highlighted through the consolidated findings in the study, as with literature. Most participants believed they needed preparation and training at the beginning of the e-learning implementation process. Without the analysis of the skills and knowledge available within the institution, lecturers would be subjected to irrelevant training programmes that do not address their real needs. These steps ensure that key relevant skills are identified and inform the approach to training interventions accordingly. For example, digital literacy and basic computer skills were highlighted as among the top key skills necessary for e-learning; however, the study revealed a serious lack of the same skills among lecturers.

Although in this model, the first step is identified as a skill audit exercise, the researcher argues that successful e-learning projects begin with the concept of stakeholder consultation and open dialogue that leads to awareness of the institution's e-learning implementation plans. This includes an effective university-wide communication strategy and drives that will inform and educate all stakeholders about e-learning and their roles in making it a success. This skill audit and skills gap analysis step can be informed by theories and frameworks such as the TPACK framework to identify real skills gaps and real needs and then inform the next step. The step also highlights information for decision-makers about the types of training interventions that are appropriate and prioritise the interventions.

### **6.5.5.3 Training intervention and skill development**

Based on the findings and literature, this study argues that academic professional development is the backbone of any successful e-learning initiative in higher education and ODeL environments, as illustrated in Figure 6.1. According to the model, the training intervention and skill development should always address lecturers' specific training needs. For the interventions to be effective and successful, they must also be timely and given when needed. In this case, at the beginning of e-learning implementation projects. The training intervention and skill development stage depends heavily on the skills audit because the information will inform decision-makers on how to approach the training and development of lecturers.

The decision to be made at this stage is to choose an existing training programme (in-house or external providers) and design a new training programme (internal), determining the length of the training course considering the timeline of the e-learning implementation process. It is also important to design or choose practical courses, which may include relevant ODeL teaching and learning theories, which will help further understand the ODeL context within which they teach. During the training intervention and skill development stage, the institution and the lecturers may even begin to prototype some modules, depending on whether the institution opts for a blended learning approach or a full move to e-learning training mode.

### **6.5.5.4 E-learning implementation**

The e-learning implementation stage is when the institution finally migrates teaching and learning activities from the old to the new system. The lecturers should be ready and willing participants in the e-learning implementation process at this stage. As seen in the model (Figure 6.2), at this stage, it is expected that lecturers are successfully integrating relevant

technologies in designing learning materials, teaching and supporting students in online learning environments. The new e-learning readiness definition proposed in this study argues that the adoption of the new e-learning technology depends on the necessary technology skills and knowledge that are readily available to be used and applied in teaching and learning. The available technology skills and knowledge require prior training or be available as a result of prior training in preparation for new technology.

#### **6.5.5.5 *Monitoring and Evaluation***

The monitoring and evaluation stage should ideally happen throughout the implementation process; however, it is placed after the training interventions in this model. This positioning of monitoring and evaluation allows the institution to evaluate the ongoing processes with specific attention to the effectiveness of the training interventions. The institutions ask various questions at this stage, including “How do we know that the lecturers are ready to integrate technology into their teaching?” This question can only be answered by giving the lecturers an opportunity through continuous support to design learning materials suitable for online education.

The information gathered from this stage will inform the decision-makers to train and retrain, meaning whether there is a need to upskill or design/choose new training programmes for the further skills gaps that might be identified. This stage is also important as it can further identify barriers to technology adoption and thus inform decision-makers to timely address those barriers. The stage can also help identify best practice performance where rewards may be necessary or whether incentives are needed to motivate lecturers to reflect on and improve their performance.

#### **6.5.5.6 *Macro-level elements of e-learning implementation***

The assumption is made within this model that the institution ideally has made provision for macro-level institutional imperatives such as finance, ICT infrastructure and provision of relevant software and hardware, computer resources, and policy. However, the study revealed a lack of e-learning policy among higher education ODeL institutions under study; therefore, the study proposes that e-learning policy should be developed at the beginning and before the e-learning implementation process. The policy must be comprehensive and informative to properly guide e-learning technologies for teaching and learning and supporting students. The e-learning policy must also include a well-articulated definition of e-learning to avoid confusion. It must also be flexible and adaptable to the ever-changing landscape and technology in higher

education and ODeL. The study suggests that this policy be developed right at the beginning of the implementation process (see Section 6.7) to guide the successful implementation of e-learning

## **6.6 LIMITATIONS OF THE STUDY**

Although research is founded on scientific principles, it is still a subjective activity (Miles et al., 2014) that is sometimes birthed from individuals' curiosity and duty to discover their world. This means that the topic, scope, focus, settings, and other elements of research are determined by the researcher(s) (Mahlambi, 2020; Smith & Noble, 2014.), which may bring some bias and limitations to the research. Nonetheless, the research interviews and the overall research processes in this study were carried out with guidance from the promoters and literature and strictly adhering to ethical principles of research (see Sections 1.11 and 4.9). The approach to this research led to the collection of rich quality data from the participants through a systematic review of literature, semi-structured interviews and document analysis that attempted to answer the research questions.

The other possible limitation of the study stems from the use of only two institutions and a limited number of participants, although the purpose was not to generalise but to do an in-depth study. However, the researcher believes that the findings in this study may have value for exploration in other institutions with similar characteristics and similar contexts. The inclusion and exclusion criteria and the search string in the systematic review further limited the study to specific sources, excluding other sources, as indicated in Section 4.5.3.1. However, the researcher recorded every step undertaken in this research following the newly updated 2020 PRISMA guidelines and presenting these steps in Chapter 4 and the attached annexures (Annexures 2.1 and 2.2).

Despite these limitations, the researcher believes that this study contributes to the dialogue and further research around the successful implementation of e-learning in open and distance education (ODE) institutions. The recommendations and suggestions for further research are presented in the following section.

## **6.7 RECOMMENDATIONS**

Based on the findings of this study, the recommendations are offered for consideration by those mandated with the task to implement and use e-learning technologies in higher education and ODeL context in Africa and other developing countries:

### **6.7.1 Recommendations at the governmental level**

ODL is now viewed as a viable means of increasing access to education by many governments and conventional institutions (Kanwar et al., 2018). However, as ODL and technology become increasingly interconnected, a lack of electricity and internet access will continue to pose a formidable barrier to adopting teaching and learning technologies in developing countries. Electricity, bandwidth, internet connectivity, and weak infrastructures will continue to adversely impact education systems and e-learning in Africa and other developing countries. There is an urgent need for governments in African countries to prioritize developing and improving their infrastructures to create conducive environments for educationalists to teach and learners to learn using technology. This study thus recommends that developing countries' governments and relevant stakeholders urgently and robustly address these issues in their countries.

Further to this, an awareness campaign and education drive about e-learning and blended learning also need to happen at the national level of the developing countries. It is also recommended that governments in developing countries, in consultation with HEIs, develop a robust ODeL policy or a separate dedicated e-learning policy on the requirements for training teaching professionals in e-learning and further support these interventions with appropriate resources and incentives.

The developing countries' governments also need to encourage and fund research that goes from merely reporting on observable phenomena to multidisciplinary collaborative research that provides creative and practical solutions to the real needs in the education sector.

### **6.7.2 Recommendations at the institutional level**

#### ***Development of a comprehensive e-learning policy***

The policy is paramount to the health of any institution. The consolidated findings from this study revealed a lack of coherent e-learning and related policy for ODeL institutions in the two institutions under study and generally in developing countries. This study recommends developing a coherent policy directly linked to the e-learning activities of the university. The policy should also include a clear and comprehensive statement of what constitutes e-learning and blended learning as defined by the institutions for their context. This policy can be part of another related policy; however, more details must be outlined in giving direction and guidance to activities around e-learning and capacity building for proper instructional design, facilitation

of learning and effective student support for online education. It is also recommended that teaching and learning policies and ICTs be updated regularly.

### ***Timely and relevant training and development of academics***

The study findings revealed a fragmented approach to training and preparation of academics for e-learning; therefore, a central unit from which strategic capacity planning occurs should be established before e-learning is implemented. The study revealed that training interventions given to academics are not aligned with their relevant needs. Therefore, baseline research and skills audits should be conducted to inform the types of training programmes designed for lecturers.

Digital literacy should form part of training and development, the education about digital technologies and e-learning should form part of a training intervention aimed at preparing academics for e-learning and enhancing their skills and knowledge for e-learning. The findings revealed a high-level prioritisation of research activities over activities. As a result, this study further recommends that African higher education ODeL institutions invest and incentivise attainment and practical and appropriate use of acquired teaching skills.

#### **6.7.3 Recommendations at the lecturers' level**

Lecturers need to engage in continuous honest self-reflection, assess their own training and development needs, and seek relevant training interventions. They need to continuously monitor and evaluate how their skills improve their teaching and general performance. They have to take responsibility for their professional development, seek further training, and acquire relevant skills.

Cognisant of the highly reported workloads, this study further recommends that lecturers avail themselves for the university's training interventions. The lecturers should design learning materials that can be appropriately used to teach and effectively support students in online learning environments; considering the type of students and learning theories for online education, this type of instructional design and development of online material obviously requires continuous training and practice.

## **6.8 SUGGESTIONS FOR FURTHER RESEARCH**

In the light of the findings emerging from this study and within the limitations of the policies studied, the following suggestions for further research are offered:

- Further research into the relevant framework(s) for professional development of academics, specifically in higher education and open distance e-learning contexts, to better understand how academic professional development can be creatively integrated into the e-learning and blended learning implementation processes.
- It is recommended that further research be conducted to investigate how policy impacts e-learning implementation. This study also recommends further research on how ODeL policies align with the preparation of academics. Gani's (2018) study extensively unpacks various UNISA Policies; however, this study investigated how online learning can be integrated with distance education within UNISA, with a greater focus on students' learning. Research is needed that unpacks how institutional policies align and address the readiness of academics for digital transformation such as e-learning and blended learning.
- The study also suggests research on how monitoring and evaluation of training and development interventions can enhance higher education institutions' teaching and learning capabilities. This research may further investigate designs and frameworks for systems that can effectively assist higher education institutions in managing their return on investment on training and development programmes.

## **6.9 CONCLUDING REMARKS**

This study investigated how large-scale HE ODeL institutions in African and developing countries professionally developed, prepared and supported their academics for educational digital transformation such as e-learning. The study undertook qualitative research with a combined methods approach of empirical investigation through semi-structured interviews, a configurative systematic review and document analysis of policies. The secondary data looked at what research existed on the topics under study within the African and developing countries' contexts, thus expanding the scope of research to more countries, together with two policies from both universities under study, which helped build an understanding and interpretation supporting the empirical research. The consolidated findings were consistent with the previous research on the same topic.

It is also important to note that the participants in this study included academics, staff from ICT departments, individuals from the training and development departments, and some from the management of both universities. Many studies have used students to uncover institutional issues; however, adequate representation of relevant participants was used within a qualitative research approach in this study. The research methods used in this study effectively addressed the aims and objectives of this study.

The study found that e-learning initiatives are implemented haphazardly and without considering the role of academics in the process, especially the role of specific knowledge and skills that this could play. As such, this study revealed a lack of the right in-house skill sets and expertise as one of the major barriers to digital transformation. It is clear from this study that academics struggle to adopt new e-learning innovations due to a lack of relevant skills. Therefore, the study effectively identified the key factors that affect the successful implementation of e-learning in HEIs in Africa and other developing countries. Furthermore, this study proposed a strategic approach (Figure 6.1) and an e-learning readiness model for lecturers (Figure 6.2) that can be employed to effectively and appropriately prepare lecturers for e-learning in African higher education ODeL institutions. The researcher regards the identified factors (Sections 5.3.2.4 and 6.5.4) and the model as a unique contribution to the body of knowledge in the field of open distance and e-learning (ODeL), specifically for academics' e-learning readiness and technology adoption in Africa and other developing countries.

The findings in this study have valuable information that can be used by other higher education and ODeL institutions to improve their approaches to the training and development of academics in their preparation for e-learning and other technology innovations, to enhance the technology adoption and use in teaching and learning. The findings have implications for practical solutions, decisions and development of relevant policies, which may be impacted as a greater knowledge base is accumulated to ultimately guide online teaching practice in distance education and e-learning. It is hoped that this study may stimulate further dialogue for open and distance education institutions in Africa and other developing countries to successfully engage in the digitalisation of education.

## REFERENCES

- Abayomi, O. K., Neil, E., & Mhlongo, P. T. (2016). Applying UTAUT in clinical informatics research. *Library Philosophy and Practice*. <https://link.gale.com/apps/doc/A584262862/AONE?u=anon~c006448f&sid=googleScholar&xid=77a54d44>
- Abdullah, M.S. & Toycan, M. (2018). Analysis of the factors for the successful e-learning services adoption from education providers' and students' perspectives: A case study of private universities in Northern Iraq. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(3), 1097-1109. <https://doi.org/10.12973/ejmste/81554>
- Abend, G. (2008). The meaning of 'theory'. *Sociological theory*, 26(2), 173-199. <https://doi.org/10.1111/j.1467-9558.2008.00324.x>
- Aboderin, O. S. (2015). Challenges and prospects of e-learning at the National Open University of Nigeria. *Journal of Education and Learning*, 9(3), 207-216.
- Abrami, P. C., Bernard, R. M., Bures, E. M., Borokhovski, E., & Tamim, R. M. (2012). Interaction in distance education and online learning: Using evidence and theory to improve practice. In L. Moller & J. B. Huett (Eds.), *The next generation of distance education* (pp. 49-69). Springer. <https://doi.org/10.1016/j.chb.2009.04.007>
- Abusalim, N., Rayyan, M., Jarrah, M., & Sharab, M. (2020). Institutional adoption of blended learning on a budget. *International Journal of Educational Management*, 34(7), 1203-1220. <https://doi.org/10.1108/IJEM-08-2019-0326>
- Adamu, S. O. (2018). *The impact of information and communication technology in teaching and learning in Enugu-East local government area of Enugu state* (Doctoral dissertation, Godfrey Okoye University).
- Aderinoye, R., & Ojokheta, K. (2004). Open-Distance Education as a Mechanism for Sustainable Development: Reflections on the Nigerian Experience. *The International Review of Research in Open and Distributed Learning*, 5(1), 1-13. <https://doi.org/10.19173/irrodl.v5i1.174>
- Adiyarta, K., Napitupulu, D., Rahim, R., Abdullah, D., & Setiawan, M. I. (2018). Analysis of e-learning implementation readiness based on integrated ELR model. *Journal of Physics: Conference Series*, 1-6. <https://doi.org/10.1088/1742-6596/1007/1/012041>
- Adom, D., Hussein, E. K., & Agyem, J. A. (2018). Theoretical and conceptual framework: Mandatory ingredients of a quality research. *International Journal of Scientific research*, 7(1), 438-441.
- Adu, E. O., Eze, I. R., Salako, E. T., & Nyangechi, J. M. (2013). E-learning and distance education in Nigeria. *International Journal of Science and Technology*, 2(2), 203-210.

- Afonso, C. M., Roldán Salgueiro, J. L., Sánchez Franco, M. J., & González, M. D. L. O. (2012, May 19-22). *The moderator role of Gender in the Unified Theory of Acceptance and Use of Technology (UTAUT): A study on users of Electronic Document Management Systems* [Conference proceedings]. 7th International Conference on Partial Least Squares and Related Methods, Houston. [https://idus.us.es/bitstream/handle/11441/76315/the\\_moderator\\_role\\_of\\_gender\\_in\\_the\\_unified\\_theory.pdf?sequence=1&isAllowed=y](https://idus.us.es/bitstream/handle/11441/76315/the_moderator_role_of_gender_in_the_unified_theory.pdf?sequence=1&isAllowed=y)
- Ajadi, T. O., Salawu, I. O., & Adeoye, F. A. (2008). E-learning and distance education in Nigeria. *The Turkish Online Journal of Educational Technology*, 7(4). <https://files.eric.ed.gov/fulltext/ED503472.pdf>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99-110. <https://doi.org/10.1016/j.ijinfomgt.2017.01.002>
- Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, 40, 125-138. <https://doi.org/10.1016/j.jretconser.2017.08.026>
- Alghamdi, S. (2015). Analysing paradigmatic influences in a particular research. *International Journal of Humanities and Social Science*, 5(8), 78-83. [https://www.researchgate.net/profile/Sami-Alghamdi-11/publication/349605628\\_Analysing\\_paradigmatic\\_influences\\_in\\_a\\_particular\\_research/links/6037d70e299bf1cc26ef98e8/Analysing-paradigmatic-influences-in-a-particular-research.pdf](https://www.researchgate.net/profile/Sami-Alghamdi-11/publication/349605628_Analysing_paradigmatic_influences_in_a_particular_research/links/6037d70e299bf1cc26ef98e8/Analysing-paradigmatic-influences-in-a-particular-research.pdf)
- Alhazmi, A. K., & Rahman, A. A. (2012, October 21-24). *Why LMS failed to support student learning in higher education institutions* [Paper presentation]. IEEE Symposium on E-Learning, *E-Management and E-Services*, 1-5. <https://doi.org/10.1109/IS3e.2012.6414943>
- Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education Studies*, 10(3), 16-25. <https://doi.org/10.5539/hes.v10n3p16>
- Aliyu, A. A., Singhry, I. M., Adamu, H. A. R. U. N. A., & AbuBakar, M. A. M. (2015, December). *Ontology, epistemology and axiology in quantitative and qualitative research: Elucidation of the research philosophical misconception*. In Proceedings of

- the Academic Conference: Mediterranean Publications & Research International on New Direction and Uncommon (Vol. 2, No. 1).
- Alomari, M. M., El-Kanj, H., Alshdaifat, N. I., & Topal, A. (2020). A Framework for the Impact of Human Factors on the Effectiveness of Learning Management Systems. *IEEE ACCESS*, 8, 23542-23558. <https://doi.org/10.1109/ACCESS.2020.2970278>
- Alshafer, A. A. F. (2013). The McKinsey 7S model framework for e-learning system readiness assessment. *International Journal of Advances in Engineering & Technology*, 6(5), 1948-1966. [https://portal.arid.my/Publications/2117-IJAET1117362\\_v6\\_iss5\\_1948-1966180713043.pdf](https://portal.arid.my/Publications/2117-IJAET1117362_v6_iss5_1948-1966180713043.pdf)
- Alqahtani, A. Y., & Rajkhan, A. A. (2020). E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives. *Education sciences*, 10(9), 216. <https://doi.org/10.3390/educsci10090216>
- Amador, P., & Amador, J. (2014). Academic advising via Facebook: Examining student help seeking. *The Internet and Higher Education*, 21, 9-16. <https://doi.org/10.1016/j.iheduc.2013.10.003>
- Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research. *Journal of Cultural Diversity*, 23(3). <https://pubmed.ncbi.nlm.nih.gov/29694754/>
- Amundsen, C., & Wilson, M. (2012). Are we asking the right questions? A conceptual review of the educational development literature in higher education. *Review of educational research*, 82(1), 90-126. <https://doi.org/10.3102/0034654312438409>
- Anderson, T., & Zawacki-Richter, O. (2014). Conclusion: Towards a research agenda. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda*, (pp. 485-492). [https://microblogging.infodocs.eu/wp-content/uploads/2014/07/Online\\_Distance\\_Education.pdf#page=497](https://microblogging.infodocs.eu/wp-content/uploads/2014/07/Online_Distance_Education.pdf#page=497)
- Anderson, A., Barham, N., & Northcote, M. (2013). Using the TPACK framework to unite disciplines in online learning. *Australasian Journal of Educational Technology*, 29(4), 549-565. <https://doi.org/10.14742/ajet.24>
- Anderson, T. & Garrison, D. R. (1998). Learning in a networked world: New roles and responsibilities. In C.C. Gibson (Ed.), *Distance Learners in Higher Education: Institutional responses for quality outcomes* (pp. 97-112). Atwood. [https://auspace.athabascau.ca/bitstream/handle/2149/801/learning\\_in\\_a.pdf?sequence=1](https://auspace.athabascau.ca/bitstream/handle/2149/801/learning_in_a.pdf?sequence=1)
- Anderson, T., L. Rourke, D. Garrison, and W. Archer. (2001). Assessing Teaching Presence in a Computer Conferencing Context. *Journal of Asynchronous Learning Networks*, 5(2), 1-17. <https://auspace.athabascau.ca/bitstream/handle/2149/725/assess?sequence=1>

- Andresen L.W. (2000). A usable, trans-disciplinary conception of scholarship. *Higher Education Research and Development*, 19(2):137-153. <https://doi.org/10.1080/072943600445619>
- Andriotis, N. (2017). *Return On Training Investment And How To Measure It*. eLearning Industry. <https://elearningindustry.com/how-measure-return-on-training-investment>
- Angeli, C., & Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT–TPCK: Advances in technological pedagogical content knowledge (TPCK). *Computers & education*, 52(1), 154-168. <https://doi.org/10.1016/j.compedu.2008.07.006>
- Aoki, K. (2012). Generations of distance education: Technologies, pedagogies, and organizations. *Procedia-Social and Behavioral Sciences*, 55, 1183-1187. <https://doi.org/10.1016/j.sbspro.2012.09.613>
- Appel, G., Grewal, L., Hadi, R. & Stephen, A. (2019). The future of social media in marketing. *Journal of the Academy of Marketing Science*. 48(1). <https://doi.org/10.1007/s11747-019-00695-1>.
- Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 33(5471), 1-8. <https://platform.almanhal.com/Files/Articles/107965>
- Arain, M., Campbell, M. J., Cooper, C. L., & Lancaster, G. A. (2010). What is a pilot or feasibility study? A review of current practice and editorial policy. *BMC medical research methodology*, 10(1), 1-7. <https://doi.org/10.1186/1471-2288-10-67>
- Arifin, S. R. M. (2018). Ethical considerations in qualitative study. *International Journal of Care Scholars*, 1(2), 30-33. <https://journals.iium.edu.my/ijcs/index.php/ijcs/article/view/82>
- Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), 29-42. [https://www.itdl.org/Journal/Jan\\_15/Jan15.pdf#page=33](https://www.itdl.org/Journal/Jan_15/Jan15.pdf#page=33)
- Arnold, D. M., Burns, K. E., Adhikari, N. K., Kho, M. E., Meade, M. O., & Cook, D. J. (2009). The design and interpretation of pilot trials in clinical research in critical care. *Critical care medicine*, 37(1), S69-S74. <https://doi.org/10.1097/CCM.0b013e3181920e33>
- Aromataris, E., & Pearson, A. (2014). The systematic review: an overview. *American Journal of Nursing*, 114(3), 53-58. <https://doi.org/10.1097/01.NAJ.0000444496.24228.2c>

- Aromataris, E., & Riitano, D. (2014). Systematic reviews: constructing a search strategy and searching for evidence. *American Journal of Nursing*, 114(5), 49-56. <https://doi.org/10.1097/01.NAJ.0000446779.99522.f6>
- Aspers, P., & Corte, U. (2019). What is qualitative in qualitative research. *Qualitative Sociology*, 42(2), 139-160. <https://doi.org/10.1007/s11133-019-9413-7>
- Attuquayefio, S. (2019). Development of a Conceptual Framework to Support ICT Adoption by Ghanaian Higher Education Students. *International Journal of Education and Development using Information and Communication Technology*, 15(4), 116-131. <https://files.eric.ed.gov/fulltext/EJ1239625.pdf>
- Awidi, I. T., & Cooper, M. (2015). Using management procedure gaps to enhance e-learning implementation in Africa. *Computers & Education*, 90, 64-79.
- Aydın, C. H., & Tasci, D. (2005). Measuring readiness for e-learning: Reflections from an emerging country. *Journal of Educational Technology & Society*, 8(4), 244-257.
- Ayers, R. (2018). *Is e-learning The Future Of Education?* eLearning Industry. <https://elearningindustry.com/is-elearning-the-future-of-education>
- Ayman, A. A. (2015). *Unified Theory of Acceptance and Use of Technology (UTAUT)*. LinkedIn. <https://www.linkedin.com/pulse/unified-theory-acceptance-use-technology-utaut-ayman-alqudah/>
- Azimi, H. M. (2013). Readiness for implementation of e-learning in colleges of education. *Journal of Novel Applied Sciences*, 2(12), 769-775. <http://hdl.handle.net/10603/32036>
- Babbie, E. & Mouton, J. (2012). *The practice of social research: Fourteenth impression*. Oxford University Press
- Bagarukayo, E., & Kalema, B. (2015). Evaluation of e-learning SAGE in South African universities: A critical review. *International Journal of Education and Development using ICT*, 11(2). <https://www.learntechlib.org/p/151848/>
- Bajinath, N. (2014). Curricular Innovation and Digitisation at a Mega University in the Developing World--The UNISA" Signature Course" Project. *Journal of Learning for Development*, 1(1). <http://jl4d.org/index.php/ejl4d/article/view/36>
- Bampton, R., & Cowton, C. J. (2002). The E-Interview. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 3(2). <https://doi.org/10.17169/fqs-3.2.848>
- Bandura, A. (1986). *Social foundations of thought and action*. Prentice-Hall, Inc
- Baran, E., & Correia, A. P. (2014). A professional development framework for online teaching. *TechTrends*, 58(5), 95-101. <https://doi.org/10.1007/s11528-014-0791-0>
- Barron, A. E., Kemker, K., Harnes, C., & Kalaydjian, K. (2003). Large-scale research study on technology in K-12 schools: Technology integration as it relates to the

National Technology Standards. *Journal of Research on Technology in Education*, 35(4), 489-507. <https://doi.org/10.1080/15391523.2003.10782398>

- Basitere, M., & Mapatagane, N. (2018, June). Effects of a Social Media Network Site on Student's Engagement and Collaboration: A case study of WhatsApp at a University of Technology (pp. 13-21) . In V. Cunnane, & N Corcoran (Eds.), *ECSM 2018 5th European conference on social media*.
- Bates, A. T. (2019). *Teaching in a Digital Age Teaching in a Digital Age*. (2<sup>nd</sup> ed). Creative Commons Attributions Non-Commercial International License. <https://pressbooks.bccampus.ca/teachinginadigitalagev2/>
- Bates, A. T., & Sangra, A. (2011). *Managing technology in higher education: Strategies for transforming teaching and learning*. John Wiley & Sons.
- Bates, A. W. (2015). *Teaching in a digital age: guidelines for teaching and learning*. Tony Bates Associates Ltd. <https://openlibrary-repo.ecampusontario.ca/jspui/handle/123456789/276>
- Bates, A. W., & Bates, T. (2005). *Technology, e-learning and distance education*. Psychology Press.
- Bates, T. (1997). *Restructuring the university for technological change*. Murdoch University.
- Bates, T., & Poole, G. (2003). *Effective teaching with technology in higher education: Foundations for success*. Jossey-Bass.
- Baumbusch, J. (2010). Semi-Structured Interviewing in Practice-Close Research, *Journal for Specialists in Pediatric Nursing*, 15(3), 255-258. <https://doi.org/10.1111/j.1744-6155.2010.00243.x>
- Bedenlier S., Bond M., Buntins K., Zawacki-Richter O., & Kerres M. (2020) Learning by Doing? Reflections on Conducting a Systematic Review in the Field of Educational Technology. In O. Zawacki-Richter, M. Kerres, S. Bedenlier, M. Bond & K. Buntins (Eds.), *Systematic Reviews in Educational Research* (pp. 111-127). Springer. <https://library.oapen.org/bitstream/handle/20.500.12657/23142/1007012.pdf?sequence=1#page=127>
- Beer, C., & Lawson, C. (2017). The problem of student attrition in higher education: An alternative perspective. *Journal of Further and Higher Education*, 41(6), 773-784. <https://doi.org/10.1080/0309877X.2016.1177171>
- Beitin, B. K. (2012). Interview and sampling. In J.F. Gubrium, J.A. Holstein, A.B. Marvasti & K.D. McKinney (Eds.), *The SAGE handbook of interview research: The complexity of the craft* (pp. 243-254). Sage Publications.

- Benavides, C. L. M., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D. (2020). Digital Transformation in Higher Education Institutions: A Systematic Literature Review. *Sensors*, 20(11). <https://doi.org/10.3390/s20113291>
- Benson, S. N. K., & Ward, C. L. (2013). Teaching with technology: Using TPACK to understand teaching expertise in online higher education. *Journal of Educational Computing Research*, 48(2), 153-172. <https://doi.org/10.2190/EC.48.2.c>
- Berge, Z.L. (2008). Changing instructor's roles in virtual worlds. *The Quarterly Review of Distance Education*, 9(4), 407-414. <https://www.learnstechlib.org/p/106706/>
- Bervell, B., & Arkorful, V. (2020). LMS-enabled blended learning utilization in distance tertiary education: establishing the relationships among facilitating conditions, voluntariness of use and use behaviour. *International Journal of Educational Technology in Higher Education*, 17(1), 1-16. <https://doi.org/10.1186/s41239-020-0183-9>
- Bezuidenhout, A. (2018). Analysing the importance-competence gap of distance educators with the increased utilisation of online learning strategies in a developing world context. *International Review of Research in Open and Distance Learning*, 19(3), 263-281. <https://doi.org/10.19173/irrodl.v19i3.3585>
- Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J., & Ciganek, A. P. (2012). Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), 843-855. <https://doi.org/10.1016/j.compedu.2011.10.010>
- Bissessar, C. S., Black, D., & Boolaky, M. (2021). The heros of online education: What makes students succeed despite the odds? *Journal of Educators Online*, 18(1).
- Blair, K., Murphy, R. M., & Almjeld, J. (2013). *Cross currents: Cultures, communities, technologies*. Cengage Learning.
- Blazar, D. (2016). *Teacher and teaching effects on students' academic performance, attitudes, and behaviors*. [Doctoral dissertation, Harvard University]. ProQuest Dissertations and Theses Global.
- Boell, S. K., & Cecez-Kecmanovic, D. (2015). On being 'systematic' in literature reviews. In: Willcocks L.P., Sauer C., Lacity M.C. (eds) *Formulating Research Methods for Information Systems*. Palgrave Macmillan, London, pp. 48-78. [https://doi.org/10.1057/9781137509888\\_3](https://doi.org/10.1057/9781137509888_3)
- Boland, A., Cherry, G. and Dickson, R. eds. (2017). *Doing a systematic review: A student's guide*. SAGE.
- Bolander Laksov, K., & Huijser, H. (2020). 25 years of accomplishments and challenges in academic development—where to next? *International Journal for Academic Development*, 25(4), 293-296, <https://doi.org/10.1080/1360144X.2020.1838125>

- Bond, M. (2020). *Facilitating Student Engagement Through Educational Technology: Current Research, Practices and Perspectives* [Doctoral dissertation: Carl von Ossietzky Universität, Oldenburg].
- Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, 15(1), 1-20. <https://doi.org/10.1186/s41239-018-0130-1>
- Bonk, C. J., & Graham, C. R. (2012). *The handbook of blended learning: Global perspectives, local designs*. John Wiley & Sons.
- Borotis, S., Zaharias, P. & Poulymenakou, A. (2008). Critical success factors for e-learning adoption. In T.T. Kidd & H. Song (Eds.), *Handbook of research on instructional systems and technology* (pp. 498-513). IGI Global.
- Borotis, S.A. & Poulymenakou, A. (2004). E-Learning readiness components: key issues to consider before adopting e-learning interventions. [Paper presentation]. *World Conference on E-Learning in Corporate*, (pp. 1622-1629). Washington, DC, [http://www.eltrun.gr/papers/eLReadiness\\_ELEARN2004.pdf](http://www.eltrun.gr/papers/eLReadiness_ELEARN2004.pdf)
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input*. 2, 3-12. Pathfinder International.
- Boyd-Dimock, V. & McGree, K. (1995). Leading change from the classroom: Teachers as leaders. *Issues about Change*, 4(4). 1-10.
- Bramer, W. M., Rethlefsen, M. L., Mast, F., & Kleijnen, J. (2018). Evaluation of a new method for librarian-mediated literature searches for systematic reviews. *Research synthesis methods*, 9(4), 510-520. <https://doi.org/10.1002/jrsm.1279>
- Brannagan, K. B., & Oriol, M. (2014). A model for orientation and mentoring of online adjunct faculty in nursing. *Nursing education perspectives*, 35(2), 128-130. [https://journals.lww.com/neonline/Citation/2014/03000/A\\_Model\\_for\\_Orientation\\_and\\_Mentoring\\_of\\_Online.13.aspx](https://journals.lww.com/neonline/Citation/2014/03000/A_Model_for_Orientation_and_Mentoring_of_Online.13.aspx)
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>

- Braun, V., & Clarke, V. (2020). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 1-25. <https://doi.org/10.1080/14780887.2020.1769238>
- Braun V., Clarke V., Rance N. Vossler A., Moller N. (2014). How to use thematic analysis with interview data (process research). In A. Vossler & N. Moller (Eds.), *The counselling and psychotherapy research handbook*. Sage.
- Brenton, S. (2008). E-learning—an introduction. In *A handbook for teaching and learning in higher education* (pp. 103-116). Routledge.
- Brereton, A. (2004). Making your CPD return: a question of professional pride. *Structural Engineer*, 82(6), 15-16.
- Britto, M., & Rush, S. (2013). Developing and implementing comprehensive student support services for online students. *Journal of Asynchronous Learning Networks*, 17(1), 29-42. <https://files.eric.ed.gov/fulltext/EJ1011371.pdf>
- Broadley, T. (2007). Implementation of e-learning: A case study of three schools. In R. Jeffery, C. Shilton & M. Davies (Eds.), *Proceedings of the International Educational Research Conference*. <http://www.aare.edu.au/data/publications/2007/bro07340.pdf>
- Brown, M., Anderson, B., & Murray, F. (2007, December 2-5). E-learning policy issues: Global trends, themes and tensions. [Paper presentation]. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. <https://ascilite.org/conferences/singapore07/procs/brown.pdf>
- Bryman, A. (2001). *Social research methods*. (5th ed.). Oxford University Press.
- Bryne, M. (2001). Data analysis strategies for qualitative research. *AORN Journal*, 74(6), 904-906. <https://link.gale.com/apps/doc/A81218986/AONE?u=anon~a691fd29&sid=googleScholar&xid=95040c12>
- Burns, R.B., 2000. *Introduction to research methods*. Frenchs Forest.
- Carl, A., & Strydom, S. (2017). e-Portfolio as reflection tool during teaching practice: The interplay between contextual and dispositional variables. *South African Journal of Education*, 37(1), 1-10. <https://hdl.handle.net/10520/EJC-5cdd1f808>
- Carroll, C., Booth, A., Leaviss, J., & Rick, J. (2013). “Best fit” framework synthesis: refining the method. *BMC Medical Research Methodology*, 13(1), 37. <https://doi.org/10.1186/1471-2288-13-37>
- Carroll-Meehan, C. (2020). *Why young people still want to go to university, even though it'll be very different to usual*. The Conversation. <https://theconversation.com/why-young-people-still-want-to-go-to-university-even-though-itll-be-very-different-to-usual-142534>

- Casanova, D., Moreira, A., & Costa, N. (2009). Key competencies to become an e-Learning successful instructor. Campus Universitário de Santiago, Portugal. <https://doi.org/10.13140/2.1.4176.8326>
- Case, J. M., Marshall, D., McKenna, S., Mogashana, D., Minds, A., & Boughey, C. (2018). What kind of people have we formed in our university graduates? In C. Boughey (Ed.), *Going to university: The influence of higher education on the lives of young South Africans* (p. 176). African Minds. <https://journals.co.za/doi/pdf/10.17159/sajs.2018/a0287>
- Challis, M. (1999). AMEE Medical Education Guide No. 11 (revised): Portfolio-based learning and assessment in medical education. *Medical Teacher*, 21(4), 370-386. <https://doi.org/10.1080/01421599979310>
- Chan, J. F. W., Yuan, S., Kok, K. H., To, K. K. W., Chu, H., Yang, J., Xing, F., Liu, J., Yip, C.C.Y., Poon, R.W.S., Tsoi, H.W., Lo, S.K.F, Chan, K.H., Poon, C.K.M., Chan, W.M., Ip, J.D., Cai, J.P., Cheng, V.C.C., Chen, H., Hui, C.K.M, & Yuen, K. Y. (2020). A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. *The Lancet*, 395(10223), 514-523. [https://doi.org/10.1016/S0140-6736\(20\)30154-9](https://doi.org/10.1016/S0140-6736(20)30154-9)
- Chandler, D. L. (2014). *Study: Online classes really do work*. MIT News Office. <https://news.mit.edu/2014/study-shows-online-courses-effective-0924>
- Charalambos, V. & Zembylas, M. (2004). Online professional development: Lessons from the field. *Education + Training*. 46(6/7), 326-334. <https://doi.org/10.1108/00400910410555231>.
- Chatelier, S., & Rudolph, S. (2018). Teacher responsibility: shifting care from student to (professional) self? *British Journal of Sociology of Education*. 39, 1–15. <https://doi.org/10.1080/01425692.2017.1291328>
- Chen, C. Y. (2015). A study showing research has been valued over teaching in higher education. *Journal of the Scholarship of Teaching and Learning*, 15(3), 15-32. <https://doi.org/10.14434/josotl.v15i3.13319>
- Chetty, D. (2012). *Challenges and prospects: ICT enhanced teaching and learning in the College of Human Sciences* [Conference presentation]. ODL12 Conference, Pretoria. University of South Africa. <http://hdl.handle.net/10500/8490>
- Chiemeke, S. & Evwiekpaefe, A. (2011). A conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) Model with Nigerian factors in E-commerce adoption. *Educational Research*, 2(12), 1719-1726. <https://9jalegal.com.ng/downloads/Articles/Commercial%20transactions/UTAUT%20Model%20for%20E-commerce%20Chiemeke%20%20and%20Evwiekpaefe.pdf>

- Chilisa, B., & Kawulich, B. (2012). Selecting a research approach: Paradigm, methodology and methods. *Doing Social Research: A Global Context*, 5(1), 51-61.
- Chitanana, L., Makaza, D., & Madzima, K. (2008). The current state of e-learning at universities in Zimbabwe: Opportunities and challenges. *International Journal of Education and Development using ICT*, 4(2), 5-15. <https://www.learntechlib.org/p/42289/>
- Chiu, T. M., & Ku, B. P. (2015). Moderating effects of voluntariness on the actual use of electronic health records for allied health professionals. *JMIR medical informatics*, 3(1). <https://doi.org/10.2196/medinform.2548>
- Chun Tie, Y., Birks, M., & Francis, K. (2019). Grounded theory research: A design framework for novice researchers. *SAGE Open Medicine*, 7. <https://doi.org/10.1177/2050312118822927>
- Cipriani, A., & Geddes, J. (2003). Comparison of systematic and narrative reviews: the example of the atypical antipsychotics. *Epidemiology and Psychiatric Sciences*, 12(3), 146-153. <https://www.cambridge.org/core/journals/epidemiology-and-psychiatric-sciences/article/comparison-of-systematic-and-narrative-reviews-the-example-of-the-atypical-antipsychotics/030A068B2526D2C7C8DD8141EA8AB008>
- Clarivate. (2020). *Web of Science Core Collection Help*. Clarivate Analytics. <https://images.webofknowledge.com/images/help/WOS/contents.html>
- Clarivate. (2021). *Web of Science*. Clarivate. <https://clarivate.com/webofsciencegroup/solutions/web-of-science/>
- Clark, E. (2018). *Digital transformation: What is it*. EDUCAUSE Review <https://er.educause.edu/articles/2018/5/digital-transformation-what-is-it>.
- Clark, R.E. (1994). Media will never influence learning. *Educational technology research and development*, 42(2), 21-29. <https://doi.org/10.1007/BF02299088>
- Cleveland-Innes, M. F., & Garrison, D. R. (Eds.). (2010). *An introduction to distance education: Understanding teaching and learning in a new era*. Routledge.
- Cloete, N. (2016). For sustainable funding and fees, the undergraduate system in South Africa must be restructured. *South African Journal of Science*, 112(3-4), 1-5. <http://dx.doi.org/10.17159/sajs.2016/a0146>
- Coccoli, M., Guercio, A., Maresca, P., & Stanganelli, L. (2014). Smarter universities: A vision for the fast-changing digital era. *Journal of Visual Languages & Computing*, 25(6), 1003-1011. <https://doi.org/10.1016/j.jvlc.2014.09.007>
- Coe, R., Waring, M., Hedges, L.V., Arthur, J. (Eds.). (2012). *Research methods and methodologies in education*. SAGE.
- Coenen, M., Stamm, T. A., Stucki, G., & Cieza, A. (2012). Individual interviews and focus groups in patients with rheumatoid arthritis: A comparison of two qualitative

- methods. *Quality of Life Research*, 21(2), 359-370. <https://doi.org/10.1007/s11136-011-9943-2>
- Cohen, L., Manion, L., & Morrison, K. (2011). *Planning educational research. Research methods in education*. Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education*. Routledge.
- Conole, G. (2014). The Use of Technology in Distance Education. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda*. Athabasca University Press.
- Conole, G., & Alevizou, P. (2010). *A literature review of the use of Web 2.0 tools in Higher Education: A report commissioned by the Higher Education Academy*. The Open University. <https://core.ac.uk/download/pdf/5162.pdf>
- Cook, D. A., & West, C. P. (2012). Conducting systematic reviews in medical education: a stepwise approach. *Medical education*, 46(10), 943-952. <https://doi.org/10.1111/j.1365-2923.2012.04328.x>
- Coopasami, M., Knight, S. & Pete, M. (2017). e-Learning readiness amongst nursing students at the Durban University of Technology. *Health SA Gesondheid*, 22(1), 300-306.
- Cooper, C., Booth, A., Varley-Campbell, J., Britten, N., & Garside, R. (2018). Defining the process to literature searching in systematic reviews: a literature review of guidance and supporting studies. *BMC medical research methodology*, 18(1), 1-14. <https://doi.org/10.1186/s12874-018-0545-3>
- Cope, D. G. (2014, January). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum*, 41(1), 89-91.
- Council on Higher Education. (2014). *Distance Higher Education Programmes in a Digital Era: Good Practice Guide*. Pretoria: CHE. <http://hdl.voced.edu.au/10707/342233>
- Creswell, J. W. (2009). Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2), 95-108.
- Creswell, J. W. (2013). *Steps in conducting a scholarly mixed methods study*. University of Nebraska. <https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1047&context=dberspeakers>
- Creswell, J.W. (2012). *Educational research planning: Conducting and evaluating quantitative and qualitative research*, (4<sup>th</sup> ed.). Pearson
- Creswell, J.W. (2014). *Research Design, Qualitative, Quantitative and Mixed Methods Approaches*. SAGE.

- Creswell, J. W. (2016). *30 essential skills for the qualitative researcher*. Thousand Oaks, CA: SAGE Publications.
- Cresswell, K.M., Bates, D.W. & Sheikh, A. (2013). Ten key considerations for the successful implementation and adoption of large-scale health information technology. *Journal of the American Medical Informatics Association*, *20*(e1), 9-13.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Fourth Edition, Sage, Newbury Park.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: qualitative, quantitative, and mixed methods approaches*. Fifth edition. Los Angeles: SAGE.
- Crompton, H., & Burke, D. (2020). Mobile learning and pedagogical opportunities: A configurative systematic review of PreK-12 research using the SAMR framework. *Computers & Education*, *156*, 103945. <https://doi.org/10.1016/j.compedu.2020.103945>
- Cronje, F. (2017). *Towards a professional learning framework for academics in a private higher education environment* [Doctoral dissertation, Stellenbosch University]. <http://scholar.sun.ac.za/handle/10019.1/102898>
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*, *11*(1), 1-9.
- Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of critical care nursing*, *36*(4), 253-263. [https://journals.lww.com/dccjournal/Fulltext/2017/07000/Rigor\\_or\\_Reliability\\_and\\_Validity\\_in\\_Qualitative.6.aspx](https://journals.lww.com/dccjournal/Fulltext/2017/07000/Rigor_or_Reliability_and_Validity_in_Qualitative.6.aspx)
- Czerniewicz, L., & Brown, C. (2009). A study of the relationship between institutional policy, organisational culture and e-learning use in four South African universities. *Computers & Education*, *53*(1), 121-131.
- Dabbagh, N. (2005). Pedagogical models for E-Learning: A theory-based design framework. *International journal of technology in teaching and learning*, *1*(1), 25-44. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.475.4593&rep=rep1&type=pdf>
- Dalglish, S. L., Khalid, H., & McMahon-Rössle, S. A. (2020). Document analysis in health policy research. *Health Policy and Planning*, *35*(10), 1424–1431. <https://doi.org/10.1093/heapol/czaa064>
- Dall’Omo, S. (2017). *African Digitalization Maturity Report 2017*. Siemens Southern and Eastern Africa. <https://assets.new.siemens.com/siemens/assets/api/uuid:342ebb4f8c3596edb6ead62987e60ae6bea10e0d/siemens-african-digitalization-report.pdf>

- Dannels, S. A. (2018). Research design. In G.R. Hancock, L.M. Stapleton & R.O. Mueller (Eds.), *The reviewer's guide to quantitative methods in the social sciences* (pp. 402-416). Routledge. <https://doi.org/10.4324/9781315755649-30/>
- Davies, P. (2000). The Relevance of Systematic Reviews to Educational Policy and Practice, *Oxford Review of Education*, 26(3-4), 365-378, <https://doi.org/10.1080/713688543>
- Davis, D. A., Rayburn, W. F., & Smith, G. A. (2017). Continuing professional development for faculty: an elephant in the house of academic medicine or the key to future success? *Academic Medicine*, 92(8), 1078-1081.
- Davis, F.D. (1985). *A technology acceptance model for empirically testing new end-user information systems: theory and result* [Doctoral dissertation, Massachusetts Institute of Technology].
- Davis, F.D., Bagozzi, R.P. & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(14), 1111-1132.
- Davis, N. (2016). *What is the fourth industrial revolution?* World Economic Forum. <https://www.weforum.org/agenda/2016/01/what-is-the-fourth-industrial-revolution/>
- Deane, P. (2018, May 22). A guide for interdisciplinary researchers: Adding axiology alongside ontology and epistemology. *Integration and Implementation Insights*. <https://i2insights.org/2018/05/22/axiology-and-interdisciplinarity/>
- De Freitas, S., & Oliver, M. (2005). Does E-learning Policy Drive Change in Higher Education?: A case study relating models of organisational change to e-learning implementation. *Journal of Higher Education Policy and Management*, 27(1), 81-96. <https://doi.org/10.1080/13600800500046255>
- De Jonckheere, M., & Vaughn, L. M. (2019). Semi structured interviewing in primary care research: a balance of relationship and rigour. *Family Medicine and Community Health*, 7(2).
- Delialioglu, O., & Yildirim, Z. (2007). "Students' Perceptions on Effective Dimensions of Interactive Learning in a Blended Learning Environment". *Educational Technology & Society*, 10 (2), 133-146.
- DePaolo, C. A., & Wilkinson, K. (2014). Get your head into the clouds: Using word clouds for analyzing qualitative assessment data. *TechTrends*, 58(3), 38-44. <https://link.springer.com/content/pdf/10.1007/s11528-014-0750-9.pdf>
- Department of Higher Education and Training. (2013). *White Paper for Post-School Education and Training: Building an expanded, effective and integrated post-school system*. Department of Higher Education and Training, Pretoria, South Africa.

- Department of Higher Education and Training. (2016). *2000 to 2008 first time entering undergraduate cohort studies for public higher education institutions*. Pretoria: DHET.
- Descript. (2021). *Descript for transcription*. Descript .  
<https://www.descript.com/transcription>
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: toward better conceptualizations and measures. *Educational Researcher*, 38, 181–199. <https://doi.org/10.3102/0013189X08331140>
- Deslandes, S. F., & Coutinho, T. (2020). The intensive use of the internet by children and adolescents in the context of COVID-19 and the risks for self-inflicted violence. *Ciencia & Saude Coletiva*, 25, 2479-2486. <https://doi.org/10.1590/1413-81232020256.1.11472020>
- De Vaus, D. (2006). Editor's Introduction. Research Design—A Review. *Research design*, 1.
- De Vos, A.S., Strydom, H., Fouché, C.B. & Delpont, C.S.L. (2011). *Research at grass roots for the social sciences and human service professions*, Van Schaik.
- Divan, A., Ludwig, L.O., Matthews, K. E., Motley, P. M. & Tomljenovic-Berube, A. M. (2017). Survey of Research Approaches Utilised in the Scholarship of Teaching and Learning Publications. *Teaching and Learning Inquiry* 5 (2):16-29. <https://doi.org/10.20343>
- Driscoll, M. (2002). *Blended learning: Let's get beyond e-learning*. BM Global Services. [https://www.academia.edu/1267316/Blended\\_learning\\_Lets\\_get\\_beyond\\_the\\_hype?from=cover\\_page](https://www.academia.edu/1267316/Blended_learning_Lets_get_beyond_the_hype?from=cover_page)
- Dron, J. (2014). Innovation and How we Change. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 237-266).
- Dube, S., & Scott, E. (2014). An empirical study on the use of the Sakai Learning Management System (LMS): Case of NUST, Zimbabwe. In *Proceedings of the e-skills for Knowledge Production and Innovation Conference* (pp. 101-107). <http://proceedings.e-skillsconference.org/2014/e-skills101-107Dube851.pdf>
- Dubois, A., & Gadde, L. E. (2002). Systematic combining: an abductive approach to case research. *Journal of business research*, 55(7), 553-560. [https://doi.org/10.1016/S0148-2963\(00\)00195-8](https://doi.org/10.1016/S0148-2963(00)00195-8)
- Dudden, R. F., & Protzko, S. L. (2011). The systematic review team: contributions of the health sciences librarian. *Medical reference services quarterly*, 30(3), 301-315. <https://doi.org/10.1080/02763869.2011.590425>
- Du Plessis, E. C. (2012). *Student's views on eLearning*. Department of Curriculum Studies and Instruction [Conference presentation]. ODL12 Conference, University of SA, Pretoria. <http://hdl.handle.net/10500/9499>

- Du Plessis, E. C. (2017). The voices of student teachers on e-learning initiatives in a distance education community of practice: Part B. *Journal for New Generation Sciences*, 15(1), 260-277.
- Dwivedi, Y. K., Hughes, D. L., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., Gupta, B., Lal, B., Misra, S., Prashant, P., & Raman, R. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 55, 102211. <https://doi.org/10.1016/j.ijinfomgt.2020.102211>
- Ebil, S. H., Salleh, S. M., & Shahrill, M. (2020). The use of E-portfolio for self-reflection to promote learning: A case of TVET students. *Education and Information Technologies*, 25(6), 5797-5814. <https://doi.org/10.1007/s10639-020-10248-7>
- Economic Confidential. (2016). *FG confirms NOUN's e-Learning programme*. Economic Confidential. <https://economicconfidential.com/2016/09/fg-confirms-noun-e-learning/>
- Eke, H. N. (2011). Digitizing resources for University of Nigeria repository: Process and challenges. *Webology*, 8(1), 1-19. <https://www.webology.org/2011/v8n1/a85.html>
- eLearning Africa. (2008). *Changing universities with ICT: An eLearning case study from Botswana*. eLearning Africa. <https://ela-newsportal.com/changing-universities-with-ict-%e2%80%93-an-eLearning-case-study-from-botswana/>
- Elliott, V. (2018). Thinking about the coding process in qualitative data analysis. *The Qualitative Report*, 23(11), 2850-2861.
- Elmahadi, I., & Osman, I. (2013, May 29-31). *A study of the Sudanese students' use of collaborative tools within Moodle Learning Management System* [Conferece presentation]. 2013 IST-Africa Conference & Exhibition, Nairobi, Kenya. <https://ieeexplore.ieee.org/abstract/document/6701762>
- Engelbrecht, E. (2003). A look at e-learning models: investigating their value for developing an e-learning strategy. *Progressio*, 25(2), 38-47.
- EPPI-Centre. (2021). *About EPPI-Reviewer*. EPPI-Centre. <https://eppi.ioe.ac.uk/cms/Default.aspx?tabid=2967>
- Education Resources Information Centre. (nd). *General: What is ERIC?* Education Resources Information Centre. <https://eric.ed.gov/?faq>
- Erickson, F. (1985). *Qualitative methods in research on teaching* (pp. 119-162). Institute for Research on Teaching. Michigan State University, Michigan.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93-106.
- Evans, J., & Benefield, P. (2001). Systematic reviews of educational research: does the medical model fit? *British educational research journal*, 27(5), 527-541. <https://doi.org/10.1080/01411920120095717>

- Evans, T.E. & Haughey, M. (2014). Online Distance Education Models and Research Implications. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda*. Athabasca University Press.
- Evens, M., Elen, J., & Depaepe, F. (2015). Developing pedagogical content knowledge: Lessons learned from intervention studies. *Education Research International*, 2015. <https://doi.org/10.1155/2015/790417>
- Fàbregues, S., & Fetters, M. D. (2019). Fundamentals of case study research in family medicine and community health. *Family Medicine and Community Health*, 7(2). <https://doi.org/10.1136/fmch-2018-000074>
- Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 1-24. <https://doi.org/10.1007/s11423-020-09767-4>
- Farid, S., Ahmad, R., Niaz, I. A., Arif, M., Shamshirband, S., & Khattak, M. D. (2015). Identification and prioritization of critical issues for the promotion of e-learning in Pakistan. *Computers in Human Behavior*, 51, 161-171. <https://doi.org/10.1016/j.chb.2015.04.037>
- Farooq, M.S., Salam, M., Jaafar, N., Fayolle, A., Ayupp, K., Radovic-Markovic, M. & Sajid, A., (2017). Acceptance and use of lecture capture system (LCS) in executive business studies: Extending UTAUT2. *Interactive Technology and Smart Education*, 14(4), 329-348. <https://www.emerald.com/insight/content/doi/10.1108/ITSE-06-2016-0015/full/html>
- Fernando, J. (2021). *Return on Investment (ROI)*. Investopedia. <https://www.investopedia.com/terms/r/returnoninvestment.asp>
- Ferrari, A. (2012). *Digital Competence in Practice: An Analysis of Frameworks*. Luxembourg Publications Office of the European Union. <https://doi.org/10.2791/82116>
- Ferrari, A. (2013). *DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe*. Luxembourg Publications Office of the European Union. <http://digcomp.org.pl/wp-content/uploads/2016/07/DIGCOMP-1.0-2013.pdf>
- Ferrari, A., Punie, Y., & Redecker, C. (2012). Understanding digital competence in the 21st century: An analysis of current frameworks. In A.Ravenscroft, S. Lindstaedt, C.D. Kloos & D. Hernández-Leo (Eds.), *21st Century Learning for 21st Century Skills. EC-TEL 2012. Lecture Notes in Computer Science* (pp. 79-92). Springer. [https://doi.org/10.1007/978-3-642-33263-0\\_7](https://doi.org/10.1007/978-3-642-33263-0_7)
- Ferrel, M. N., & Ryan, J. J. (2020). The impact of COVID-19 on medical education. *Cureus*, 12(3). <https://doi.org/10.7759/cureus.7492>

- Finn, A., & Bucci, M. (2006). *A case study approach to blended learning*. SABA White Papers Series.
- Fishbein, M. & Ajzen I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to theory and research*. Addison-Wesley.
- Flick, U. (2009). *An introduction to qualitative research* (4th ed.). Sage Publications Ltd
- Foley, A. R., & Masingila, J. O. (2014). Building capacity: challenges and opportunities in large class pedagogy (LCP) in Sub-Saharan Africa. *Higher Education* (00181560), 67(6), 797-808.
- Formplus. (2021). *What is Empirical Research Study? [Examples & Method]*. Formplus. <https://www.formpl.us/blog/empirical-research>
- Fox, Z. E., Williams, A. M., Blasingame, M. N., Koonce, T. Y., Kusnoor, S. V., Su, J., Lee, P., Epelbaum, M.I., Naylor, H.M., Spencer, J., DesAutels, Frakes, E.T., & Giuse, N. B. (2019). Why equating all evidence searches to systematic reviews defies their role in information seeking? *Journal of the Medical Library Association: JMLA*, 107(4), 613. <http://dx.doi.org/10.5195/jmla.2019.707>
- Frick, L., & Kapp, C. (2009). The professional development of academics: In Pursuit of Scholarship, in E. Bitzer (ed.). *Higher Education in South Africa: A Scholarly Look behind the Scenes* (pp. 369-408). Stellenbosch: SUN MeDIA. <https://doi.org/10.18820/9781920338183/12>.
- Friese, S. (2019). *Qualitative data analysis with ATLAS.ti*. (3<sup>rd</sup> ed.). SAGE.
- Fusch, P., Fusch, G. E., & Ness, L. R. (2018). Denzin's paradigm shift: Revisiting triangulation in qualitative research. *Journal of Social Change*, 10(1), 2.
- Gachago, D., Mafote, S., Munene-Kabanya, A. & Lee, M. (2007). Assessment of the effectiveness of the CAD eLearning Certificate at the University of Botswana. *International Journal of Education and Development using Information and Communication Technology*, 3(4), 71-88.
- Gambari, A. I., Shittu, A. T., Ogunlade, O. O., & Osunlade, O. R. (2018). Effectiveness of blended learning and e-learning modes of instruction on the performance of undergraduates in Kwara State, Nigeria. *Malaysian Online Journal of Educational Sciences*, 5(1), 25-36.
- Gani, F. (2018). *A framework for the integration of online learning in distance education* [Doctoral dissertation, University of South Africa]. <https://uir.unisa.ac.za/handle/10500/25581>
- Garden, K. (2020). *The mega-trend that will make or break SA education*. Bizcommunity. <https://m.bizcommunity.com/Article/196/498/211684.html?mobile=1>

- Garrison, D. R., & Shale, D. 1987. Mapping the boundaries of distance education: Problems in defining the field. *The American Journal of Distance Education*, 1(1), 7-13.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-10
- Garrison, D. R., Anderson, T., & Archer, W. (2003). A theory of critical inquiry in online distance education. *Handbook of Distance Education*, 1, 113-127.
- Gbenga. (2019). *Assessing Efficacy Of 'iLearn Portal Technology' In NOUN: Assessing Efficacy Of 'iLearn Portal Technology' In Open Distance Learning*. Edusportal. <https://edusportal.com/noun/assessing-efficacy-of-ilearn-portal-technology-in-noun/>
- Gibbs, G. (2013). Reflections on the changing nature of educational development. *International Journal of Academic Development*, 18, 4-14. <https://doi.org/10.1080/1360144X.2013.751691>
- Goagoses, N., & Koglin, U. (2020). The role of social goals in academic success: Recounting the process of conducting a systematic review. *Systematic Reviews in Educational Research*, 145. <https://library.oapen.org/bitstream/handle/20.500.12657/23142/1007012.pdf?sequence=1#page=159>
- Gobble, M. M. (2018). Digital strategy and digital transformation. *Research-Technology Management*, 61(5), 66-71. <https://doi.org/10.1080/08956308.2018.1495969>
- Goode, H. A. (2020). *Curriculum and practice to develop critical thinking competencies in first-year students* (Doctoral dissertation, University of South Africa). <http://hdl.handle.net/10500/26729>
- Goodman, H. (2011). In-depth interviews. In J. F. Gubrium & J. A. Holstein (Eds.), *The handbook of social work research methods* (pp. 309-319). SAGE.
- Gordon Institute of Business Science. (2018). Digital transformation in the African context. Grodon Institute of Business Science. <https://www.gibs.co.za/programmes/open-programmes/Pages/digital-transformation-in-the-african-context.aspx/>
- Gough, D., & Thomas, J. (2016). Systematic reviews of research in education: Aims, myths and multiple methods. *Review of Education*, 4(1), 84-102.
- Gough, D., & Richardson, M. (2018). Systematic reviews. In P. Brough (Ed.), *Advanced Research Methods for Applied Psychology: Design, Analysis and Reporting* (pp. 75-87). Routledge. <https://doi.org/10.4324/9781315517971>
- Gough, D., Oliver, S., & Thomas, J. eds. (2017). *An Introduction to Systematic Reviews*. SAGE.

- Gough, D., Thomas, J., & Oliver, S. (2012). Clarifying differences between review designs and methods. *Systematic Reviews*, 1(28). <https://doi.org/10.1186/2046-4053-1-28>
- Graham, C.R. (2011). Theoretical considerations for understanding technological pedagogical content knowledge (TPACK). *Computers & Education*, 57(3), 1953-1960.
- Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health information & libraries journal*, 26(2), 91-108. <https://doi.org/10.1111/j.1471-1842.2009.00848.x>
- Graue, C. (2016). Qualitative Data Analysis. *International Journal of Sales, Retailing and Marketing*, 4(9), 5-14.
- Gray, D. E. (2022). *Doing research in the real world* (5th ed). Sage.
- Gray, K. & Radloff, A. (2011). Impact Evaluation and its Implications. In L. Stefani (Ed.), *Evaluating the effectiveness of academic development: Principles and practices*. Routledge. <https://doi.org/10.4324/9780203847930>
- Grönlund, Å., & Islam, Y. M. (2010). A mobile e-learning environment for developing countries: The Bangladesh virtual interactive classroom. *Information Technology for Development*, 16(4), 244-259. <https://doi.org/10.1080/02681101003746490>
- Guba, E.G. & Lincoln, Y.S. (1994). Competing Paradigms in Qualitative Research. In Denzin, N. K & Lincoln, Y. S. (Eds). *Handbook of Qualitative Research*, Thousand Oak: Sage.
- Gudmundsdottir, G. B., & Brock-Utne, B. (2010). An exploration of the importance of piloting and access as action research. *Educational Action Research*, 18(3), 359-372.
- Gunasinghe, A., Hamid, J.A., Khatibi, A. & Azam, S.F. (2019). Academicians' Acceptance of Online Learning Environments: A Review of Information System Theories and Models. *Global Journal of Computer Science and Technology*, 9(1), <https://computerresearch.org/index.php/computer/article/view/1863>
- Gunawan, J. (2015). Ensuring trustworthiness in qualitative research. *Belitung Nursing Journal*, 1(1), 10-11. <https://doi.org/10.33546/bnj.4>
- Gunawardena, C. N. (2014). Globalization, culture, and online distance. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 75-108). Athabasca University Press. [https://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=1171&context=ulls\\_fsp](https://digitalrepository.unm.edu/cgi/viewcontent.cgi?article=1171&context=ulls_fsp)
- Gürel, E., & Tat, M. (2017). SWOT analysis: a theoretical review. *Journal of International Social Research*, 10(51).
- Guri-Rosenblit, S. (2005). 'Distance education' and 'e-learning': Not the same thing. *Higher Education*, 49(4), 467-493.

- Guri-Rosenblit, S. (2014). Distance Education Systems and Institutions in the Online Era: An Identity Crisis. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 75-108). Athabasca University Press.
- Gustafsson, J. (2017). *Single case studies vs. multiple case studies: A comparative study*. [https://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf%20\(10](https://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf%20(10)
- Haddaway, N.R., McGuinness, L.A. & Pritchard, C.C., 2021. *PRISMA2020: R package and ShinyApp for producing PRISMA 2020 compliant flow diagrams*. Nottingham Trent University. <https://doi.org/10.5281/zenodo.4287834>
- Hammersley, M. (2001). On 'systematic' reviews of research literatures: a 'narrative' response to Evans & Benefield. *British Educational Research Journal*, 27(5), 543-554.
- Hammersley, M. (2020). Reflections on the Methodological Approach of Systematic Reviews. In: O. Zawacki-Richter, M. Kerres, S. Bedenlier, M. Bond & K. Buntins (Eds.), *Systematic Reviews in Educational Research*, (pp. 3-22). Springer. [https://doi.org/10.1007/978-3-658-27602-7\\_2](https://doi.org/10.1007/978-3-658-27602-7_2)
- Hamshire, C., Jack, K., Forsyth, R., Langan, A. M., & Harris, W. E. (2019). The wicked problem of healthcare student attrition. *Nursing inquiry*, 26(3), <https://doi.org/10.1111/nin.12294>
- Hannum, W. (2009). Moving distance education research forward. *Distance Education*, 30(1), 171-173. <https://doi.org/10.1080/01587910902846020>
- Harling, K. (2012). *An overview of case study*. Social Science Research Network. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2141476](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2141476)
- Harr, N., Eichler, A., & Renkl, A. (2014). Integrating pedagogical content knowledge and pedagogical/psychological knowledge in mathematics. *Frontiers in Psychology*, 5, 924.
- Hart, C. (2001). *Doing a literature search: A comprehensive guide for the social sciences*. SAGE
- Hassan, S. (2011). The needs and perceptions of academics regarding their professional development in an era of educational transformation. *South African Journal of Higher Education*, 25(3), 476-490.
- Hassan, Z. A., Schattner, P., & Mazza, D. (2006). Doing a pilot study: why is it essential?. *Malaysian family physician: the official journal of the Academy of Family Physicians of Malaysia*, 1(2-3), 70-73. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4453116/>

- Hawkins, J. E. (2018). The practical utility and suitability of email interviews in qualitative research. *The Qualitative Report*, 23(2), 493-501. [https://digitalcommons.odu.edu/nursing\\_fac\\_pubs/24/](https://digitalcommons.odu.edu/nursing_fac_pubs/24/)
- Heale, R., & Twycross, A. (2018). What is a case study? *Evidence-Based Nursing*, 21, 7-8. <http://dx.doi.org/10.1136/eb-2017-102845>
- Heydenrych, J. F. & Prinsloo, P. (2010). Revisiting the five generations of distance education: Quo vadis? *Progressio*, 32(1), 5-26. <http://uir.unisa.ac.za/handle/10500/4998>
- Hicks, M. (2014). Professional Development and Faculty Support. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda* (pp. 75-108). Athabasca University Press.
- Higgins, J. P., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Eds.). (2019). *Cochrane handbook for systematic reviews of interventions*. John Wiley & Sons.
- Hilty, D. M., Liu, H. Y., Stubbe, D., & Teshima, J. (2019). Defining Professional Development in Medicine, Psychiatry, and Allied Fields. *Psychiatric Clinics*, 42(3), 337-356.
- Hinojo-Lucena, Francisco & Aznar-Díaz, Inmaculada & Cáceres- Reche, M. P. & Romero-Rodríguez, José-María. (2019). Artificial Intelligence in Higher Education: A Bibliometric Study on its Impact in the Scientific Literature. *Education Sciences*. 9(1), 51. <https://doi.org/10.3390/educsci9010051>.
- Hirt, J., Nordhausen, T., Meichlinger, J., Braun, V., Zeller, A., & Meyer, G. (2020). Educational interventions to improve literature searching skills in the health sciences: a scoping review. *Journal of the Medical Library Association : JMLA*, 108(4), 534–546. <https://doi.org/10.5195/jmla.2020.954>
- Hoffecker, L. (2020). Grey Literature Searching for Systematic Reviews in the Health Sciences. *The Serials Librarian*, 79(3-4), 252-260.
- Holomisa, T. & Dube, L. (2014). Reflections on the Readiness of the University of South Africa Eastern Cape Region for the Deployment of E-Learning. *Mediterranean Journal of Social Sciences*, 5(14), 290 – 297.
- Holly, C., Salmond, S., & Saimbert, M. (Eds.). (2016). Comprehensive systematic review for advanced practice nursing. <https://doi.org/10.1891/9780826131867.0019>
- Hong, Q. N., Pluye, P., Bujold, M., & Wassef, M. (2017). Convergent and sequential synthesis designs: implications for conducting and reporting systematic reviews of qualitative and quantitative evidence. *Systematic reviews*, 6(1), 1-14. <https://doi.org/10.1186/s13643-017-0454-2>

- Hornberger, B., & Rangu, S. (2020). *Designing Inclusion and Exclusion Criteria*. Scholarly Commons. <https://repository.upenn.edu/crp/1>
- Horsley, T., Dingwall, O., & Sampson, M. (2011). Checking reference lists to find additional studies for systematic reviews. *Cochrane Database of Systematic Reviews*, (8). <https://doi.org/10.1002/14651858.MR000026.pub2>
- Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, 20(4), 12–17
- Impedovo, M. A. (2016). In-service teachers' sense of agency after participation in a research master course. *International Journal of Educational Psychology*. 5, 281–307. <https://doi.org/10.17583/ijep.2016.2206>
- Indeed Editorial Team. (2021). *Disruptive Technology: Definition, Pros vs. Cons and Examples*. Indeed. <https://www.indeed.com/career-advice/career-development/disruptive-technology>
- Inegbedion, J. (2017). Academic workload planning for open and distance learning (ODL) universities: The experience of national open university of Nigeria (NOUN). *Open Praxis*, 9(3), 313-333. <https://www.learntechlib.org/p/180662/>
- In, J. (2017). Introduction of a pilot study. *Korean journal of anesthesiology*, 70(6), 601-605. <https://doi.org/10.4097/kjae.2017.70.6.601>
- International Council for Open and Distance Education. (nd). *BOCODOL Transforms Into An Open University*. International Council for Open and Distance Education. <https://www.icde.org/icde-news/bocodol-tansforms-into-an-open-university>
- Ipaye, B. (2010). *E-learning in a Nigerian Open University*. Learning International Netwroks Consortium - MIT Open Learning, <https://linc.mit.edu/linc2010/proceedings/session1ipaye.pdf>
- Isabirye, A.K., & Dlodlo, N. (2014). Perceived inhibitors of innovative e-learning teaching practice at a South African University of Technology. *Mediterranean Journal of Social Sciences*, 5(4), 390-398.
- Islam, N., Beer, M., & Slack, F. (2015). E-learning challenges faced by academics in higher education. *Journal of Education and Training Studies*, 3(5), 102-112.
- Iyer, P., Aziz, K., & Ojcius, D. M. (2020). Impact of COVID-19 on dental education in the United States. *Journal of Dental Education*, 84(6), 718-722. <https://doi.org/10.1002/jdd.12163>
- Jahan, N., Naveed, S., Zeshan, M., & Tahir, M. A. (2016). How to conduct a systematic review: a narrative literature review. *Cureus*, 8(11). <https://doi.org/10.7759/cureus.864>

- Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4), 87-88. <https://doi.org/10.4103/0976-0105.141942>
- Janib, J., Rasdi, R. M., Omar, Z., Alias, S. N., Zaremohzzabieh, Z., & Ahrari, S. (2021). The Relationship between Workload and Performance of Research University Academics in Malaysia: The Mediating Effects of Career Commitment and Job Satisfaction. *Asian Journal of University Education*, 17(2), 85-99. <https://doi.org/10.24191/ajue.v17i2.13394>
- Janssen, J., Stoyanov, S., Ferrari, A., Punie, Y., Pannekeet, K., & Sloep, P. (2013). Experts' views on digital competence: Commonalities and differences. *Computers & Education*, 68, 473-481.
- Jayashankar, S., & Sridaran, R. (2017). Superlative model using word cloud for short answers evaluation in eLearning. *Education and Information Technologies*, 22(5), 2383-2402. <https://doi.org/10.1007/s10639-016-9547-0>
- Jesson, J., Matheson, L. & Lacey, F.M., 2011. *Doing your literature review: Traditional and systematic techniques*. SAGE.
- Johnson, A. M., Jacovina, M. E., Russell, D. G., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In S. A., Crossley & D. S. McNamara (Eds.), *Adaptive educational technologies for literacy instruction* (pp. 13-30). Routledge.
- Johnson, J. L. (2003). *Distance education: The complete guide to design, delivery and improvement*. New York: Teachers College Press.
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.
- Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or Digital Natives: Is there a distinct new generation entering university? *Computers & Education*, 54(3), 722-732.
- Kachingwe, A. F. (2000). Diversity and continuing professional education: defining and synthesizing. *The Journal of Continuing Higher Education*, 48(2), 28-36.
- Kalpokaite, N., & Radivojevic, I. (2018, October). Demystifying qualitative data analysis for novice qualitative researchers. *World Conference on Qualitative Research*, 2. <https://proceedings.wcqr.info/index.php/wcqr2019/article/view/63>
- Kalu, M. E. (2019). How does “subjective I” influence a qualitative research question, theoretical approach and methodologies? *Global Journal of Pure and Applied Sciences*, 25(1), 97-101.

- Kangandji, L. (2008). Determining how the faculty at the Polytechnic of Namibia are responding to the introduction of e-learning in the form of blended learning. *NAWA Journal of Language & Communication*, 2(2).
- Kanwar, A. S., Carr, A., Ortlieb, K., & Mohee, R. (2018). Opportunities and challenges for campus-based universities in Africa to translate into dual-mode delivery. *Distance Education*, 39(2), 140-158.
- Karppinen, K., & Moe, H. (2019). Texts as data I: Document analysis. In H. Van den Bulck H, M. Puppis, K. Donders & L. Van Audenhove (Eds.), *The Palgrave handbook of methods for media policy research* (pp. 249-262). Palgrave Macmillan. [https://doi.org/10.1007/978-3-030-16065-4\\_14](https://doi.org/10.1007/978-3-030-16065-4_14)
- Kay, L. (2019). Guardians of research: negotiating the strata of gatekeepers in research with vulnerable participants. *Practice*, 1(1), 37-52.
- Keaster, R. (2005). Distance education and the academic department: The change process. *Educause Quarterly*, 28(3), 48-53. <https://er.educause.edu/media/files/article-downloads/eqm0537.pdf>
- Kember, D., McNaught, C., Chong, F. C., Lam, P., & Cheng, K. F. (2010). Understanding the ways in which design features of educational websites impact upon student learning outcomes in blended learning environments. *Computers & Education*, 55(3), 1183-1192. <https://doi.org/10.1016/j.compedu.2010.05.015>
- Kereluik, K., Mishra, P., Fahnoe, C., & Terry, L. (2013). What knowledge is of most worth: Teacher knowledge for 21st century learning. *Journal of Digital Learning in Teacher Education*, 29(4), 127-140.
- Kgosinyane, E. M. (2019, Jyly 3-5). *Open Distance Learning (ODL): A " Shock" to Learners in South Africa* [Conference presentation]. The 4th Annual International Conference on Public Administration and Development Alternatives. <http://ulspace.ul.ac.za/handle/10386/2768>
- Khvilon, E., Patru, M. (2002). Information and communication technologies in teacher education: a planning guide. UNESCO Digital Library. <http://unesdoc.unesco.org/images/0012/001295/129533e.pdf>
- Kierner, K., Groschner, A., Kunter, M., & Seidel, T. (2018). Instructional and motivational classroom discourse and their relationship with teacher autonomy and competence support-findings from teacher professional development. *European Journal of Psychology of Education*. 33, 377–402. <https://doi.org/10.1007/s10212-016-0324-7>
- King, N. (2004). Using templates in the thematic analysis of text. In C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 257–270). London, UK: Sage.

- Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. <http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=7C0EF8A961978ABE0557B51B53ECC403?doi=10.1.1.117.471&rep=rep1&type=pdf>
- Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, 6(5), 26-41.
- Knight, S. L., Lloyd, G. M., Arbaugh, F., Gamson, D., McDonald, S. P., and Nolan, J. Jr., Whitney, A.E.,. (2015). Reconceptualizing teacher quality to inform preservice and in-service professional development. *Journal of Teacher Education*. 66, 105–108. <https://doi.org/10.1177/0022487115570564>
- Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary issues in technology and teacher education*, 9(1), 60-70. <https://lidtfoundations.pressbooks.com/chapter/tpack/>
- Koehler, M.J., Mishra, P. & Cain, W., 2013. What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, 193(3),13-19.
- Komba, W. (2009). Increasing education access through open and distance learning in Tanzania: A critical review of approaches and practices. *International Journal of Education and development using ICT*, 5(5), 8-21. <https://www.learntechlib.org/p/42193/>
- Kozma, R. B. (2003). Technology and classroom practices: An international study. *Journal of research on technology in education*, 36(1), 1-14.
- Koufogiannakis, D. (2012). Academic librarians' conception and use of evidence sources in practice. *Evidence Based Library and Information Practice*, 7(4), 5-24. <https://doi.org/10.18438/B8JC8J>
- Kozma, R. B. (2000). Reflections on the state of educational technology research and development. *Educational Technology Research and Development*, 48(1).
- Kumar, M. and Sareen, M. (Ed.). (2011). *Trust and Technology in B2B E-Commerce: Practices and Strategies for Assurance: Practices and Strategies for Assurance*. IGI Global.
- Kvale, S. (1983). The qualitative research interview: A phenomenological and a hermeneutical mode of understanding. *Journal of phenomenological psychology*, 14(2), 171-196.
- Lambert, M. (2019). *Grounded theory. Practical Research Methods in Education: An Early Researcher's Critical Guide*. Routledge.
- Lame, G. (2019). Systematic Literature Reviews: An Introduction. *Proceedings of the Design Society: International Conference on Engineering Design*, 1(1), 1633-1642. doi:10.1017/dsi.2019.169

- Latchem, C. (2005). Towards borderless virtual learning in higher education. In A.A. Carr-Chellman (Ed.), *Global perspectives on e-learning: rhetoric and reality* (pp. 179-198). Thousand Oaks, CA: Sage.
- Lautenbach, G. (2010). Expansive learning cycles: lecturers using educational technologies for teaching and learning. *South African Journal of Higher Education*, 24(5),699-715.
- Larrabee Sønderlund, A., Hughes, E., & Smith, J. (2019). The efficacy of learning analytics interventions in higher education: A systematic review. *British Journal of Educational Technology*, 50(5), 2594-2618. <https://doi.org/10.1111/bjet.12720>
- Lawlor, D. A., Tilling, K., & Davey Smith, G. (2016). Triangulation in aetiological epidemiology. *International Journal of Epidemiology*, 45(6), 1866-1886.
- Lavrakas, P.J. (2008). Purposive Sample. In P.J. Lavrakas (Ed.), *Encyclopedia of Survey Research Methods*. SAGE. <https://dx.doi.org/10.4135/9781412963947.n419>
- Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for data analysis triangulation. *School psychology quarterly*, 22(4), 557. <https://doi.org/10.1037/1045-3830.22.4.557>
- Lefebvre, C., Glanville, J., Briscoe, S., Littlewood, A., Marshall, C., Metzendorf, M. I., Noel-Storr, A., Rader, T., Shokraneh, F., Thomas, J., Wieland, L.S., & Cochrane Information Retrieval Methods Group. (2019). Searching for and selecting studies. *Cochrane Handbook for systematic reviews of interventions*, 67-107. <https://doi.org/10.1002/9781119536604.ch4>
- Leon, A. C., Davis, L. L., & Kraemer, H. C. (2011). The role and interpretation of pilot studies in clinical research. *Journal of Psychiatric Research*, 45(5), 626-629.
- Lopes, C. T. (2007). Evaluating e-learning readiness in a health sciences higher education institution. *IADIS International Conference eLearning*. <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.508.8049>
- Lowe, N. K. (2019). What is a pilot study? *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 48(2), 117-118. [https://www.jognn.org/article/S0884-2175\(19\)30006-1/pdf](https://www.jognn.org/article/S0884-2175(19)30006-1/pdf)
- Letseka, M., Letseka, M. M., & Pitsoe, V. (2018). The challenges of e-Learning in South Africa. In M. Sinece (Ed.), *Trends in E-learning* (pp. 121-138). <https://doi.org/10.5772/intechopen.74843>
- Leu, D. J. (2000). Literacy and technology: Deictic consequences for literacy education in an information age. *Handbook of Reading Research*, 3, 743-770.
- Levinsson, M., & Prøitz, T. S. (2017). The (non-) use of configurative reviews in education. *Education Inquiry*, 8(3), 209-231. <https://doi.org/10.1080/20004508.2017.1297004>

- Lévy, P., & Bononno, R. (1997). *Collective intelligence: Mankind's emerging world in cyberspace*. Cambridge, MA
- Levy, S. (2003). Six Factors to Consider When Planning Online Distance Learning Programs in Higher Education. *Online Journal of Distance Learning Administration*, 6.  
<http://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=C3D57F0DFC26629CFCA C417311D5A7EB?doi=10.1.1.628.8594&rep=rep1&type=pdf>
- Lichtman, M. (2013). *Qualitative research for the social sciences*. SAGE publications.
- Van Zyl, D. & Liebenberg, H. (2017). *Moving towards a more 'digitised' teaching environment: ICT acceptance and experiences of IODL staff* [Conference presentation]. Southern African Association for Institutional Research.
- Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage
- Lincoln, Y.S., Lynham, S.A. & Guba, E.G. (2011). Paradigmatic controversies, contradictions, and emerging confluences revisited. In Denzin, N.K. and Lincoln, Y.S. (Eds.). *The Sage handbook of qualitative research*, (4th ed.). USA: SAGE Publishers.
- Linington, D. (2018). *South Africa's businesses are slowly adopting digital transformation*. IT News Africa.<https://www.itnewsafrika.com/2018/11/south-africas-businesses-are-slowly-adopting-digital-transformation/>
- Ling, L. (2017). The power of the paradigm: Methods and paradigms in education research. In L.Ling & P. Ling (Eds.), *Methods and paradigms in education research* (pp. 19-41). IGI Global.
- Lipscomb, M. (2012). Abductive reasoning and qualitative research. *Nursing Philosophy*, 13(4), 244-256. <https://doi.org/10.1111/j.1466-769X.2011.00532.x>
- Lister, M. (2014). Trends in the design of e-learning and online learning. *Journal of Online Learning and Teaching*, 10(4), 671.
- Lou, M. (2015). *National Open University of Nigeria launches OER Portal*. Open Education Consortium. <https://www.oeconsortium.org/2015/12/national-open-university-of-nigeria-launches-oer-portal/>
- Lye, L. T. (2013). Opportunities and challenges faced by private higher education institution using the TPACK model in Malaysia. *Procedia-Social and Behavioral Sciences*, 91, 294-305. <https://doi.org/10.1016/j.sbspro.2013.08.426>
- Machin-Mastromatteo, J. D. (2012). Participatory action research in the age of social media: Literacies, affinity spaces and learning. *New Library World*, 113(11), 571–585. <https://doi.org/10.1108/03074801211282939>
- Machika, P., & Dolley, F. (2018). Framework for a learning management system at a university of technology with a weak information technology maturity system. *South African Journal of Higher Education*, 32(2), 176-191.

- Macià, M., & García, I. (2016). Informal online communities and networks as a source of teacher professional development: A review. *Teaching and Teacher Education*, 55, 291-307.
- Magubane, T. (2020). *Nzimande tells Unisa to reduce new entrants by 20 000*. Independent Online. <https://www.iol.co.za/mercury/news/nzimande-tells-unisa-to-reduce-new-entrants-by-20-000-4c528bb2-fe6f-4f2f-b7ae-8e9d531e6542>
- Mahlambi, S. B. (2020). *Assessment for learning: an approach towards enhancing quality in mathematics teaching and learning in grade 6* (Doctoral dissertation, University of South Africa). <http://hdl.handle.net/10500/26928>
- Mahood, Q., Van Eerd, D., & Irvin, E. (2014). Searching for grey literature for systematic reviews: challenges and benefits. *Research synthesis methods*, 5(3), 221-234. <https://doi.org/10.1002/jrsm.1106>
- Makoe, M. (2012). Teaching digital natives: identifying competencies for mobile learning facilitators in distance education. *South African Journal of Higher Education*, 26(1), 91-104.
- Makura, A. H., & Toni, N. (2014). Managing the link between academic development and the scholarship of teaching and learning: The case of South African universities. *International Journal of Educational Sciences*, 6(1), 85-93. <https://doi.org/10.1080/09751122.2014.11890121>
- Maor, D. (2017). Using TPACK to develop digital pedagogues: a higher education experience. *Journal of Computers in Education*, 4(1), 71-86. <https://link.springer.com/content/pdf/10.1007/s40692-016-0055-4.pdf>
- Mapuva, J. (2009). Confronting challenges to e-learning in higher education institutions. *International Journal of Education and Development Using ICT*, 5(3), 101-114.
- Marinoni, G., Van't Land, H., & Jensen, T. (2020). *The impact of Covid-19 on higher education around the world*. International Association of Universities. [https://www.iau-aiu.net/IMG/pdf/iau\\_covid19\\_and\\_he\\_survey\\_report\\_final\\_may\\_2020.pdf](https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf)
- Masalela, R.K. (2011). Implementing e-Learning at the University of Botswana: The Practitioner's Perspective. *Online Journal of Distance Learning Administration*, 14(2).
- Maxwell, J. A. (2010). Using numbers in qualitative research. *Qualitative inquiry*, 16(6), 475-482. <https://doi.org/10.1177/1077800410364740>
- Mayisela, T. (2013). The potential use of mobile technology: enhancing accessibility and communication in a blended learning course. *South African Journal of Education*, 33(1).

- Mayoka, K., & Kyeyune, R. (2012). An analysis of elearning information system adoption in Ugandan universities: Case of Makerere university business school. *Information Technology Research Journal*, 2(1), 1-7. <http://hdl.handle.net/20.500.12282/3160>
- Mbatha, B. (2015). A Paradigm Shift: Adoption of Disruptive Learning Innovations in an ODL Environment: The Case of The University of South Africa. *International Review of Research on Open and Distributed Learning*, 16(3),
- Mbatha, B. (2017). *New media and self-directed learning: enhancing pedagogical transformation in an open distance learning landscape* (Doctoral dissertation, University of South Africa).
- Mbilinyi, D., & Mwabungulu, E. M. (2020). The fate of indigenous knowledge: The role played by libraries in Tanzania. *Information Development*, 36(4), 489-502. <https://doi.org/10.1177/0266666919871088>
- McFadyen, J., & Rankin, J. (2016). The role of gatekeepers in research: learning from reflexivity and reflection. *GSTF Journal of Nursing and Health Care*, 4(1).
- McKeown, S., & Mir, Z. M. (2021). Considerations for conducting systematic reviews: evaluating the performance of different methods for de-duplicating references. *Systematic Reviews*, 10(1), 1-8. <https://doi.org/10.1186/s13643-021-01583-y>
- McMillan, J.H. & Schumacher, S. (2010). *Research in Education: Evidence-Based Inquiry*, MyEducationLab Series. Pearson.
- McPhee, I. (2014). Technology a winner. *Public Administration Today*, (39), 32-34. <https://search.informit.org/doi/10.3316/informit.530006051074106>
- McRobert, K. (nd). e-Competencies. <https://elearning.tki.org.nz/Teaching/Curriculum-learning-areas/e-Competencies>
- Meehan, C., & Howells, K. (2018). 'What really matters to freshers?': evaluation of first year student experience of transition into university. *Journal of Further and Higher Education*, 42(7), 893-907.
- Meredith J. C., Swallow, M. & Olofson, W. (2017) Contextual Understandings in the TPACK Framework, *Journal of Research on Technology in Education*, 49:3-4, 228-244, <https://doi.org/10.1080/15391523.2017.1347537>
- Mhache, E. P. (2013). Twenty Years of The Open University of Tanzania in the Development of Education in the Country: The Role of OUT in Improving Peoples' Welfare. *Huria: Journal of the Open University of Tanzania*, 14(1), 65-76.
- Mhlanga, D., & Moloi, T. (2020). Covid-19 and the Digital Transformation of Education: What Are We Learning on 4IR in South Africa? *Education Sciences*, 10(7), 180-191. <https://doi.org/10.3390/educsci10070180>

- Mikołajewska, E., & Mikołajewski, D. (2011). E-learning in the education of people with disabilities. *Advances in Clinical and Experimental Medicine*, 20(1), 103-109.
- Mikuska, E. (2018). *The Importance of Pilot Studies* [Video]. <http://dx.doi.org/10.4135/9781526450180>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3<sup>rd</sup> ed.). SAGE.
- Mills, R. (2011). *Report of the Investigation into the Regional Networks of the University of South Africa*. [Report commissioned by the management committee of UNISA].
- Millwood, J. & Heath, M.R. (2000). Food choice by older people: the use of semi-structured interviews with open and closed questions. *Gerodontology*, 17(1), 25-32.
- Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1. <https://doi.org/10.1016/j.ijedro.2020.100012>
- Mishra, P., & Koehler, M. (2009). Too cool for school? No way! Using the TPACK framework: You can have your hot tools and teach with them, too. *Learning & Leading with Technology*, 36(7), 14-18. <https://files.eric.ed.gov/fulltext/EJ839143.pdf>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054. <https://www.learntechlib.org/p/99246/>.
- Mlitwa, N. (2006). *e-Learning and learning management systems (LMS) in a changing higher education environment* [Conference presentation]. 36th Annual Conference of the Southern African Computer Lecturers Association: Electronic Conference Proceedings on CD-ROM. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.631.4058&rep=rep1&type=pdf>
- Mlitwa, W. & Van Belle, J.W.G.D. (2011). *Mediators for lecturer perspectives on learning management systems at universities in the Western Cape, South Africa* [Conference presentation]. Proceedings of the Pacific Asia Conference on Information Systems. Brisbane: AIS Electronic Libra. <https://aisel.aisnet.org/pacis2011/135>
- Moakofhi, M., Leteane, O., Phiri, T., Pholele, T., & Sebalatheng, P. (2017). Challenges of introducing e-learning at Botswana University of Agriculture and Natural Resources: Lecturers' perspective. *International Journal of Education and Development using ICT*, 13(2).
- Moalusi, K. (2020). Numbers conceal the intricacies in categorising qualitative research in organisational studies: What lies beneath the surface?. *SA Journal of Industrial Psychology*, 46(1), 1-12. <https://hdl.handle.net/10520/EJC-1f3e01fe2b>

- Modise, M. P. (2016). *Towards an effective and empathetic student support system in an open and distance education and e-learning environment: A case study from a developing country context* [Doctoral Dissertation University of South Africa]. Pretoria.
- Modise, M. P. (2020). Continuous professional development and student support in an open and distance e-learning institution: A case study. *International Journal of African Higher Education*, 7(1). 49-68. <https://doi.org/10.6017/ijahe.v7i1.10902>
- Modise, M. P., & Van den Berg, G. (2021). Covid-19 as an Accelerator for Training and Technology Adoption by Academics in Large-Scale Open and Distance Learning Institutions in Africa. *UnisaRxiv*. <https://doi.org/10.25159/UnisaRxiv/000016.v1>
- Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers & Education*, 82, 11-25.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., & The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLOS Medicine*, 6(7). <https://doi.org/10.1371/journal.pmed1000097>
- Mokgalane, E. (2020, October 01). *Unisa World Teachers Day* [Meeting]. University of South Africa.
- Mokgolo, M. M. (2017). *Workplace bullying: a human resource practitioner perspective* [Doctoral dissertation, University of South Africa] Pretoria
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, 2(3), 192-222. <https://doi.org/10.1287/isre.2.3.192>
- Moore, J. L., Dickson-Deane, C., & Galyen, K. (2011). e-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), 129-135
- Moore, M. G. (1973). Toward a theory of independent learning and teaching. *Journal of Higher Education*, 44, 661-79.
- Moore, M. G. (1993). Theory of transactional distance. *Theoretical Principles of Distance Education*, 1, 22-38.
- Moore, M. G., & Kearsley, G. (2011). *Distance education: A systems view of online learning*. Cengage Learning.
- Moore, M., & Kearsley, G. (2012). *Distance education: A systems view of online learning* (3rd ed.). Wadsworth.
- Moreira, D. (2016). From on-campus to online: A trajectory of innovation, internationalization and inclusion. *International Review of Research in Open and Distributed Learning*, 17(5), 186-199.

- Morin, K. H. (2013). Value of a pilot study. *Journal of Nursing Education*, 52(10), 547-548.
- Moris, D., & Schizas, D. (2020). Lockdown during COVID-19: The Greek success. *In Vivo*, 34, 1695-1699. <https://doi.org/10.21873/invivo.11963>
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, 1(2), 13-22. <https://doi.org/10.1177/160940690200100202>
- Morus, I. R. (2000). The Nervous System of Britain': Space, Time and the Electric Telegraph in the Victorian Age. *The British Journal for the History of Science*, 455-475.
- Morus, I. R. (2019). Looking into the future: The telectroscope that wasn't there. *Osiris*, 34(1), 19-35.
- Mosa, A.A., Mahrin, M.N., & Ibrahimi, R. (2016). Technological Aspects of E-Learning Readiness in Higher Education: A Review of the Literature. *Computer and Information Science*, 9, 113-127.
- Mosunmola, A., Mayowa, A., Okuboyejo, S., & Adeniji, C. (2018, January). Adoption and use of mobile learning in higher education: the UTAUT model [Conference presentation]. *Proceedings of the 9th International Conference on E-Education, E-Business, E-Management and E-Learning*. New York, USA. <https://dl.acm.org/doi/abs/10.1145/3183586.3183595>
- Moye, J. J., Dugger Jr, W. E., & Starkweather, K. N. (2014). Is " Learning by Doing" Important? A Study of Doing-Based Learning. *Technology and Engineering Teacher*, 74(3), 22-28. <https://www.iteea.org/File.aspx?id=39136&v=99b1f4b0>
- Msila, V., & Gumbo, M. T. (Eds.). (2016). *Africanising the curriculum: Indigenous perspectives and theories*. African Sun Media.
- Mtebe, J. S., & Raisamo, R. (2014a). A Model for Assessing Learning Management System Success in Higher Education in Sub-Saharan Countries. *The Electronic Journal of Information Systems in Developing Countries*, 61(1), 1-17. <https://doi.org/10.1002/j.1681-4835.2014.tb00436.x>
- Mtebe, J., & Raisamo, R. (2014b). Investigating students' behavioural intention to adopt and use mobile learning in higher education in East Africa. *International Journal of Education and Development using ICT*, 10(3). <https://www.learntechlib.org/p/148476/>
- Mtebe, J. & Raphael, C. (2013). Students' experiences and challenges of blended learning at the University of Dar es Salaam, Tanzania. *International Journal of Education and Development using ICT*, 9(3). <https://www.learntechlib.org/p/148476/>

- Mukhari, S. S. (2016). *Teachers' experience of information and communication technology use for teaching and learning in urban schools* [Doctoral dissertation, University of South Africa]. Pretoria.
- Muljana, P. S., & Luo, T. (2019). Factors contributing to student retention in online learning and recommended strategies for improvement: A systematic literature review. *Journal of Information Technology Education: Research*, 18.
- Musundire, A., & Mumanyi, O. (2020). Exploring challenges, opportunities and prospects associated with higher education student funding in the context of South Africa. *Journal of Management & Administration*, 2020(1), 101-122.
- Mutula, S. M. (2002). E-learning initiative at the University of Botswana: challenges and opportunities. *Campus-Wide Information Systems*, 19(3), 99-109. <https://doi.org/10.1108/10650740210431916>
- National Open University of Nigeria. (2021). *Instructional Modes*. National Open University of Nigeria. <https://nou.edu.ng/page/instructional-modes>
- Nascimento, L. D. C. N., Souza, T. V. D., Oliveira, I. C. D. S., Moraes, J. R. M. M. D., Aguiar, R. C. B. D., & Silva, L. F. D. (2018). Theoretical saturation in qualitative research: an experience report in interview with schoolchildren. *Revista brasileira de enfermagem*, 71(1), 228-233. <https://doi.org/10.1590/0034-7167-2016-0616>
- Nassuora, A. B. (2012). Students acceptance of mobile learning for higher education in Saudi Arabia. *American Academic & Scholarly Research Journal*, 4(2), 24-30. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.402.6814&rep=rep1&type=pdf>
- Nawaz, A. (2012). E-Learning experiences of HEIs in advanced states, developing countries and Pakistan. *Universal Journal of Education and General Studies*, 1(3), 72-83. <http://www.universalresearchjournals.org/ujegs/>
- Ncube, S., Dube, L. & Ngulube, P. (2014). E-learning readiness among academic staff in the Department of Information Science at the University of South Africa. *Mediterranean Journal of Social Sciences*, 5(16), 357. <https://www.richtmann.org/journal/index.php/mjss/article/view/3316>
- Ndebele, C., Muhuro, P., & Nkonki, V. (2016). Rurality and the professional development of university teachers. *South African Journal of Higher Education*, 30(6), 127-145. <https://hdl.handle.net/10520/EJC-4b12fe4cf>
- Ndenje-Sichalwe, E., & Elia, E. F. (2020). Research methodology practices among postgraduate Information Studies students in Tanzania. *International Federation of Library Associations and Institutions Journal*. <https://doi.org/10.1177/0340035220965986>

- Nelson, J., & Campbell, C. (2017). Evidence-informed practice in education: Meanings and applications. *Educational Research*, 59(2), 127-135. <https://doi.org/10.1080/00131881.2017.1314115>
- Neuendorf, K. A. (2018). Content analysis and thematic analysis. In A. Brough (Ed.), *Advanced research methods for applied psychology: Design, Analysis and Reporting*, (pp. 211-223). Routledge.
- Neuman, W. L. (2000). *Social Research Methods: Qualitative and Quantitative Approaches* (4th ed). Allyn & Bacon, the United States of America. [http://letrunghieutvu.yolasite.com/resources/w-lawrence-neuman-social-research-methods\\_-qualitative-and-quantitative-approaches-pearson-education-limited-2013.pdf](http://letrunghieutvu.yolasite.com/resources/w-lawrence-neuman-social-research-methods_-qualitative-and-quantitative-approaches-pearson-education-limited-2013.pdf)
- Newman M., Gough D. (2020) Systematic Reviews in Educational Research: Methodology, Perspectives and Application. In O. Zawacki-Richter, M. Kerres, S. Bedenlier, M. Bond & K. Buntins (Eds.), *Systematic Reviews in Educational Research*. Springer.
- Ng'ambi, D., Bozalek, V., & Gachago, D. (2013, June). Empowering educators to teach using emerging technologies in higher education: A case of facilitating a course across institutional boundaries [Conference presentation]. *Proceedings of the International Conference on e-Learning*.
- Ng'ambi, D., Brown, C., Bozalek, V., Gachago, D. and Wood, D. (2016). Technology enhanced teaching and learning in South African higher education – A rear view of a 20-year journey. *British Journal of Educational Technology*, 47(5), 843-858.
- Ngengebule, A. T., Molatlhegi, M. M., Tshaka, N. N. & Mamadisa, S. (2007). *Tutorial services, discussion classes and work integrated learning (TSDL): Tutor handbook*. Pretoria, South Africa: UNISA Press.
- Ngubane-Mokiwa, S. A. (2017). Implications of the University of South Africa's shift to open distance e-learning on teacher education. *Australian Journal of Teacher Education*, 42(9), 111.
- Ngubane-Mokiwa, S. A., & Letseka, M. (2015). Shift from open distance learning to open distance e-learning. *Open distance learning (ODL) in South Africa*, 129.
- Nhando, D. (2015). *3 key challenges of implementing eLearning in Africa*. eLearning Industry. <https://eLearningindustry.com/3-key-challenges-implementing-eLearning-in-africa>
- Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence-Based Nursing*, 18(2), 34-35.

- Nowell, L.S., Norris, J.M., White, D.E. and Moules, N.J., (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1). <https://doi.org/10.1177/1609406917733847>
- Oates, B.J. (2009). *Research information systems and computing*. London: Sage.
- O'Donnell, E., Lawless, S., Sharp, M., & Wade, V. P. (2015). A review of personalised e-learning: Towards supporting learner diversity. *International Journal of Distance Education Technologies (IJDET)*, 13(1), 22-47.
- O'Donoghue, T. (2019). *Planning your qualitative research thesis and project: An introduction to interpretivist research in education and the social sciences*. (2nd ed.), Routledge.
- Ojokheta, K. O. (2000). *Analysis of Selected Predictors for Motivating Distance Learners Towards Effective Learning in some Distance Teaching Institutions in Nigeria* [Doctoral dissertation, University of Ibadan]. Nigeria.
- Oliver, E. (2014). Theological education with the help of technology. *HTS Theological studies*, 70(1), 1-7. <https://hdl.handle.net/10520/EJC159795>
- Oliver-Hoyo, M. & Allen, D. (2006). The Use of Triangulation Methods in Qualitative Educational Research. *Journal of College Science Teaching*, 35(4).
- Ololube, N. P. (2011). Blended learning in Nigeria: determining students' readiness and faculty role in advancing technology in a globalized educational development. In A. Kitchenham (Ed.), *Blended learning across disciplines: Models for implementation* (pp. 190-207). IGI Global. <https://doi.org/10.4018/978-1-60960-479-0.ch011>
- Opendakker, R. (2006). Advantages and Disadvantages of Four Interview Techniques in Qualitative Research. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 7(4). <https://doi.org/10.17169/fqs-7.4.175>
- Osanloo, A., & Grant, C. (2016). Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your "house". *Administrative issues Journal: Connecting Education, Practice, and research*, 4(2), 7.
- Ougherty, M. V. D. (2011). Renaissance Quarterly Review of Avner Ben-Zaken's Reading Hayy Ibn-Yaqzan: A Cross-Cultural History of Autodidacticism. *Renaissance Quarterly*, 64(2), 583-58
- Oye, N. D., Iahad, N. A., & Rahim, N. A. (2014). The history of UTAUT model and its impact on ICT acceptance and usage by academicians. *Education and Information Technologies*, 19(1), 251-270. <https://doi.org/10.1007/s10639-012-9189-9>
- Oye, N.D., Salleh, M. and Iahad, N.A. (2012). E-Learning methodologies and tools. *International Journal of Advanced Computer Science and Applications*, 3(2).

- Pachler, N., & Daly, C. (2011). *Key issues in e-learning: Research and practice*. Continuum International Publishing Group.
- Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., Shamseer, L., Tetzlaff, J.M., Akl, E.A., Brennan, S.E. and Chou, R. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *PLOS Medicine*, 18(3). <https://doi.org/10.1371/journal.pmed.1003583>
- Palfrey, J. G., & Gasser, U. (2011). *Born digital: Understanding the first generation of digital natives*. Bacis Books. ReadHowYouWant.com
- Pandor, N. (2009). Achievements in Commonwealth Educational Co-operation: Rising to 21st Century Challenges. *The Round Table*, 98(405), 679-685.
- Panganayi, M. (2020). COVID-19 Lockdown and higher education. Time to look at disaster preparedness as a governance issue. *Inkanyiso*, 12(1), 24-35.
- Pangrazio, L. (2016). Reconceptualising critical digital literacy. *Discourse: Studies in the Cultural Politics of Education*, 37(2), 163-174.
- Panke, D. (2018). *Research design & method selection: making good choices in the social sciences*. SAGE.
- Parchoma, G. (2006). A proposed e-learning policy field for the academy. *International Journal of Teaching and Learning in Higher Education*, 18(3), 230-240.
- Patel, K & McCarthy, M. P. (2000). *Digital transformation: the essential of e-business leadership*. McGraw-Hill. New York
- Patel, N. M., Kadyamatimba, A., & Madzvamuse, S. (2018, October). *E-learning adoption in rural-based higher education institutions in South Africa* [Conference presentation]. 2018 Open Innovations Conference. IEEE.
- Paul, R. H. (2011). *Leadership under fire: The challenging role of next Canadian university president*. Montréal and Kingston: McGill-Queen's University Press.
- Paul, R. (2014). Organization and management of online and distance learning. *Online Distance Education: Towards a Research Agenda*, 175-196. [https://microblogging.infodocs.eu/wp-content/uploads/2014/07/Online\\_Distance\\_Education.pdf#page=187](https://microblogging.infodocs.eu/wp-content/uploads/2014/07/Online_Distance_Education.pdf#page=187)
- Pavel, A. P., Fruth, A., & Neacsu, M. N. (2015). ICT and e-learning—catalysts for innovation and quality in higher education. *Procedia Economics and Finance*, 23, 704-711.
- Peck, B. & Mummery, J. (2017). Hermeneutic Constructivism: An ontology for qualitative research. *Qualitative Health Research*, 28(3), 389-407.
- Percy, T., & Van Belle, J. P. (2012, September). *Exploring the barriers and enablers to the use of open educational resources by university academics in Africa* [Conference

- presentation]. IFIP International Conference on open source systems (pp. 112-128). Springer. [https://link.springer.com/chapter/10.1007/978-3-642-33442-9\\_8](https://link.springer.com/chapter/10.1007/978-3-642-33442-9_8)
- Perkin, N., & Abraham, P. (2017). *Building the agile business through digital transformation*. Kogan Page Publishers.
- Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *JBI Evidence Implementation*, 13(3), 141-146. <https://doi.org/10.1097/XEB.0000000000000050>.
- Peters, B., Crawley, A., & Brindley, J. E. (2018). *Student support services for online learning re-imagined and re-invigorated: Then, now and what's to come*. TeachOnline. <https://teachonline.ca/tools-trends/student-support-services-online-learning-re-imagined-and-re-invigorated-then-now-and-whats-come>
- Peterson, J. C., Rogers, E. M., Cunningham-Sabo, L., & Davis, S. M. (2007). A framework for research utilization applied to seven case studies. *American Journal of Preventive Medicine*, 33(1), S21-S34.
- Petticrew, M. (2015). Time to rethink the systematic review catechism: Moving from 'what works' to 'what happens'. *Systematic Reviews*, 4(1), 36.
- Petticrew, M., & Roberts H. (2006). *Systematic reviews in the social sciences: A practical guide*. Blackwell Publishing.
- Pigott, T. (2019). *Overview of Systematic Review and Research Synthesis* [Conference presentation]. KTDRR and Campbell Collaboration Research Evidence Training Session 1. Loyola University Chicago. <https://ktddr.org/training/webcasts/webcast65/webcast65-022019-508.pdf>
- Polit, D.F., & Beck, C.T. (2012). *Nursing research: Generating and assessing evidence for nursing practice*. Lippincott Williams and Wilkins
- Polit, D.F., & Beck, C.T. (2017). *Essentials of nursing research: Appraising evidence for nursing practice* (10th ed.). Wolters Kluwer/Lippincott Williams & Wilkins.
- Polonioli, A. (2020). In search of better science: on the epistemic costs of systematic reviews and the need for a pluralistic stance to literature search. *Scientometrics*, 122(2), 1267-1274. <https://doi.org/10.1007/s11192-019-03333-3>
- Portugal, L. (2006). Emerging leadership roles in distance education: Current state of affairs and forecasting future trends. *Academic Leadership: The Online Journal*, 4(3), 3. <https://scholars.fhsu.edu/alj/vol4/iss3/3/>
- Premium Times. (2018). *Enrolment at Nigeria's National Open University hits 515,000*. Premium Times. <https://www.premiumtimesng.com/news/more-news/297622-enrolment-at-nigerias-national-open-university-hits-515000.html>

- PRISMA. (2021). *PRISMA: Transparent reporting of systematic reviews and meta-analyses*. <http://www.prisma-statement.org/>
- PwC Global. (2017). *Upskilling: New world, new skills*. PricewaterhouseCoopers. <https://www.pwc.com/gx/en/issues/upskilling.html>
- Pyhältö, K., Toom, A., Stubb, J., & Lonka, K. (2012). Challenges of becoming a scholar: A study of doctoral students' problems and well-being. *International Scholarly Research Notices*, 2012.
- Radha, R., Mahalakshmi, K., Kumar, V. S., & Saravanakumar, A. R. (2020). E-Learning during lockdown of Covid-19 pandemic: A global perspective. *International Journal of Control and Automation*, 13(4), 1088-1099.
- Ramayah, T. (2010). The Role of Voluntariness in Distance Education Students' Usage of a Course Website. *Turkish Online Journal of Educational Technology-TOJET*, 9(3), 96-105. <https://files.eric.ed.gov/fulltext/EJ898018.pdf>
- Ramey, J., & Rao, P. G. (2011, October). *The systematic literature review as a research genre* [Conference presentation]. 2011 IEEE International Professional Communication Conference. <https://ieeexplore.ieee.org/document/6087229>
- Rammutloa, M. W. (2013, October 07 - 11). *From distance learning and ODL to ODeL: Unisa library's journey to transformation and innovation* [Conference presentation]. 15th Annual LIASA conference, Cape Town International Convention Centre.
- Rantala, L., & Suoranta, J. (2008). Digital literacy policies in the EU: Inclusive partnership as the final stage of governmentality. *Digital Literacies: Concepts, Policies and Practices*, 91-117
- Raphael, C., & Mtebe, J. (2016). Instructor support services: An inevitable critical success factor in blended learning in higher education in Tanzania. *International Journal of Education and Development using ICT*, 12(2).
- Rapley, T. (2018). *Doing conversation, discourse and document analysis* (Vol. 7). Sage.
- Ravjee, N. (2007). The politics of e-learning in South African higher education. *International Journal of Education and Development using ICT*, 3(4), 27-41.
- Rayworth, K. M., Price, R. M., Brooks, S. S., & Ketterer, T. B. (2011). *Enhancing E-Learning at the Polytechnic of Namibia*. Worcester Polytechnic Institute, Digital WPI. [https://digital.wpi.edu/concern/student\\_works/kk91fk911](https://digital.wpi.edu/concern/student_works/kk91fk911)
- Reader, S. (2018). *Self-Learning; Why it's Essential for You in the 21st Century*. Medium. <https://medium.com/wondr-blog/self-learning-why-its-essential-for-us-in-the-21st-century-9e9729abc4b8>

- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Joint Research Centre, JRC Working Papers. <https://ideas.repec.org/p/ipt/iptwpa/jrc107466.html>
- Reese, H. W. (2011). The learning-by-doing principle. *Behavioral Development Bulletin*, 17(1), 1-19. <http://dx.doi.org/10.1037/h0100597>
- Rethlefsen, M. L., Kirtley, S., Waffenschmidt, S., Ayala, A. P., Moher, D., Page, M. J., & Koffel, J. B. (2021). PRISMA-S: an extension to the PRISMA statement for reporting literature searches in systematic reviews. *Systematic reviews*, 10(1), 1-19. <https://doi.org/10.1186/s13643-020-01542-z>
- Richards, L. (2015). *Handling qualitative data: A practical guide* (3<sup>rd</sup> ed.). Sage.
- Richards, L., & Morse, J. M. (2013). *Readme first for a user's guide to qualitative methods*. (3rd ed.). Sage.
- Roberts, J. (2018). Future and changing roles of staff in distance education: a study to identify training and professional development needs. *Distance Education*, 39(1), 37-53.
- Roberts, J. J. (2019). Online learning as a form of distance education: Linking formation learning in theology to the theories of distance education. *HTS Theological Studies*, 75(1), 1-9.
- Rodriguez, J. A., Condom-Bosch, J. L., Ruiz, L., & Oliver, E. (2020). On the Shoulders of Giants: Benefits of Participating in a Dialogic Professional Development Program for In-Service Teachers. *Frontiers in Psychology*, 11, 5.
- Rodriguez, R. A., Green, M. T., Sun, Y., & Baggerly-Hinojosa, B. (2017). Authentic leadership and transformational leadership: An incremental approach. *Journal of Leadership Studies*, 11(1), 20-35.
- Rogers, E.M. (1962). *Diffusion of Innovations*. The Free Press: Simon & Schuster Inc, New York.
- Rogers, E.M. (1983). *Diffusion of innovations*, The Free Press: Simon & Schuster Inc, New York.
- Rohayani, A. H., Kurniabudi, Sharipuddin. (2015). A Literature Review: Readiness Factors to Measuring eLearning Readiness in Higher Education. *Computer Science*, 59, 230–234.
- Rosenberg, J. M., & Koehler, M. J. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, 47(3), 186–210.
- Roulston, K., & Choi, M. (2018). *Qualitative interviews*. *The SAGE handbook of qualitative data collection*, 233-249. SAGE.

- Roumell, E. A., & Salajan, F. D. (2016). The evolution of US e-learning policy: A content analysis of the national education technology plans. *Educational Policy, 30*(2), 365-397. <https://doi.org/10.1177/0895904814550070>
- Rudenstine, A., Schaef, S., Bacallao, D., & Hakani, S. (2018). *Meeting Students Where They Are*. Competency Works. International Association for K-12 Online Learning.
- Rumble, G. (1989). Concept: On defining distance education. *American Journal of Distance Education, 3*(2), 8-21. <https://doi.org/10.1080/08923648909526660>
- Rumble, G. (2019). *The planning and management of distance education*. Routledge.
- Runeson, P., & Höst, M. (2009). Guidelines for conducting and reporting case study research in software engineering. *Empirical software engineering, 14*(2), 131-164. <https://doi.org/10.1007/s10664-008-9102-8>
- Russell, F., & Muir, R. (2020). A return to librarian mediated searching in a pilot systematic search service. *Journal of the Australian Library and Information Association, 69*(2), 262-273. <https://doi.org/10.1080/24750158.2020.1749333>
- Ryan, E, Coughlan, M., & Cronin, P. (2009). Interviewing in qualitative research: The one-to-one interview. *International Journal of Therapy and Rehabilitation, 26*(6), 309-314.
- Saad, M., Barbar, A. & Abourjeili, S. (2012). *TPACK-XL Framework for Educators and Scholars: A theoretical Grounding for Building Preservice Teachers ICT Knowledge Base*. Université Saint-Joseph.
- Sabinet. (2021). Sabinet African Journals. Sabinet. <https://www.sabinet.co.za/information-services/online-journals/african-journals>
- Sadeghi, M. (2019). A Shift from Classroom to Distance Learning: Advantages and Limitations. *International Journal of Research in English Education, 4*(1), 80-88.
- Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus, 12*(4).
- Salajan, F. D., & Roumell, E. A. (2016). Two Decades of E-Learning Policy Evolution at EU Level: motivations, institutions and instruments. *European Journal of Education, 51*(3), 391-407. <https://doi.org/10.1111/ejed.12144>
- Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interest, 13*(2), 74-101.
- Saldaña, J. (2016). *The coding manual for qualitative researchers*. Sage.
- Salkind, N. J. (Ed.). (2010). *Encyclopedia of research design* (Vol. 1). Sage. <https://us.sagepub.com/en-us/nam/encyclopedia-of-research-design/book232149>

- Sanchez-Elvira Paniagua, A., & Simpson, O. (2018). Developing student support for open and distance learning: The EMPOWER Project. *Journal of Interactive Media in Education*, 1(9), 1–10. <http://doi.org/10.5334/jime.470>
- Sandelowski, M. (1993). Rigor or rigor mortis: the problem of rigor in qualitative research. *Advances in nursing science*, 16(2), 1-8. <https://chip.uconn.edu/wp-content/uploads/sites/1245/2019/05/Sandelowski-1993-Rigor-or-Rigor-Mortis-The-Problem-of-Rigor-in-Qualitative-Research-Revisited.pdf>
- Sandelowski, M., Voils, C. I., Leeman, J., & Crandell, J. L. (2012). Mapping the mixed methods–mixed research synthesis terrain. *Journal of mixed methods research*, 6(4), 317-331. <https://doi.org/10.1177/1558689811427913>
- Sangrà, A., Vlachopoulos, D., & Cabrera, N. (2012). Building an inclusive definition of e-learning: An approach to the conceptual framework. *International Review of Research in Open and Distributed Learning*, 13(2), 145-159.
- Sarker, S., & Valacich, J. S. (2010). An alternative to methodological individualism: A non-reductionist approach to studying technology adoption by groups. *Mis Quarterly*, 34(4), 779-808.
- Saunders, M. N. K., Lewis, P., Thornhill, A., & Bristow, A. (2015). *Understanding research philosophies and approaches: Research methods for business students*. London, UK: Sage Publishers
- Sayers, A. (2008). Tips and tricks in performing a systematic review. *British Journal of General Practice*, 58(547), 136-136. <https://doi.org/10.3399/bjgp08X277168>
- Saykili, A. (2018). Distance education: Definitions, generations and key concepts and future directions. *International Journal of Contemporary Educational Research*, 5(1), 2-17.
- Schäfer, E. (2002). Aspects of an educational and learning culture of the university in the knowledge society. In M. Cordes, E. Schäfer (Eds.), *University as a space of life-spanning education: On the way to a new learning culture. Festschrift für Ernst Prokop* (pp. 3-30). Regensburg: AUE eV.
- Schein, E. H. (2010). *Organizational culture and leadership* (4th ed.). San Francisco, CA: Jossey-Bass.
- Schleicher, A. (2020). *The Impact of Covid-19 on education insights: From Education At a Glance 2020*. Organisation for Economic Co-operation and Development. <https://www.oecd.org/education/the-impact-of-covid-19-on-education-insights-education-at-a-glance-2020.pdf>
- Schlosser, L., & Simonson, M. (2010). *Distance education: Definition and glossary of terms* (3<sup>rd</sup> ed.) Charlotte. NC: Information Age Publishing.

- Schmidt, N. A., & Brown, J. M. (2017). *Evidence-Based Practice for Nurses: Appraisal and Application of Research: Appraisal and Application of Research*. Jones & Bartlett Learning.
- Schnitzer, M., & Crosby, L. S. (2003). Recruitment and development of online adjunct instructors. *Online Journal of Distance Learning Administration*, 6(2), 1-7. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.732.9931&rep=rep1&type=pdf>
- Schöpfel, J. (2010, December 6-7). *Towards a Prague definition of grey literature* [Conference presentation]. Twelfth International Conference on Grey Literature: Transparency in Grey Literature. Grey Tech Approaches to High Tech Issues. Prague
- Schouten, A., Janssen, L. & Verspaget, M. (2019). Celebrity vs. Influencer endorsements in advertising: the role of identification, credibility, and Product-Endorser fit. *International Journal of Advertising*. 39(7), 1-24. <https://doi.org/10.1080/02650487.2019.1634898>.
- Scopus (2021). *Scopus: Expertly curated abstract & citation database*. Elsevier. [https://www.elsevier.com/solutions/scopus?dgcid=RN\\_AGCM\\_Sourced\\_300005030](https://www.elsevier.com/solutions/scopus?dgcid=RN_AGCM_Sourced_300005030)
- Shaffril, H. A. M., Samsuddin, S. F., & Samah, A. A. (2020). The ABC of systematic literature review: The basic methodological guidance for beginners. *Quality & Quantity*, 1-28. <https://doi.org/10.1007/s11135-020-01059-6>
- Shagrir, L. (2017). Collaborating with colleagues for the sake of academic and professional development in higher education. *International Journal for Academic Development*, 22(4), 331-342.
- Shamseer, L., & Moher, D. (2015, January 5). Planning a systematic review? Think protocols. Research in progress Blog. <http://www.prismastatement.org/Protocols/WhyProtocols>
- Shava, G.N. (2016). Enhancing learner achievement through professional development: the Zimbabwean experience. *South African Journal of Higher Education*, 30(6), 56-72.
- Shelly, G.B., Gunter, G.A. & Gunter, R.E. (2013). *Teachers discovering computers: Integrating technology in a connected world*. Cengage Learning.
- Shoba, S. (2020). *Annus horribilis provides universities with an opportunity to reinvent themselves*. Daily Maverick. <https://www.dailymaverick.co.za/article/2020-12-27-annus-horribilis-provides-universities-with-an-opportunity-to-reinvent-themselves/amp/>
- Showkat, N., & Parveen, H. (2017). In-depth interview. *Media & Communication Studies*. <http://www.uop.edu.pk/ocontents/Lecture%204%20indepth%20interview.pdf>

- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4-14.
- Silver, L., Smith, A., Johnson, C., Taylor, K., Jiang, J., Monica, A., & Rainie, L. (2019). *Use of smartphones and social media is common across most emerging economies*. Pew Research Center. <https://www.pewresearch.org/internet/2019/03/07/use-of-smartphones-and-social-media-is-common-across-most-emerging-economies/>
- Simons, H. (2009). *Case study research in practice*. Sage
- Simonson, M., & Seepersaud, D. J. (2018). *Distance education: Definition and glossary of terms* (4<sup>th</sup> ed.) IAP.
- Simonson, M., Zvacek, S. M., & Smaldino, S. (2019). *Teaching and Learning at a Distance: Foundations of Distance Education* (7<sup>th</sup> ed.). Information Age Publishing Inc, North Carolina.
- Singh, A.D. & Hassan, M. (2017). In pursuit of smart learning environments for the 21st century. *Current and critical issues in curriculum, learning and assessment*, 12, <https://unesdoc.unesco.org/ark:/48223/pf0000252335>
- Singh-Pillay, A., & Naidoo, J. (2020). Context Matters: Science, Technology and Mathematics Education Lecturers' Reflections on Online Teaching and Learning during the COVID-19 Pandemic. *Journal of Baltic Science Education*, 19(6A), 1125-1136.
- Skelly, L. M. (2014). *The public library's contribution to economic growth and development: a path analysis* [Doctoral dissertation, University of KwaZulu Natal]. Pietermaritzburg.
- Slade, E. L., Williams, M. D., & Dwivedi, Y. (2013). Extending UTAUT2 to explore consumer adoption of mobile payments. *UK Academy for Information Systems*, 36. <https://aisel.aisnet.org/ukais2013/36>
- Slavin, R. E. (1986). Best-evidence synthesis: An alternative to meta-analytic and traditional reviews. *Educational researcher*, 15(9), 5-11. <https://doi.org/10.3102/0013189X015009005>
- Snilstveit, B., Oliver, S., & Vojtkova, M. (2012). Narrative approaches to systematic review and synthesis of evidence for international development policy and practice. *Journal of Development Effectiveness*, 4(3), 409-429.
- Søby, M. (2008). Digital Competence—From Education Policy to Pedagogy: The Norwegian Context. In C. Lankshear & M. Knobel (Eds.), *Digital literacies: Concepts, policies and practices*, Peter Lang Publishing.
- Sorcinelli, M. D., Austin, A. E., Eddy, P. L., & Beach, A. L. (2006). *Creating the future of faculty development*. Anker.

- Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1). <https://doi.org/10.1080/2331186X.2018.1519143>
- Spencer, A. J., & Eldredge, J. D. (2018). Roles for librarians in systematic reviews: a scoping review. *Journal of the Medical Library Association: JMLA*, 106(1), 46. <http://dx.doi.org/10.5195/jmla.2018.82>
- Staff Writer. (2018). *Enterprise Solutions: SA lags on digital transformation*. ITWeb. <https://www.itweb.co.za/content/WnpNgq2ALWgMvrGd>
- Stansfield, C., Dickson, K., & Bangpan, M. (2016). Exploring issues in the conduct of website searching and other online sources for systematic reviews: how can we be systematic?. *Systematic reviews*, 5(1), 1-9. <https://doi.org/10.1186/s13643-016-0371-9>
- Statistics Solutions. (2021). *Types of Qualitative research designs*. Statistics Solutions. <https://www.statisticssolutions.com/types-of-qualitative-research-designs/>
- Steenkamp, N., & Roberts, R. (2020). Does workload and institutional pressure on accounting educators affect academia at Australian universities? *Accounting & Finance*, 60(1), 471-506. <https://doi.org/10.1111/acfi.12340>
- Steffen, E. M. (2016). Ethical considerations in qualitative research. In E. Lyons & A. Coyle (Eds.), *Analysing Qualitative Data in Psychology* (pp. 35-46). Sage.
- Stensaker, B., van der Vaart, R., Solbrekke, T. D., & Wittek, L. (2017). The expansion of academic development: The challenges of organizational coordination and collaboration. In B. Stensaker, G. T. Bilbow, L. Breslow, & R. Van der Vaart, (Eds.), *Strengthening teaching and learning in research universities: Strategies and initiatives for institutional change* (pp. 19-41). Springer.
- Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education*, 15, 157-190.
- Sutherland, K. A. (2018). Holistic academic development: Is it time to think more broadly about the academic development project? *International Journal for Academic Development*, 23(4), 261-273. <https://doi.org/10.1080/1360144X.2018.1524571>
- Sutherland, K. A., & Hall, M. (2018). The 'impact' of academic development. *International Journal for Academic Development*, 23(2), 69-71. <https://doi.org/10.1080/1360144X.2018.1451595>
- Sutrisna, M. (2009). *Research methodology in doctoral research: understanding the meaning of conducting qualitative research* [Conference presentation]. Proceedings of the Association of Researchers in Construction Management (ARCOM). Liverpool John Moores University.

- Suwaed, H., & Rahouma, W. (2015). A New Vision of Professional Development for University Teachers in Libya" It's Not an Event, It Is a Process". *Universal Journal of Educational Research*, 3(10), 691-696.
- Swanborn, P. (2010). *Case study research: What, why and how?* Sage.
- Swanson, R. A., & Chermack, T. J. (2013). *Theory building in applied disciplines*. Berrett-Koehler Publishers.  
[https://www.bkconnection.com/static/Theory\\_Building\\_EXCERPT.pdf](https://www.bkconnection.com/static/Theory_Building_EXCERPT.pdf)
- Tait, A. (2008). Leadership development for distance and e-learning. In T. Evans, M. Haughey, & D. Murphy (Eds.), *International handbook of distance education* (pp. 435–51). Bradford, UK: Emerald
- Tait, A. (2018). Education for Development: From Distance to Open Education. *Journal of Learning for Development*, 5(2), 101-115. <https://www.learntechlib.org/p/189225/>.
- Tait, A.W. (2013). Editorial. *Journal of Learning for Development*, 1(1).  
<http://jl4d.org/index.php/ejl4d/article/view/39/20>
- Tamilmani, K., Rana, N.P. & Dwivedi, Y.K. (2021). Consumer Acceptance and Use of Information Technology: A Meta-Analytic Evaluation of UTAUT2. *Information Systems Frontiers*, 23(4), 987–1005. <https://doi.org/10.1007/s10796-020-10007-6>
- Tayebnik, M., & Puteh, M. (2012). Blended Learning or E-learning? *International Magazine on Advances in Computer Science and Telecommunications*, 3(1), 103-110.
- Taylor, S., & Todd, P. A (1995a). Assessing IT USAGE: The role of Prior Experience. *Management Information Systems Quarterly*, 19, 561-570.  
<https://doi.org/10.2307/249633>
- Taylor, S., & Todd, P.A. (1995b). Understanding information technology usage: A test of competing models. *Information systems research*, 6(2), 144-176.  
<https://doi.org/10.1287/isre.6.2.144>
- The, M. M., and Usagawa, T., (2018). Change in E-learning Readiness and Challenge for Myanmar Higher Education. *Creative Education*, 9(9), 1277-1286.  
<https://doi.org/10.4236/ce.2018.99095>
- Tejedor, S., Cervi, L., Pérez-Escoda, A., & Jumbo, F. T. (2020). Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador. *Publications*, 8(4), 48.
- Tellis, G. J. (2006). Disruptive technology or visionary leadership? *Journal of Product Innovation Management*, 23(1), 34-38. <https://doi.org/10.3928/01484834-20130920-10>

- Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L.P., Robson, R., Thabane, M., Giangregorio, L. & Goldsmith, C.H. (2010). A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology*, 10(1), 1.
- Thani, X. C. (2009). The research methods of completed South African doctoral research output in Public Administration from 2000 to 2005. [Doctoral dissertation, University of South Africa]. Pretoria.
- Tarimo, I. A. (2013). Factors Affecting Students' Enrolment and Dropout at The Open University of Tanzania, Lindi Region. *Huria: Journal of the Open University of Tanzania*, 14(1), 111-133.
- Thomas, G. (2015). *How to do your case study*. Sage.
- Thompson A. (2012). *Using large-scale assessment data to glean teacher characteristics that predict mathematics achievement in Latinos/ESL* [Conferece presentation]. The 36th Annual Psychology of Mathematics Education Conference, Taipei.
- Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *Management Information Systems Quarterly*, 125-143.
- Thurab-Nkhosi, D., Lee, M., & Gachago, D. (2005). Preparing academic staff for e-learning at the University of Botswana. *Innovate: Journal of Online Education*, 2(1).
- Torgerson, C., Hall, J., & Light, K. (2012). Systematic reviews. In J. Arthur, M. Waring, R.Coe & L.V. Hedges (Eds.), *Research Methods and Methodologies in Education*. SAGE, 217-230.
- Tracy, S. J. (2013). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. Wiley-Blackwell.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. John Wiley & Sons.
- Tsai, S., & Machado, P. (2002). E-Learning Basics: Essay: E-learning, online learning, web-based learning, or distance learning: unveiling the ambiguity in current terminology. *eLearn Magazine*, 3(7). <https://dl.acm.org/doi/fullHtml/10.1145/566778.568597>
- Tshabalala, M., Ndeya-Ndereya, C., & van der Merwe, T. (2014). Implementing blended learning at a developing university: Obstacles in the way. *Electronic Journal of e-Learning*, 12(1), 101-110.
- Turner, J. R. (2015). Triangulation: A technique to reduce bias and improve validity and reliability. Performance Xpress, *International Society for Performance Improvement (ISPI)*. <http://www.performancexpress.org/2015/11/hpt-research-fit-triangulation-a-technique-to-reduce-bias-and-improve-validity-and-reliability/>

- Tynan, B., & Lee, M. J. W. (2009). Tales of adventure and change: Academic staff members' future visions of higher education and their professional development needs. *On the Horizon*, 17(2) 98–110. <https://doi.org/10.1108/10748120910965485>
- Ukaigwe, P. C. & Igbozuruike, I. U. (2020). Planning and Integration of Technologies for Effective Implementation of Blended Learning in Universities in Rivers State, Nigeria. *Advances in Social Sciences Research Journal*, 7(1), 452-462.
- United Nations Conference on Trade and Development (UNCTAD). (2019). Building Digital Competencies to Benefit from Frontier Technologies. United Nations Publications, New York. <https://unctad.org/webflyer/building-digital-competencies-benefit-frontier-technologies>
- United Nations Development Programme. (2010). World Development Report. New York: UNDP.
- United Nations Educational, Scientific and Cultural Organization. (2019). *National Open University of Nigeria launches the 1st West African University OER Portal*. United Nations Educational, Scientific and Cultural Organization. <https://en.unesco.org/news/national-open-university-nigeria-launches-1st-west-african-university-oer-portal>
- United Nations Educational, Scientific and Cultural Organization. (2011). *UNESCO ICT Competency Framework for Teachers*. United Nations Educational, Scientific and Cultural Organization. <https://iite.unesco.org/pics/publications/en/files/3214694.pdf>
- University of South Africa. (nd). *A brief history of Unisa*. University of South Africa. <https://www.unisa.ac.za/sites/corporate/default/Unisa-History-and-Memory-Project/Themes/All-themes/A-brief-history-of-Unisa>
- University of South Africa. (2008). *Open and distance learning policy*. University of South Africa. Pretoria
- University of South Africa. (2014). Going the distance in a digital age. University of South Africa. <http://www.unisa.ac.za/news/index.php/2014/10/going-the-distance-in-a-digital-age/>
- University of South Africa. (2015, August 24 - 25). *Executive Deans Conceptual Understanding of ODeL* [Unpublished Meeting Minutes], University of South Africa.
- University of South Africa. (2018). *Open Distance eLearning Policy*. Pretoria: UNISA Press.
- University of South Africa. (2020a). *The leading ODL university*. University of South Africa. <https://www.unisa.ac.za/sites/corporate/default/About/The-leading-ODL-university>
- University of South Africa. (2020b). *Unisa Facts and Figures*. University of South Africa. <https://www.unisa.ac.za/sites/corporate/default/About/Facts-&-figures>

- University of South Africa. (2021). *About: The leading ODL university*. University of South Africa. <https://www.unisa.ac.za/sites/corporate/default/About/The-leading-ODL-university>
- University of Southern California. (2019). *Research Process and Scholarship: Research Methodology*. University of Southern California. <https://nu.libguides.com/c.php?g=371040&p=2507810>
- Unwin, T., Kleessen, B., Hollow, D., Williams, J. B., Oloo, L. M., Alwala, J., Mutimucuo, I., Eduardo, F., & Muianga, X. (2010). Digital learning management systems in Africa: myths and realities. *Open Learning: The Journal of Open, Distance and e-Learning*, 25(1), 5-23. <https://doi.org/10.1080/02680510903482033>
- Upoalkpajor, J.-L. N., & Upoalkpajor, C. B. (2020). The Impact of COVID-19 on Education in Ghana. *Asian Journal of Education and Social Studies*, 9(1), 23-33. <https://doi.org/10.9734/ajess/2020/v9i130238>
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405.
- Van Den Berg, G. (2020). Context Matters: Student experiences of interaction in Open Distance Learning. *Turkish Online Journal of Distance Education*, 21(4), 223-236.
- Van Den Berg, G., Joffe, M. & Porto, S.C. (2016). The role of partnerships in academic capacity building in open and online distance education. *Distance Education*, 37(2), 196-207.
- Van Rijnsoever, F. J. (2017). (I can't get no) saturation: a simulation and guidelines for sample sizes in qualitative research. *PLOS ONE*, 12(7). <https://doi.org/10.1371/journal.pone.0181689>
- Van Teijlingen, E., & Hundley, V. (2010). The importance of pilot studies. *Social Research Update*, 35(4), 49-59. <https://sru.soc.surrey.ac.uk/SRU35.html>
- Veletsianos, G. (2010a). A definition of emerging technologies for education. *Emerging technologies in distance education*, 3-22.
- Veletsianos, G. (Ed.). (2010b). *Emerging technologies in distance education*. Athabasca University Press.
- Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, F.D. (2003). User acceptance of information technology: Toward a unified view. *Management Information Systems Quarterly*, 425-478. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *Management Information Systems Quarterly*, 157-178. <https://doi.org/10.2307/41410412>

- Venkatesh, V., Thong, J.Y.L. & Xu, X. (2016). Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead. *Journal of the Association for Information Systems*, 17(5), 328–376. <https://ssrn.com/abstract=2800121>
- Wall, J. (2013, September). *A Framework for Academic Professional Development in Higher Education* [Conference presentation]. Irish Academy of Management Conference. <https://www.researchgate.net/publication/280230304>
- Web Development and Tech. (2020). *What Is Digital Transformation, and Should You Care?* Media Temple Blog. <https://mediatemple.net/blog/web-development-tech/digital-transformation-care/>
- Webster, S., Lewis, J., & Brown, A. (2013). Considerations in qualitative research. In J., Ritchie, J., Lewis, C. M., Nicholls & R. Ormston (Eds.), *Qualitative research practice: A guide for social science students and researchers*, 77.
- Weller, S. C., Vickers, B., Bernard, H. R., Blackburn, A. M., Borgatti, S., Gravlee, C. C., & Johnson, J. C. (2018). Open-ended interview questions and saturation. *PLOS ONE*, 13(6).
- Westerman, G., Bonnet, D., & McAfee, A. (2014). The nine elements of digital transformation. *MIT Sloan Management Review*, 55(3), 1-6.
- Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The Unified Theory of acceptance and use of technology (UTAUT): a literature review. *Journal of Enterprise Information Management*, 28(3), 443-488.
- Wilms, K. L., Meske, C., Stieglitz, S., Decker, H., Fröhlich, L., Jendrosch, N., Schaulies, S., Vogl, R. & Rudolph, D. (2017, August 10-12). *Digital Transformation in Higher Education—New Cohorts, New Requirements?* [Conference presentation]. Twenty-third Americas Conference on Information Systems, Boston.
- Wisdom, J. P., Chor, K. H., Hoagwood, K. E., & Horwitz, S. M. (2014). Innovation adoption: a review of theories and constructs. *Administration and policy in mental health*, 41(4), 480–502. <https://doi.org/10.1007/s10488-013-0486-4>
- World Economic Forum. (2016, January). *The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution* [Conference presentation]. World Economic Forum, Geneva. [https://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs.pdf](https://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf)
- Wahyuni, D. (2012). The Research Design Maze: Understanding paradigms, cases, methods and methodologies. *Journal of applied management accounting research*, 10(1), 69 – 80.

- Xiao, Y., & Watson, M. (2019). Guidance on conducting a systematic literature review. *Journal of Planning Education and Research*, 39(1), 93-112. <https://doi.org/10.1177/0739456X17723971>
- Yang, Y., & Cornelious, L. F. (2005). Preparing instructors for quality online instruction. *Online Journal of distance learning administration*, 8(1), 1-16. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.102.7621&rep=rep1&type=pdf>
- Yick, A. G., Patrick, P., & Costin, A. (2005). Navigating distance and traditional higher education: Online faculty experiences. *The International Review of Research in Open and Distributed Learning*, 6(2). <https://doi.org/10.19173/irrodl.v6i2.235>
- Yin, R. K. (1989). Case study research: Design and methods (Revised edition). *Applied Social Research Methods Series*, 5.
- Yin, R. K. (1994). Discovering the future of the case study. Method in evaluation research. *Evaluation practice*, 15(3), 283-290. <https://doi.org/10.1177/109821409401500309>
- Yin, R.K. (2009). How to do better case studies. In L. Bickman & D.J. Rog (Eds.), *The SAGE handbook of applied social research methods* (pp.254-282). SAGE.
- Yin, R. K. (2011). *Applications of Case Study Research*. SAGE.
- Yin, R. K. (2012). Case study methods. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 141–155). American Psychological Association. <https://doi.org/10.1037/13620-009>
- Zaineb, A. (2016). *Five barriers to eLearning adoption*. eLearning Industry. <https://eLearningindustry.com/5-barriers-to-eLearning-adoption>
- Zawacki-Richter, O. (2004). The growing importance of support for learners and faculty in online distance education. In J.E. Brindley, C. Walti & O. Zawacki-Richter (Eds.), *Learner support in open, distance and online learning environments* (pp 51-62). BIS-Verlag der Carl von Ossietzky Universität Oldenburg. <http://www.c3l.uni-oldenburg.de/cde/support/fa04/Vol.%209%20chapters/Zawacki-Richter.pdf>
- Zawacki-Richter, O. (2005). Online Faculty Support and Education Innovation A Case Study. *European Journal of Open, Distance and E-learning*, 8(1). <https://old.eurodl.org/?p=archives&year=2005&halfyear=1&article=163>
- Zawacki-Richter, O. (2009). Research areas in distance education: A Delphi study. *International Review of Research in Open and Distributed Learning*, 10(3). <https://doi.org/10.19173/irrodl.v10i3.674>

- Zawacki-Richter, O. (2021). The current state and impact of Covid-19 on digital higher education in Germany. *Human Behavior and Emerging Technologies*, 3(1), 218-226. <https://doi.org/10.1002/hbe2.238>
- Zawacki-Richter, O., & Anderson, T. (2014). Introduction: Research Areas in Online Distance Education. In O. Zawacki-Richter & T. Anderson (Eds.), *Online distance education: Towards a research agenda*. Athabasca University Press. <https://doi.org/10.15215/aupress/9781927356623.01>
- Zhang, X., Kuchinke, L., Woud, M. L., Velten, J., & Margraf, J. (2017). Survey method matters: Online/offline questionnaires and face-to-face or telephone interviews differ. *Computers in Human Behavior*, 71, 172-180. <https://doi.org/10.1016/j.chb.2017.02.006>
- Zhu, Z. T., Yu, M. H., & Riezebos, P. (2016). A research framework of smart education. *Smart Learning Environments*, 3(1), 4. <https://doi.org/10.1186/s40561-016-0026-2>

## ANNEXURES

### ANNEXURE 2.1: EPPI-REVIEWER REPORT WITH THE PROTOCOL (PICOTS FRAMEWORK)

#### STEP 1: QUESTION AND SEARCH STRING

##### 1.1 Identify and clearly define the question/s your review will address

PICO Framework (PRISMA Statement, 2020)

Ask yourself...	Your review focus
Population – who?	Academics in higher education and distance education
Intervention – what?	academic professional development, preparation and support of academics for e-learning technology
Comparator/s – compared to?	No preparation and academic professional development for e-learning technology No readiness for e-learning
Outcomes – expected result	Appropriate and relevant preparation, training and support of academics for effective e-learning technology solution
Time – when?	10 years (2010 – 2020)
Setting – where?	Developing countries, Africa

##### 1.2 Review question

*“How can open and distance education lecturers be prepared and supported for online teaching in open and distance education (ODE) institutions?”*

##### Sub-questions

- Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?
- How prepared are lecturers for online teaching/e-learning in African large-scale open and distance education (ODE) institutions?
- How are academics professionally prepared and supported for e-learning in African large-scale open and distance education (ODE) institutions?
- What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions?

### 1.3 Refining Search Strategy

Key (broad) concepts	Free text terms (synonyms, acronyms/ abbreviations, more narrow search terms)
Concept 1: academic support and development	Training, professional development, faculty support, lecturer support, staff development, academic support, academic development, continuous development, training intervention, professional learning, staff development
Concept 2: e-learning	eLearning, electronic learning, e-learning, online teaching, online education, blended learning, online learning, technology enhanced education, web-based education
Concept 3: higher education	higher education, university, college, postsecondary education, tertiary education, undergraduate, postgraduate
Concept 4: distance education	distance education, open education, open distance, learning, open university
Concept 5: location (developing countries, Africa)	Africa, developing countries, developing economies, global south

### 1.4 Search String

CONCEPT	SEARCH TERMS
Academic professional development	(training OR "professional development" OR "faculty NEAR/3 support" OR "lecturer NEAR/3 support")
	<b>AND</b>
Distance education (e-learning)	(online* OR distanc* OR blend* OR mobile OR technology-enhance*) NEAR/3 (learn* OR teach* OR study OR studie* OR education OR e-learning)
	<b>AND</b>
e-learning	("higher education" OR universit* OR college* OR "postsecondary education" OR "tertiary education" OR undergraduate* OR postgraduate*)
	<b>AND</b>
Location (developing countries, Africa)	(Africa OR "global south" OR "developing countr*" OR "sub-Saharan countr*")

## 1.5 Database(s) Searched

- Scopus
- Web of Science
- EBSCO Host (Africa-Wide Information, include ERIC)
- Sabinet (**African Digital Repository**)

## STEP 2: SEARCH STRATEGY

### 2.1 Inclusion/exclusion criteria

INCLUSION	EXCLUSION
1. Published 2010 - March 2021	Published before 2010 and after March 2021
2. English language only	Articles that are not published in English
3. Primary Empirical research ( <i>qualitative, quantitative, mixed</i> )	Reviews or theoretical articles
4. Higher education Technical and Vocational Education and Training (TVET)	Basic Education (primary and secondary/middle school education) Community Education and Training (CET) Corporate HE and training
5. African and developing countries	European, American and all other developed countries
6. Journal articles (peer reviewed)	Books, book chapter, conference paper, book review, newspaper
7. Academic professional development	General professional development
8. Distance education and Open distance education	Traditional/ residential/ contact/ on-campus/ face-to-face universities
9. Digital transformation (e-learning)	Articles not about digital transformation (e-learning)
10. <i>e-learning readiness of academics only</i>	<i>e-learning readiness of non-academics, corporate, schools</i>

### STEP 3: SYSTEMATIC SEARCH

Export your results into a .ris or .txt file and upload it to Eppi Reviewer (or other software applications)

#### RECORD KEEPING LOG

Database searched	SCOPUS
Date of search	12 March 2021 12:10
Person searching	Mphoentle Modise
Database settings	2010-2021
No. of records obtained	<b>67</b>
Search string	( TITLE-ABS-KEY ( training OR {professional development} OR ( faculty W/3 support ) OR ( lecturer W/3 support ) ) AND TITLE-ABS-KEY ( online* OR distanc* OR blend* OR mobile OR ( technology-enhance* ) W/3 ( learn* OR teach* OR study* OR studie* OR education ) ) AND TITLE-ABS-KEY ( { higher AND education } OR universit* OR college* OR { postsecondary education } OR { tertiary education } OR undergraduate* OR postgraduate* ) AND TITLE-ABS-KEY ( Africa OR { global south } OR { developing AND countr* } OR { sub-Saharan countr* } ) ) )
Refined by	AND ( LIMIT-TO ( PUBYEAR,2020) OR LIMIT-TO ( PUBYEAR,2019) OR LIMIT-TO ( PUBYEAR,2018) OR LIMIT-TO ( PUBYEAR,2017) OR LIMIT-TO ( PUBYEAR,2016) OR LIMIT-TO ( PUBYEAR,2015) OR LIMIT-TO ( PUBYEAR,2014) OR LIMIT-TO ( PUBYEAR,2013) OR LIMIT-TO ( PUBYEAR,2012) OR LIMIT-TO ( PUBYEAR,2011) OR LIMIT-TO ( PUBYEAR,2010) ) AND ( LIMIT-TO ( DOCTYPE,"ar" ) ) AND ( LIMIT-TO ( LANGUAGE,"English" ) ) AND ( LIMIT-TO ( AFFILCOUNTRY,"South Africa" ) OR LIMIT-TO ( AFFILCOUNTRY,"Botswana" ) OR LIMIT-TO ( AFFILCOUNTRY,"India" ) OR LIMIT-TO ( AFFILCOUNTRY,"Nigeria" ) OR LIMIT-TO ( AFFILCOUNTRY,"Tanzania" ) OR LIMIT-TO ( AFFILCOUNTRY,"Uganda" ) OR LIMIT-TO ( AFFILCOUNTRY,"Argentina" ) OR LIMIT-TO ( AFFILCOUNTRY,"Bangladesh" ) OR LIMIT-TO ( AFFILCOUNTRY,"Brazil" ) OR LIMIT-TO ( AFFILCOUNTRY,"China" ) OR LIMIT-TO ( AFFILCOUNTRY,"Congo" ) OR LIMIT-TO ( AFFILCOUNTRY,"Democratic Republic Congo" ) OR LIMIT-TO ( AFFILCOUNTRY,"Ghana" ) OR LIMIT-TO ( AFFILCOUNTRY,"Kenya" ) OR LIMIT-TO ( AFFILCOUNTRY,"Malaysia" ) OR LIMIT-TO ( AFFILCOUNTRY,"Mauritius" ) OR LIMIT-TO ( AFFILCOUNTRY,"Philippines" ) OR LIMIT-TO ( AFFILCOUNTRY,"Russian Federation" ) OR LIMIT-TO ( AFFILCOUNTRY,"Thailand" ) OR LIMIT-TO ( AFFILCOUNTRY,"Zimbabwe" ) ) )

Database searched	<b>WEB OF SCIENCE</b>
Date of search	12 March 2021 15:15 (15/03/2021 14:46)
Person searching	Mphoentle Modise
Database settings	
No. of records obtained	<b>91</b>
Search string	<b>TOPIC:</b> (training OR "professional development" OR "faculty NEAR/3 support" OR "lecturer NEAR/3 support") <b>AND TOPIC:</b> ((online* OR distanc* OR blend* OR mobile OR technology-enhance*) NEAR/3 (learn* OR teach* OR study OR studie* OR education OR e-learning)) <b>AND TOPIC:</b> ("higher education" OR universit* OR college* OR "postsecondary education" OR "tertiary education" OR undergraduate* OR postgraduate*) <b>AND TOPIC:</b> (Africa OR "global south" OR "developing countr*" OR "sub-Saharan countr*")
Refined by	<b>Refined by: DOCUMENT TYPES:</b> ( ARTICLE ) <b>AND DOCUMENT TYPES:</b> ( ARTICLE ) <b>AND COUNTRIES/REGIONS:</b> ( SOUTH AFRICA OR KENYA OR PEOPLES R CHINA OR JORDAN OR KUWAIT OR BOTSWANA OR TANZANIA OR MALAWI OR MALAYSIA OR PAKISTAN OR VIETNAM OR MAURITIUS OR AFGHANISTAN OR PHILIPPINES OR ARGENTINA OR QATAR OR INDIA OR BANGLADESH OR RWANDA OR BRAZIL OR SAUDI ARABIA OR ECUADOR OR SENEGAL OR NIGERIA OR EGYPT OR SUDAN OR UGANDA OR ETHIOPIA OR GHANA OR FIJI OR UKRAINE OR GUATEMALA ) <b>Timespan:</b> 2010-2021. <b>Indexes:</b> SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI.

Database searched	<b>EBSCHOST</b>
Date of search	12 March 2021 16:12
Person searching	Mphoentle Modise
Database settings	
No. of records obtained	<b>102</b>
Search string	( ( training OR "professional development" OR "faculty support" OR "lecturer support" ) AND ( ( "online education" OR "distance learning" OR "distance education" OR "blended learning" OR "mobile learning" OR "technology-enhanced education" OR "online teaching" OR "e-learning" ) AND ( ( "higher education" OR universit* OR college* OR "postsecondary education" OR "tertiary education" OR undergraduate* OR postgraduate* ) AND ( Africa OR "global south" OR "developing countr*" OR "sub-Saharan countr*" ) )
Refined by	Scholarly (Peer Reviewed) Journals; Published Date: 20100101-20211231, Publication Type; Document Type; Language; Publication Type; Document Type; Year Published; Language; Data Contributor; Publication Type; Document Type: Journal or Document; Education Level; Geography: South Africa, Africa, Ghana, sub-Saharan Africa, India, China, Asia, Bangladesh, Pakistan

Database searched	<b>SABINET AFRICAN JOURNALS</b>
Date of search	12 March 2021
Person searching	Mphoentle
Database settings	
No. of records obtained	<b>197</b>
Search string	[[All: training] OR [All: "professional development"] OR [All: "faculty support"] OR [All: "lecturer support"]] AND [[All: "online education"] OR [All: "distance learning"] OR [All: "distance education"] OR [All: "blended learning"] OR [All: "mobile learning"] OR [All: "technology-enhanced education"] OR [All: "online teaching"] OR [All: "e-learning"]] AND [[All: "higher education"] OR [All: universit*] OR [All: college*] OR [All: "postsecondary education"] OR [All: "tertiary education"] OR [All: undergraduate*] OR [All: postgraduate*]] AND

	[[All: Africa] OR [All: "global south"] OR [All: "developing countr*"] OR [All: "sub-Saharan countr*"]]
Refined by	AND [Collection Topic Journals: Education] AND [Collection Topic Journals: Social Sciences and Humanities] AND [Collection Topic Journals: African Journal Archive] AND [Collection Topic Journals: Open Access] AND [Publication Date: (01/01/2010 TO 03/31/2021)]

#### STEP 4: SCREENING ON TITLE AND ABSTRACT, SCREENING ON FULL TEXT AND FULL TEXT RETRIEVAL

Search results from eth databases were uploaded to EPPI-Reviewer for screening (15 March 2021)

- Screening of abstract and titles (361 items excluded)
- Screening of full titles, first uploaded the PDF files to EPPI-Reviewer, (24 items excluded)
- Check the PRISMA flow diagram (Chapter 4, Section 4.3.3)

#### STEP 5 – DATA EXTRACTION/CODING

Decide what data you want to extract, in order to answer your research questions	Inclusion and exclusion criteria was used to decide on what data was extracted.
Look at previous SRs as to what should be included	Done
Set up your data extraction coding tool.	Guided by literature and other extraction tools (e.g. Bond, 2020), extraction tool was designed
To assign text to a code, select a code in the data extraction coding tool, select the corresponding text in the PDF and then click the Assign icon. The selected text is then available to the all of the program's searching and reporting functions	Done

#### STEP 6 – CREATING REPORTS IN EPPI-REVIEWER

- To generate a question report, select the items to include in the report and select **Quick Question Report** from the **Coding Report** dropdown menu.
- To generate a coding report, select the items to include in the report and click **Coding report**. Next, select the coding tool(s) that will make up the report and click **Get report** to generate the report. **Save your reports.**

## **STEP 7 – ANALYSIS AND SYNTHESIS**

Ask yourself the following questions:

1. How can you pull the results together?
  - Why choose that method?
  - Does it accurately represent what was found?
2. Overall, what is the research suggesting in relation to the question?
3. How can you best describe and represent what the research is saying?
4. How clearly or confidently can the review question be answered?

Narrative Synthesis – write up of results using words only

1. Provide a summary of your study characteristics and participant characteristics.
  - Do not repeat the data from your tables.
2. Provide a summary of your results.
  - Highlight any key differences in values reported by different studies

## **STEP 8 – QUALITY ASSESSMENT/LIMITATIONS**

Consider potential effects of publication or other biases.

1. Are there reasons to believe that the available research may be biased?
2. Was the research conducted in a particular and limited number of contexts which may have affected the results?
3. Are there other contextual variables which question the overall trustworthiness of the results found?

## **STEP 9 – WRITE UP**

I followed the PRISMA checklist (Moher et al., 2009; Page, et al., 2021) as a guides on how to write up my final results.

## ANNEXURE 2.2: PRISMA 2009 CHECKLIST

Section and Topic	Item #	Checklist item	Location where item is reported
<b>TITLE</b>			
Title	1	Identify the report as a systematic review.	
<b>ABSTRACT</b>			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	
<b>METHODS</b>			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	

Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	
<b>RESULTS</b>			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	
Study characteristics	17	Cite each included study and present its characteristics.	
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimates and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	

	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	
<b>DISCUSSION</b>			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	
	23b	Discuss any limitations of the evidence included in the review.	
	23c	Discuss any limitations of the review processes used.	
	23d	Discuss implications of the results for practice, policy, and future research.	
<b>OTHER INFORMATION</b>			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	
Competing interests	26	Declare any competing interests of review authors.	
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	

Page et al., (2021) For more information, visit: [www.prisma-statement.org](http://www.prisma-statement.org) and <https://doi.org/10.1371/journal.pmed.1003583>

## ANNEXURE 2.3: INTERVIEW QUESTIONS – FINAL (594 WORDS)

### **Title: Academic professional development and support of academics for digital transformation in African large-scale open and distance education institutions**

*Researcher and PhD Candidate: Ms Mpho-Entle Puleng Modise*

*Institution: University of South Africa*

*Email: [modismp@unisa.ac.za](mailto:modismp@unisa.ac.za)*

*Major topics that will be addressed in the interviews will emanate from the research question driving this study, which is “How are academics professionally prepared, developed and supported for digital transformation in large-scale open and distance education institutions?”*

### **PART ONE**

#### **Salutations, introductions and explanation about the research.**

#### **Biographical information:**

**1. Please indicate your age in numbers**

**2. Please indicate your gender**

- Male
- Female
- Other

**3. What is the highest level of schooling you have completed?**

- Bachelor's degree
- Honours degree
- Master's degree
- Doctorate degree

**4. Please indicate how many years have you been teaching? 2, 5, 10 or more?**

- How many years have you been in your current institution?
- How many years have you been teaching using e-learning technology?

### **PART TWO**

1. When did your institution officially introduce the e-learning mode of delivery?
2. How did you learn about the implementation of e-learning in your institution?
3. What was your involvement in the implementation process?
4. What are some of the technological tools and systems your institution uses to deliver e-learning?
5. What are some of the advantages e-learning has provided for your institution?
6. **What** key competencies and skills do you think are necessary and needed by today's academics, in the face of emerging technologies and e-learning?
7. To what extent do you think lecturers currently use technology in their teaching? To what extent do you use technology in your teaching?
8. Would you say, all NOUN lecturers are comfortable using the e-learning technology tools to teach and learn?

9. When an e-learning innovation is introduced in a university, when do you think would be the most appropriate time for faculty members to acquire the relevant digital skills and know-how? How was it done in your institution?
10. Does your institution have an e-learning policy?
11. Are academics in your department/institution motivated to use the new technology for learning and teaching? How? Why?
12. **What strategies do you think should be employed to support academics to acquire the necessary digital** competencies/skills needed the teach in the new e-learning system?
13. *On a scale of 1 to 10, 1 being 'not prepared at all' and 10 being 'well prepared', how prepared are faculty members in your department or institution for online teaching?*
14. When your institution introduced e-learning, what was the process that was followed in preparing the teaching staff for the new e-learning system?
15. How should open and distance education (ODE) faculty members be prepared for eLearning?
16. What do you think have been or continue to be some of the challenges associated with e-learning in your institution?
17. Which departments in your institution participate actively in supporting lecturers for e-learning?
18. How is the Nigerian government supporting the teaching and learning with educational technologies?
19. Is your institution involved in any local, regional or international capacity building programmes with other institutions? Can you name them?
20. **In your opinion, why is it important for NOUN to be innovative and invest in modern technologies for teaching and learning?**
21. **In your opinion, what are the benefits of academic professional development in higher education, and especially in ODL institutions?**

Thank you so much for your time, for availing yourself for this interview, and for your invaluable input to this research. I really appreciate it.

Mpho-Entle Modise

## **ANNEXURE 2.4: PARTICIPANTS INVITATION LETTER**

**Title of research: Professional development of academics for digital transformation in large-scale open and distance education institutions in Africa**

Date: December 2020

Name of the person to who you address the request:

Department of the person

Contact details of the person (tel. and email address)

Dear \_\_\_\_\_ (insert contact person's title and name),

I, Mphoentle Puleng Modise am doing research towards a PhD degree at the University of South Africa, under supervision of Prof Geesje Van Den Berg, a professor in the Department of Curriculum and Instructional Studies at the University of South Africa, together with Prof Olaf Zawacki-Richter, a professor in the Faculty of Education and Social Sciences at Carl von Ossietzky University of Oldenburg.

I am inviting you to participate in a study entitled "Professional development of academics for digital transformation in large-scale open and distance education institutions in Africa". The aim of the study is to determine how academics are professionally developed and supported for digital transformation in African large-scale open and distance education institutions. Your institution has been selected because it one of the of large-scale ODE institution which has concrete experience in digital transformation, specifically the implementation of eLearning innovation for teaching and learning.

The study will entail a systematic review of literature on digital transformation in open and distance education (ODE) institutions in Africa. It also will conduct interviews with various selected key strategic stakeholders to get an in-depth understanding of the experiences of institutions that has already gone through the eLearning journey and how they professionally developed and prepared their academics for such a technology innovation.

The benefits of this study include documenting the successes and failures of eLearning implementations in Africa, noting and sharing lessons learnt from those who have gone before others, and building a possible framework that can possibly help institutions that want to respond to the digital transformation imperatives in their countries and the world around.

There are no foreseeable potential risks in this study. There will be no reimbursement or any incentives for participation in the research.

Participants will be given feedback through research report (thesis) and/or journal articles that will be produced from the study.

Yours sincerely



---

Ms MPHOENTLE PULENG MODISE  
LECTURER/PHD CANDIDATE, UNIVERSITY OF SOUTH AFRICA

## ANNEXURE 2.5: ETHICAL CLEARANCE CERTIFICATE



### UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2019/04/17

Ref: **2019/04/17 /33904324/11/MC**

Dear Ms Modise

Name: Ms MP Modise

Student no: 33904324

Decision: Ethics Approval from  
2019/04/17 to 2024/04/17

**Researcher(s):** Name: Ms MP Modise  
E-mail address: Modismp@unisa.ac.za  
Telephone: +27 12 429 6887

**Supervisor(s):** Name: Prof G Van Den Berg  
E-mail address: Vdberg@unisa.ac.za  
Telephone: +27 12 429 4033

**Title of research:**

**Professional development and support of academics for digital transformation  
in large-scale open and distance education institutions in Africa**

**Qualification:** PhD in Curriculum and Instructional Studies

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2019/04/14 to 2024/04/17.

*The low risk application was reviewed by the Ethics Review Committee on 2019/04/14 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.*

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.



University of South Africa  
Pretorius Street, Muckleneuk Ridge, City of Tshwane  
PO Box 192, UNISA, 0003 South Africa  
Telephone: +27 12 629 3111 Fax: +27 12 629 4150  
[www.unisa.ac.za](http://www.unisa.ac.za)

2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date 2024/04/17. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

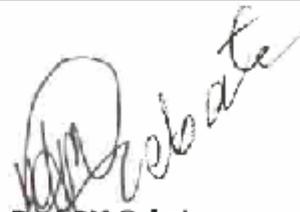
*Note:*

*The reference number 2019/04/17/33904324/11/MC should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Kind regards,



**Prof AT Motlhabane**  
**CHAIRPERSON: CEDU RERC**  
motlhat@unisa.ac.za



**Prof PM Sebate**  
**ACTING EXECUTIVE DEAN**  
Sebatpm@unisa.ac.za

Approved - decision template – updated 16 Feb 0017



University of South Africa  
Pretler Street, Muckleneuk Ridge, City of Tshwane  
PO Box 392 UNISA 0003 South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150  
www.unisa.ac.za

## ANNEXURE 2.6: LETTERS TO REQUEST PERMISSION TO CONDUCT RESEARCH AT THE NATIONAL OPEN UNIVERSITY OF NIGERIA (NOUN)

### LETTER 1

Date: 6 April 2020

Dear Professor Christine Ofulue,

My name is Mphoentle Modise, a lecturer from University of South Africa, College of Education. I trust that you and your family are well, safe and keeping guard against the Coronavirus.

We met in 2019, at the Unisa Research and Innovation Event with Prof Geesje van den Berg and Prof Olaf Zawacki-Richter from Oldenburg. I hope you will remember me, we briefly met at the Manhattan Hotel. Prof Geesje and Prof Olaf are co-supervising my PhD study.

I am currently on research and development leave to complete my PhD study and the reason for my email is to request your help in understanding and following proper protocol and procedures for ethical clearance to do research with NOUN, and hopefully to share research policies, ethics policy and procedures, application forms and relevant resources you think will help with my PhD study. And probably to help and guide me to identify possible relevant candidate in NOUN who actively participated in the e-learning implementation process that I can do the interviews with.

My study entitled "*Academic professional development and support for digital transformation in African large-scale open and distance education institutions*", looks at the digital transformation, especially e-learning and how open universities prepares, train and support its academics for e-learning. The study looks into the e-learning journeys of National Open University of Nigeria (NOUN) and UNISA. I will greatly appreciate your help and support.

I am aware of the impact of the Coronavirus on everything, everyone and including my study, but I am trying to keep my spirit high and continue with the study, I was planning to travel to Nigeria and Tanzania this year and now I have to re-plan how to go about this research. However, in the meantime, I would like to familiarise myself with the research ethics and protocol of your university.

Thanking you immensely in advance for your help and support,

Kind regards,

Ms Mphoentle P Modise

---

## LETTER 2

Date: 11 May 2020

Dear Professor Mafiana,

Greetings, trusting that you are well,

My name is Mphoentle Modise, a lecturer and PhD candidate from UNISA, I have been in contact with Prof Ofulue regarding my doctorate studies and research with NOUN, and she has advised that I speak with you.

I need your help with NOUN's general research requirements, advice on possible application forms, fees and/or research permit fees, any other relevant documentation that may be required from me or Unisa and procedures that I must follow in order to do research through NOUN.

My study is entitled "Academic professional development and support for digital transformation in African large-scale open and distance education institutions", and it seeks to look into the e-learning journeys of three of Africa's large open universities - National Open University of Nigeria (NOUN), Open University of Tanzania (OUT) and UNISA.

I greatly appreciate your help and support.

Kind regards,

Ms Mphoentle P Modise

## ANNEXURE 2.7: CONSENT FORMS

### CONSENT/ASSENT TO PARTICIPATE IN THIS STUDY (Return slip)

I, \_\_\_\_\_ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

- I have read (or had explained to me) and understood the study as explained in the information sheet.
- I have had sufficient opportunity to ask questions and am prepared to participate in the study.
- I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).
- I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the \_\_\_\_\_ (insert specific data collection method).

I have received a signed copy of the informed consent agreement.

Participant Name & Surname (please print) \_\_\_\_\_

\_\_\_\_\_  
Participant Signature

\_\_\_\_\_  
Date

Researcher's Name & Surname (please print) \_\_\_\_\_

\_\_\_\_\_  
Researcher's Signature

\_\_\_\_\_  
Date

## ANNEXURE 2.8: EXAMPLE OF TRANSCRIBED INTERVIEW

INTERVIEWER: Thank you so much, Prof. Can you please indicate your age? Thank you.

PARTICIPANT: 56 . I think it is 56 . 55 . Yes, 56 this year.

INTERVIEWER: So Prof, how many years have you been in your current institution?

PARTICIPANT: I have been at Unisa for 25.

INTERVIEWER: Alright, and out of 25 years working there, how many of them were you teaching especially with technology?

PARTICIPANT: I have been teaching, well ODL in general and technology it varies, because we started out with the audio tapes, then video tapes. We used a variety of technologies.

INTERVIEWER: That is true.

PARTICIPANT: Before we even got into an online space. Hence my argument. I always say that ODL is about a mediated form of delivery and if it is mediated, it is everything. From print. I refer to print as technology.

INTERVIEWER: It is.

PARTICIPANT: All the way. So I have been using that form of technology and I know in the mid - 90's we used a lot of audio tapes for exams preparations and for all those things. They had an audio tape. Video tape not as much, because many students did not have TVs and VCRs, but audio, we used a lot of audio and radio to some extent, but not as much.

INTERVIEWER: Okay.

PARTICIPANT: So because I was teaching communications, radio was part of the curriculum and also we used it for instruction.

INTERVIEWER: Okay. So, when did your institution officially introduced the e - learning mode of delivery?

PARTICIPANT: Yes, let me give you the history before we even get there. Is it okay if I just give you a little bit of background?

INTERVIEWER: Yes. Yes, Prof. Please.

PARTICIPANT: In 2004 we merged with TSA and when we merged with TSA and Vudec, the university had to come up with a new identity of the university. Before that we were ... I don't even think there was a major difference between distance education or correspondence. Those things. We were not even talking about that, but following the merger of bringing together three different institutions that were created for different

purposes, it was important that they come up with a new identity. So when they came up with the new identity, that is when it became open distance learning and at that time, I think the executive of the time thought that we should focus on openness as well.

INTERVIEWER: Okay.

PARTICIPANT: And then I think it was 2006 they developed a strategy for 2006 to 2015 and then when they were developing the strategy, the move was to go to online learning.

INTERVIEWER: Okay.

PARTICIPANT: Now, as they were talking about open distance learning, there was a group, a task team that was appointed to look at distance education and to look at the differences of how we are doing practice and where we want to be. So that task team took about two years up until I think 2009 . Maybe 2007 to 2009. Somewhere there and then after that then there was another task team where I was belonging to from 2009 to 2010. Then there was another. They kept on changing task teams, but in any case, all these task teams were looking at processes of how to move from pure correspondence distance and distance correspondence to ODL and there was a lot of activities around that. We developed the policy for ODL in 2008 .

INTERVIEWER: Okay.

PARTICIPANT: It was one of my tasks... So I developed that policy for the university and the problem of developing a policy without the national policy, it is quite difficult, because you have to come up with all the ideas. So the national policy was based on Unisa's policy instead of the other way around.

INTERVIEWER: Wow.

PARTICIPANT: ...but the emphasis was for people to understand what ODL is and what it means and hence, there was a lot of communications and marketing around ODL and in... then part of the reason of having this task team and there was one task...within the task team there were different people who were given projects. One major project was dealing with a prototyping open education courses. And in prototyping that we called those courses power courses.

INTERVIEWER: Okay.

PARTICIPANT: But in prototyping those power courses, they were based on the technologies that needs to be used in order for us to reach as many people as possible. So then that is the predecessor to the signature courses. So that process started in 2008/9. You see, that is how far back it is. It is about around that time where it started with the power courses. People did not talk about power courses, because they don't remember them, but that is where it started, and I was part of that task team that was looking at power courses and we were looking at power courses in relation to the systems. We were prototyping it . We were looking at the systems, practices and structures in order for us to understand what is it that needs to be in place to support this kind of teaching and learning. So although it was not heavily online, there was some element of online learning in it .

INTERVIEWER: Ooh.

PARTICIPANT: And then that was the predecessor to the signature course. So the signature courses came about immediately after 2011 . The signature courses. People went to America about the signature courses. So the whole prototype and the whole packaging of the signature courses was based on the online model.

INTERVIEWER: Okay. Okay.

PARTICIPANT: Fully online model. The predecessor to that, it was not fully online, but that one, we were testing it in terms of being fully online model. Now, the reason that I am bringing this, by the time Covid hit the trailblazers in online learning, because we had already prototyped this for the last ten years.

INTERVIEWER: Prof, I want to try as much as possible to remain within my interview boundaries, but the richness in the history that you just gave me now, I just see another project for another day. Really. I need to find a way to give you a platform to educate. I don't think a lot of us know this richness of Unisa, you know? I really think we should remove the academicness out of it and just tell people as it is, as you have just said it now.

PARTICIPANT: Okay. Mhmm.

INTERVIEWER: This is what Unisa is about. This is in terms of technology and e-learning this is our journey, and this is where we see ourselves going. I think that is beautiful.

PARTICIPANT: Yes and unless you understand that. That is why we can't move forward.

INTERVIEWER: True. True.

PARTICIPANT: The reason that I am bringing it is because one of the questions is how we move forward. You can't move forward if you don't understand the trajectory and remember, the trajectory also helps with the experiences. It tells you what the experiences are and the challenges that were met on the way so that you are able to remove those challenges in order for us to move forward. Now, the challenge is the major course, when really it started. Students were happy with it. Many people were happy with it. Yes, there was a handful of people who were not happy with it, but this is very political. The reason that it was sabotaged to this point and I am sure it was supposed to have been very ... still going higher and higher, is that the students were told lies about online learning and this were told by unions and staff members who work in the factory that produces study material. I call them factories, because they are.

INTERVIEWER: Because they were afraid of losing their jobs?

PARTICIPANT: That is why it is. We halted our progress on the basis of people's fears and then they got into the students and just said you cannot do this, and some students were like, but we need to be in a position where we can be able to be digital in a world that is digital. I mean, since 2010 all the way we were talking about digitalisation of education.

INTERVIEWER: Prof, you have already answered the next two questions, but I am just going to ask them just in case maybe there is something that you might want to come up with. I know that you have already said your involvement in the whole process, in the implementation process, but how did you learn first about the e-learning? You know, the idea that Unisa was going through the e-learning? The communication around that.

PARTICIPANT: How did I learn about it? I was party to it. For me, I was part of it from the beginning.. The development of it. I even went and did my PhD in distance education in ODL and specifically looking at technology enhancement.

INTERVIEWER: What are some of the technological tools and systems your institution provides and uses to deliver e-learning?

PARTICIPANT: I know they use mobile phones, which is recent. Let me tell you the story of mobile phones. Sorry, I may be all over the place, but you will structure it in your own way... the digi-band...When the signature courses started they wanted to use it as well, because signature course was offline, online and

then they were in the process of developing a mobile platform so that students don't have to go to the internet café to engage in discussion classes or to upload their study material.

INTERVIEWER: Okay.

PARTICIPANT: Radio is one of them and there are a whole lot of other things.

INTERVIEWER: Okay. Thank you, Prof. To what extent do you think lecturers currently use technology in their teaching?

PARTICIPANT: Oh, very little. It has become even worse than it was maybe ten years ago. Very little and I will tell you why it is very little. Many of our lecturers are not trained in how to use technologies in teaching and learning and this I have seen it happen in that we are moving away from our core business of open distance learning as we move along and part of the reason is that when we recruit people who come from other institutions that are especially face to face institutions, they want to continue doing the work the way they have been doing as classroom teachers, as classroom lecturers and when they get to this space, they get very uncomfortable. Even before people would go when we developed study material, instructional designing, then you will go and get all the help and assistance. So part of our biggest problem is that they are not developing capacity in ODL. So the people who are supposed to deliver in ODL, they don't know what it entails.

INTERVIEWER: Mm. Yes.

PARTICIPANT: They don't know what it entails and hence, they say they have a workload...I also did a study on workload. They say they have a workload, because as an academic when I open my laptop I get a hundred emails and when you think of those hundred emails, 80% have nothing to do with the content. It has everything to do with administrative matters. So even the way we appoint people, we are not even appointing administrators to manage that. So we are appointing...I mean, ODL is a system. It is not an individual thing. It is not about teaching and learning, or research separate from this or student support separate from this. It is a whole separation thing.

INTERVIEWER: It is.

PARTICIPANT: Yes and then I remember when I was being interviewed recently, I told them that ... and then they were saying what is the problem? I said the problem is with instruction. It is not any of the things that we think that is the problem. It is with the instructional design. The starting point in ODL is instructional design. If you design your material very well, all these students will be independent learners by now, but if you design your material in such a way that you will be expected to teach them, that is how it is going to happen and we cannot do that on scale, on the basis of our core business of being scalable. It is not scalable. So the focus should be on instructions and then when we talk about technology, the technology needs to support the instruction.

INTERVIEWER: The instruction, mm.

PARTICIPANT: Not the other way around. The technology should not come in and say computer, we have this software and what and then this is how you can use it. Like jRouter for an example. This is how you are going to use it. It must start from how you develop study material so that it can talk to how you are going to mark.

INTERVIEWER: Okay. So I understand you to say this, Prof. That this is a double trouble in that we recruit people who don't understand ODL.

PARTICIPANT: Yes.

INTERVIEWER: And it is instruction, pedagogies and all that and then at the same time they don't even have knowledge of using technology to teach.

PARTICIPANT: Yes and then they don't ... and we don't know how to assist them, one, to move to an ODL space and how to assist them on how to develop study material for teaching purposes and before it was done. When I joined there were some few courses that you had to take in order for you to know how to develop study material and all those things, but we have been ... and I see us moving away from that over the years and it does not become a priority and what we think is not a priority, it is a major priority, because if instructional design is not right, we will not be able to support our students effectively. How do we support our students effectively? We cannot do it and we will not be able to assist appropriately, because here we are, we use technology, but we use assessment practices that are like contact universities that are face-to-face. That is why examinations have been a crisis at Unisa now during Covid. We are boasting about ODL and everything, but during Covid it came to the fore that actually we have not been doing ODL. We have been doing something else. Even our exams should be mediated in a certain way.

INTERVIEWER: Yes, that is true. Prof, what are some of the advantages and benefits e-learning has provided for your institution?

PARTICIPANT: The advantage that e-learning has provided, one it is a necessary skill in the twenty-first century. You have to have that skill. So if you are not going to use technology in this time, you are going to be left behind and we saw recently how we were left behind, because we are not able to use this thing. Secondly, instead of technology assisting us with administrative matters, it did not. Well, at one point it did. It did assist us, but on the other hand it did not and it goes back to the fact that all people who join ODL, they need to understand what ODL is so that technology can assist me in my work and we can develop software that talk to the academic project of ODL, that talks to an administrative system of ODL, not something that is outside of that. So we take software that can work in other contexts, but they can't work in an ODL environment.

INTERVIEWER: Wow, Prof. So much richness coming from this conversation, but what are the key competencies that you think are necessary and needed by today's academics, academics specifically for teaching?

PARTICIPANT: The key competency that academics need is the understanding of pedagogy, pedagogy in ODL. It is the understanding of pedagogy. Pedagogy includes let's say three things and the reason that I am saying that is that I have just written a paper on this thing.

INTERVIEWER: Okay.

PARTICIPANT: One, pedagogy is about content. The development of content in technology should be different. If you are using technology, you must develop your study material differently and it is about the facilitation of learning. How do you facilitate the process of teaching and learning? Thirdly, it is the systems that are needed to support these two.

INTERVIEWER: Okay.

PARTICIPANT: The facilitation and the content.

INTERVIEWER: So academics needs to have a pedagogical understanding and knowledge, which forms part of those?

PARTICIPANT: Yes.

INTERVIEWER: Okay.

PARTICIPANT: And then secondly, it is the technical skills. You need to have technological skills. There is absolutely no way that you can do this without understanding technological skills. Thirdly, is collaborative skills. Collaborative working skills. In ODL it is a collaborative environment. You can't work as an individual. Development of study material is a team approach. Facilitation of learning is a team approach. So teamwork and collaborative skills are absolutely necessary. Those are some of the skills that I think are critical for you to be successful in this environment.

INTERVIEWER: Okay. I know you did mention something about this, but would you say most lecturers in your institution are comfortable using the e-learning technology to teach?

PARTICIPANT: No.

INTERVIEWER: Okay. Why?

PARTICIPANT: That I can put my head on the block. It is a very, very small percentage. All of us know how to use emails. All of us know how to use certain things in this, but we don't know how to facilitate teaching and learning and those that I think would know are the tutors. Even the tutors are better who have been trained. They are called e-teaching assistants.

INTERVIEWER: Yes. Yes.

PARTICIPANT: Those that are being trained to facilitate teaching and learning for signature courses. Those are the only ones and those that have taught or been involved in signature courses. The rest don't know. Your eyes are opening like... *[Laugh]*

INTERVIEWER: I am really appreciating your honesty and openness about this thing and one of the things that I picked up from the previous interviews I had, I actually made a note that I feel like they are afraid to come out with it... they are protecting the institution so much that they don't want to tell it as it is. So you are the first person that is like no, this is what it is, and I appreciate that a lot. Really. Because for me, as an individual I am learning a lot from this conversation even outside the study. But, Prof, when an e-learning innovation is introduced in the university, when do you think is the most appropriate time for the lecturers to be able to acquire the skills relevant for e-learning?

PARTICIPANT: Right at the beginning.

INTERVIEWER: Okay.

PARTICIPANT: You can't introduce something that people don't know.

INTERVIEWER: Yes.

PARTICIPANT: You need to capacitate people in order for them to be able to use the devices and all these things. We know that with technology you need to learn, you need to practice, you need to be hands-on... and at one point I remember, but it was ODL research, you had to have done ODL research for you to be promoted. So it must be linked. It must be incentivised. It must be linked to your career pathing within the

university. You cannot do it as an afterthought. It will never work. That is why now it is difficult for us to get people to jump into it, because it is an afterthought.

INTERVIEWER: Okay.

PARTICIPANT: But if this was linked to every part of the functions...look, when we do performance of staff members, career pathing is one of it and career pathing must include these things that you need in order for you to move to the next level and the next level and the next level. If you don't have that, then how... what is your vision? What is your mission? What is your goal? You can't reach your goal, because you don't know where you are going.

INTERVIEWER: That is true. Prof, were any academics involved in the planning and development process of e-learning at your institution?

PARTICIPANT: I don't think so. And in my view, maybe because I researched in this field and maybe other people are not aware of this, but because I research in this field and maybe that is some of the challenges that we came across in terms of moving forward. It was from the top. It was strategic, but I think basically associations or organisations or universities, they don't understand how mission talks to strategy and strategy talks to the implementation, the planning of the university. So we don't use that.

PARTICIPANT: We don't say this is an open distance learning university. This is what our vision is, to be the African university shaping futures and whatever. What does it mean for *[participant name withheld]* who is in IODL as a researcher? What does it mean for *[participant name withheld]* who is in the curriculum department as a lecturer? You see? When we teach, we teach. When we do research, we do research. It is not linked to the core function. I always use an example of McDonalds. If you work at McDonalds, whether you are a manager or you fry chips, you also know how to take a mop to clean the toilets. Their training is versatile so that if there is a shortage of cleaners, managers can clean. If there is a shortage of this, these people can clean and do their work.

INTERVIEWER: Okay.

PARTICIPANT: So for us, our work is very defined. It is this space, but this space is not related to the mission of the university. It is not related to the strategy, because even now if I can ask you as a lecturer where do you fit in the strategy of the university? You can't point it. Or even if you look at the strategy and you will be surprised; you are at your level. Even senior management cannot even say this is my core function and as a custodian of this strategy, this is what I want to see in the strategy happening, because strategy is not only about numbers. It is about influence. It is about impact. It is about other things as well. It is about encouraging your staff and motivating them to do their best in the work that they do.

INTERVIEWER: Prof, does your institution have an e-learning policy?

PARTICIPANT: The institution has lots. It has an ODL policy. It has a lot of frameworks based on it. It has a lot of strategy documents. We do have like OER strategies. We do have ICT. They call it ... It is a new thing actually that came in. The business model. That is not talking to the academic space and maybe part of my problem is that I look at this thing and I look at the principles of ODL and if I don't see the principles of ODL embedded in the document that purports to be the document of the university whose identity is ODL, I freak out.

INTERVIEWER: Prof, in your opinion are the academics in your institution motivated to use the new technology for teaching and learning?

PARTICIPANT: There are those that are motivated. Yes, there is a sizeable number of those that are motivated to use it. However, you can be motivated, but if you are part of the conveyor belt and if you are part of the system, it is very difficult for you to stand outside of it and try to be as good as possible and the lack of support that you get maybe from your line manager who is looking for this and that, it is quite difficult, but there is a lot of people who are doing great work.

That if we can say innovators, come forward, every college has one. Every college has some and we say to these innovators, like people who have gone through the program, the UMUC and now Oldenburg, if you can put them forward and allow them to implement what they have learned in those courses, we don't have to go far. We will be at very high levels right now and that is the capacity we are not using.

INTERVIEWER: Thank you, Prof. That speaks to the heart of my research. What strategies do you think should be employed to support academics to acquire the necessary skills?

PARTICIPANT: We need to have a political will. Without a political will nothing happens and by political will I mean executive management should take a stand and understand that this is a need for the university. Secondly, there must be resources. Resources need to be invested accordingly. Human resource development as in human resource development, not what we have. We are developing capacity and capabilities for people in this university to be able to move forward and be able to know what needs to be done and thirdly, we need to develop programs that are properly resourced. Above all, we needed something like an institute or a centre of activities that focusses on capacitating staff generally and that is why I talked about resources, because resources have to deal with incentives. Incentives does not necessarily mean to get twenty thousand. Incentive means that how do you develop your career? Career pathing and people need to see that if I do this, I will move to this level and this is what ... I will move to this level. You don't even have to move the ... even if they move you on the same level, but next percentile, next percentile, that is what people are interested in. They are not interested in any other thing. It is a little bit more money. So if I say do this and then you will earn an extra R1000 a month, that is fine.

INTERVIEWER: Mm. That is true. Prof, on a scale of one to ten, one being not prepared at all and ten being well prepared, how prepared are lecturers in your institution for online teaching?

PARTICIPANT: You said one is not prepared at all?

INTERVIEWER: Yes and ten is well prepared.

PARTICIPANT: No, I think we are hovering around two or three. No, it is bad. *[Laugh]* I know that for a fact and maybe others are saying eight. Well, they have not done research in this.

INTERVIEWER: No, I have one who said four. Most of them are saying six. Six or seven. So, wow. When your institution introduced e-learning and I know you alluded to this, but what was the specific process that was followed in preparing the teaching staff for a new e-learning system?

PARTICIPANT: Nothing.

INTERVIEWER: Was there was nothing done?

PARTICIPANT: No.

INTERVIEWER: Okay?

PARTICIPANT: Part of our problem maybe let me just say part of our challenge is that there are lots of programs, but they are all ad-hoc. They are all workshops. They are ad-hoc workshops, once-off and then once people do it, they go back to their inboxes and forget about what they have done. So it is not effective in that regard, because it is not a structured program. If it is a structured program you learn something.

INTERVIEWER: Yes.

PARTICIPANT: If it is not structured, it is ad-hoc. It is all about workshops.

INTERVIEWER: Okay.

PARTICIPANT: Show me one person who has learned anything. Yes, it is very exciting and you are very strong and whatever, but when you go back, you don't even come to these workshops with a program or the course that you are teaching so that you can be able to be shown how to do it.

INTERVIEWER: Yes. Yes. That is true. What do you think have been or continue to be some of the challenges associated with e-learning in your institution?

PARTICIPANT: The challenges is the lack of political will from the strategic level, lack of resources and lack of ... and because there are no resources, there are no programs that are geared towards preparing and proper programs. I am talking about a year's program where people are attending this developmental project and at the end you walk away with a course that you have developed, with a course that you have facilitated and all those things, because we can't take courses that were developed for correspondence to an online space. It does not work. When you develop courses for online, you start with the outcomes.

INTERVIEWER: Mm. That is true.

PARTICIPANT: And then after the outcomes you come to assessment and all the assessments. By the time you get to content, it is right at the end, whereas when you teach in contact university, you start with content. So the way the whole thing is packaged, you cannot understand it if you have not been trained in it.

INTERVIEWER: Some of the people I have spoken with, they mentioned that the ICT department was one of the major challenges associated with e-learning. What is your view on that?

PARTICIPANT: For me, I don't think it is a major challenge. It is the positioning of the ICT...people think that because ICT is there, ICT would give us the answers to e-learning. E-learning is not about ICT. E-learning is about the pedagogy. It is the starting point. It is a very small component of the learning. What is critical is the learning aspect of it. I have to tell ICT people what I want to do, but the ICT has been elevated to the same level as the academic project that they forget that their role is to support the academic project, rather than being a Microsoft within the university. I call it a Microsoft, because Microsoft is an ICT company that hires developers and whatever, but we have to hire developers whose main function is to come up with solutions for academic projects. Hence, you need more educational technologists rather than ICT technical people. Techies you can tell them what to do.

INTERVIEWER: Do you want to elaborate on that, Prof?

PARTICIPANT: Okay. Educational technologist look at education first. Right. They look at education and ICT should not be the driver. ICT should be the supporter.

INTERVIEWER: Okay.

PARTICIPANT: So the way it is structured at Unisa, we look at ICT as the driver. That is why even the business model for e-learning is drawn by ICT. ICT cannot draw the e-learning business model when they have no idea of what the academic project requires. So you put academics aside who are core, because remove academics in that space, there is nobody. There will be no university without academics. So you move those people aside and you draw up a business model that academics must buy into. How do they buy into it when they come with their own project that they say this, I am doing teaching and learning and research and all that?

INTERVIEWER: Okay. Prof, what is the involvement of your government in supporting teaching and learning with educational technologies in higher education?

PARTICIPANT: You know, our government's role has not been very strong, but I should give them this. They give a lot of funding for different things within the university, like capacity development. There is a big fund for capacity development. I just don't know why it is not used to do the work that it is meant to do and maybe part of the problem is that the leaders who are supposed to facilitate that fund or control that fund do not know where to start and where to go.

INTERVIEWER: Yes. That is true.

PARTICIPANT: And then there is this culture also of it is mine. These monies go back. Mphoentle, these monies go back all the time.

INTERVIEWER: That is true. I am here because of that very same support from the government that I can be able to stay on AQIP and do my PhD studies.

PARTICIPANT: Yes, no there is a lot of resources that comes from the government to help institutions and my fear is that those resources will dry out as soon as the government see that universities are not using the funds for the purposes of which they are meant to be done. We are in the business of teaching and learning and our role is to capacitate people, but we are very poor in capacitating people, including our colleagues, including students.

INTERVIEWER: Mm. Prof, is your institution involved in any local, regional or international capacity building programs with other institutions?

PARTICIPANT: Yes. Yes. The UMUC project is part of the capacity development. Now it is the Oldenburg. Those are very good projects and there are other projects that I am not aware of. I am only calling on the ODL projects that are international and even us training and helping people in Ethiopia. It is another area that we are doing continentally. Nationally there are several projects that we do with different associations and organisations and things like that. So there are things that we are doing good in terms of our resources, but they don't go wide enough or they do not show the impact that they need to show, because when they said here is money, all of us apply for that money, but nobody is actually managing it well... we lack monitoring and evaluation.

INTERVIEWER: That is true. In your opinion, what are the benefits of professionally developing lecturers in higher education, especially ODL institutions?

PARTICIPANT: Oh, there are many. You know, when people are capable and when people have the necessary know-how and when people are capacitated, they are motivated to do even further than what they are given to do.

INTERVIEWER: That is true.

PARTICIPANT: Academics are not factory workers where you tell them that this is your line. They need to be given space to be innovative, to be creative, to come up with new ideas and if they do not get that space, they don't thrive and if they don't thrive, the whole institution is dead. Because the academic space thrives on creativity, on innovation, on all those things.

INTERVIEWER: That is true Prof.

PARTICIPANT: If those things are not there, they are dead.

INTERVIEWER: Prof, to what extent has your institution monitored and evaluated skills that are acquired by academics?

PARTICIPANT: Very little. I don't even think that they do. Maybe they could say these are so many people who have doctoral qualifications, and these are the researchers and those are some of the things that they report on, but it is mostly quantitative reporting rather than qualitative reporting and for me, what is critical is qualitative.

INTERVIEWER: That is true.

PARTICIPANT: If we have more of you who have done PhDs through AQIP, I want to see in the next three years how many students have you produced, doctoral students? How many master's students have you produced. How many articles that you have produced by yourself and with these other people so that I can see that you are actually moving forward.

INTERVIEWER: How then does your institution ensure that the acquired skills are then optimally used or actually used?

PARTICIPANT: If there is no monitoring and evaluation, then there will be no way to see the impact.

INTERVIEWER: Thank you, Prof. Is there anything else? Anything that you would like to add to the conversation?

PARTICIPANT: No, no. I talked a lot about this, because I think it is a subject that is close to my heart and I am honest about it, because maybe I have done research in it and I am doing research on it. It is something that I work with. It is my passion.

INTERVIEWER: That is true. Well, thank you so much, Prof. This was really informative and educational conversation.

PARTICIPANT: You are most welcome and good luck and good luck.

**ANNEXURE 3.1 CHECKLIST OF STEPS TO TAKE BEFORE, DURING, AND AFTER TRAINING  
(SALAS ET AL (2012))**

**Table 3.** Checklist of Steps to Take Before Training

Step	Actions	Outcomes
<input type="checkbox"/> Conduct training needs analysis	Determine what needs to be trained, who needs to be trained, and what type of organizational system you are dealing with.	Clarifies expected learning outcomes and provides guidance for training design and evaluation. Enhances training effectiveness.
<input type="checkbox"/> Job–task analysis	Specify work and competency requirements. Examine teamwork demands, if needed. Identify what trainees need to know vs. what trainees need to access. Consider conducting a cognitive task analysis for knowledge-based jobs.	Ensures that the training provided will address real job requirements and demands.
<input type="checkbox"/> Organizational analysis	Examine strategic priorities and the culture, norms, resources, limitations, and support for training. Determine whether policies and procedures in place support training.	Enables strategic resource-allocation decisions. identifies how the work environment can support or hinder the training objectives.
<input type="checkbox"/> Person analysis	Uncover who needs training and determine what kind of training they need. Determine whether training must be adapted for some learners.	Clarifies training demand and trainees’ needs. Maximizes benefits of the training by ensuring fit with trainees’ needs.
<input type="checkbox"/> Prepare learning climate <input type="checkbox"/> Schedule training	Schedule training close to when trainees will be able to use on the job what they have learned. Plan to offer refresher training when skill decay cannot be avoided.	Reduces skill decay and atrophy.
<input type="checkbox"/> Notify employees	Communicate clear expectations about the training. Describe training as an “opportunity” without overselling. Inform employees about any posttraining follow-up. Communicate the importance of training.	Encourages the right attendees. Ensures trainees enter with appropriate expectations, which enhances readiness and learning.
<input type="checkbox"/> Establish attendance policies	Determine whether attendance should be mandatory. Use the mandatory label selectively.	Helps ensure learner motivation and attendance.
<input type="checkbox"/> Prepare supervisors and leaders	Prepare supervisors to support their employees and send the right signals about training.	Enhances employees’ motivation to learn.

**Table 4.** Checklist of Steps to Take During Training

Step	Actions	Outcome
<input type="checkbox"/> Enable right trainee mindset		
<input type="checkbox"/> Build self-efficacy	Deliver training in a way that builds trainees' belief in their ability to learn and perform trained skills. Reinforce performance during training.	Enhances motivation and increases perseverance when on the job.
<input type="checkbox"/> Promote a learning orientation	Encourage trainees to participate in training to learn rather than to appear capable. If most trainees will not have that orientation, design more structured training experiences.	Leads to greater learning.
<input type="checkbox"/> Boost motivation to learn	Engage trainees and built their interest. Ensure that training is perceived as relevant and useful. Show why it benefits them.	Leads to learning and positive reactions to learning; may encourage transfer back on the job.
<input type="checkbox"/> Follow appropriate instructional principles		
<input type="checkbox"/> Use a valid training strategy and design	Include these elements in training: provide information, give demonstrations of good/bad behaviors, allow trainees to practice, and give meaningful and diagnostic feedback.	Helps trainees understand and practice the knowledge, skills, and abilities that they need to develop; allows for remediation.
<input type="checkbox"/> Build in opportunities for trainees to engage in transfer-appropriate processing	Incorporate features that require trainees to engage in the same cognitive processes during training that they will have to in the transfer environment (e.g., sufficient variability and difficulty). Recognize that performance during training does not necessarily reflect trainees' ability to apply what they have learned in the transfer environment.	Equips trainees to be better able to apply what they learned when performing their job.
<input type="checkbox"/> Promote self-regulation	Maintain trainees' attention and keep them on task by encouraging self-monitoring.	Allows trainees to monitor their progress toward goals; enhances learning.
<input type="checkbox"/> Incorporate errors into the training	Encourage trainees to make errors during training, but be sure to give guidance on managing and correcting the errors.	Improves transfer of training and equips trainees to deal with challenges on the job.
<input type="checkbox"/> Use technology-based training wisely	Technology can be beneficial in training, but proceed with caution. Recognize that entertaining trainees is insufficient for return on investment.	Optimizes individual learning.
<input type="checkbox"/> Use computer-based training (CBT) correctly	Ensure that any CBT is based on sound instructional design, for example, providing trainees with guidance and feedback. Recognize that not all training can be delivered via computer.	Allows for self-paced learning.
<input type="checkbox"/> Allow user control wisely	Provide sufficient structure and guidance to trainees when allowing them to make decisions about their learning experience.	Allows for individualized training experiences while ensuring trainees have appropriate learning experience.
<input type="checkbox"/> Use simulation appropriately	Best to train complex and dynamic skills, particularly those that may be dangerous. Ensure the simulation is job relevant, even if it is not identical to the job. The priority should be on psychological fidelity rather than physical fidelity. Build in opportunity for performance diagnosis and feedback. Guide the practice.	Enhances learning and performance; allows trainees to practice dangerous tasks safely.

**Table 5.** Checklist of Steps to Take After Training

Step	Actions	Outcome
<input type="checkbox"/> Ensure transfer of training		
<input type="checkbox"/> Remove obstacles to transfer	Ensure trainees have ample time and opportunities to use what they have learned.	Increases transfer of training and reduces skill decay. Maintains employee motivation and self-efficacy.
<input type="checkbox"/> Provide tools and advice to supervisors	Ensure supervisors are equipped to reinforce trained skills and can promote ongoing learning using on-the-job experiences.	Enables employees to retain and extend what they learned in training.
<input type="checkbox"/> Encourage use of real-world debriefs	Reflect on and discuss trainees' on-the-job experiences that are related to the training. Reinforce lessons learned, uncover challenges, and plan how to handle situations in the future.	Promotes retention, self-efficacy, and motivation. Improves job performance; promotes adequate mental models.
<input type="checkbox"/> Provide other reinforcement and support mechanisms	Consider providing trainees with job aids or access to knowledge repositories or communities of practice to reinforce and support what they learned in training.	Improves performance.
<input type="checkbox"/> Evaluate training		
<input type="checkbox"/> Clearly specify the purpose of evaluation	Determine what you hope to accomplish by evaluating the training and link all subsequent decisions back to the purpose.	Ensures that time spent evaluating training produces desired results.
<input type="checkbox"/> Consider evaluating training at multiple levels	Consider measuring reactions, learning, behavior, and results. Use precise affective, cognitive, and/or behavioral indicators to measure the intended learning outcomes as uncovered during the needs assessment.	Allows well-grounded decisions about training, including any necessary modifications. Enables effective training to continue to be supported.

### ANNEXURE 3.2 TWELVE DIGITAL COMPETENCE AREAS (JANSSEN ET AL., 2013)

DIGITAL COMPETENCE AREA	DESCRIPTION
<b>A. General knowledge and functional skills</b>	The digitally competent person knows the basics (terminology, navigation, functionality) of digital devices and can use them for elementary purposes.
<b>B. Use in everyday life</b>	The digitally competent person is able to integrate technologies into the activities of everyday life.
<b>C. Specialized and advanced competence for work and creative expression</b>	digitally competent person is able to use ICT to express his/her creativity and to improve his/her professional performance.
<b>D. Technology mediated communication and collaboration</b>	The digitally competent person is able to connect, share, communicate, and collaborate with others effectively in digital environments.
<b>E. Information processing and management</b>	The digitally competent person uses technology to improve his/her ability to gather, organise, analyse and judge the relevance and purpose of digital information.
<b>F. Privacy and security</b>	The digitally competent person has the capacity to protect personal data and take appropriate security measures.
<b>G. Legal and ethical aspects</b>	he digitally competent person behaves appropriately and in a socially responsible way in digital environments, demonstrating awareness and knowledge of legal and ethical aspects on the use of ICT and digital content.
<b>H. Balanced attitude towards technology</b>	The digitally competent person demonstrates an informed, open-minded, and balanced attitude towards Information Society and the use of digital technology. The digitally competent person is curious, aware of opportunities and new developments, and is comfortable to explore and exploit them.
<b>I. Understanding and awareness of role of ICT in society</b>	The digitally competent person understands the broader context of use and development of information and communication technology.
<b>J. Learning about and with digital technologies</b>	The digitally competent person actively and constantly explores emerging technologies, integrates them in his/her environment and uses them for lifelong learning.
<b>K. Informed decisions on appropriate digital technologies</b>	The digitally competent person is aware of most relevant or common technologies and is able to decide upon the most appropriate technology according to the purpose or need at hand.
<b>L. Seamless use demonstrating self-efficacy</b>	The digitally competent person confidently and creatively applies digital technologies to increase personal and professional effectiveness and efficiency.

### **ANNEXURE 3.3: BEST E-LEARNING PRACTICE**

1. Clear e-learning mission and vision statement
2. Well-defined policies and objectives
3. Strategic and implementation plan
4. Management leadership and commitment
5. National e-learning policy and infrastructure support
6. Feasibility/Cost-benefit analysis
7. Well define incentives and reward system
8. Well define plan for faculty rollout
9. Structured training and continuous staff development plan
10. Quality assurance structures and monitoring plan
11. E-learning aligned to institutional culture of teaching and learning
12. Well-developed social systems and support
13. Change management plan
14. Stakeholder consultation in decision-making process
15. Well-defined institutional philosophy for teaching and learning
16. Defined communication channels
17. Clear understanding of e-learning
18. Well-defined rationale for e-learning (research based) e based on institutional needs
19. Clarity to improve valuable learning experiences
20. Institutional restructuring to facilitate e-learning adoption
21. Adequate network infrastructure; high bandwidth, good Internet connection, user access
22. Adoption strategy for lecturers and students

Source: Awidi, I. T., & Cooper, M. (2015). Using management procedure gaps to enhance e-learning implementation in Africa. *Computers & Education*, 90, 64-79.

## ANNEXURE 4.1: TEN STEPS FOR CONDUCTING A CASE STUDY (FÀBREGUES & FETTERS, 2019)

**Table 2** Ten steps for conducting a case study (Fàbregues S, Fetters MD. *Fam Med Com Health* 2019;7: e000074. doi:10.1136/fmch-2018-000074)

Step	Description
1	<p>Conduct a literature review and</p> <ul style="list-style-type: none"> <li>▶ Follow the process of reviewing the literature: search for publications, select the publications that are more relevant for the study's purpose, appraise them and summarize the major themes They identified.</li> <li>▶ Ensure that the literature review informs the topic formulation of the research questions. examinations</li> </ul> <p>In addition to reviewing pertinent on epidemiology of different cancers healthcare in Japan, the authors reviewed issues around gender and health issues. provided a justification for conducting the case study for uniquely addressing the of training sensitive healthcare in Japan.</p>
2	<p>Formulate the residents' research questions.</p> <ul style="list-style-type: none"> <li>▶ Formulate research questions that are feasible, perceptions about the training experience in previous research.</li> <li>▶ To investigate SPIs' and Japanese clear, significant, ethical and connected to the USA, and to examine the perceived impact and acceptability of performing the learnt skills from residents and other key informants after residents returned to Japan.</li> </ul>
3	<p>Ensure that a case study is appropriate. a</p> <ul style="list-style-type: none"> <li>▶ Ensure that the planned study is consistent with the four key features of case study research: <ul style="list-style-type: none"> <li>- In depth examination of phenomena.</li> <li>- Naturalness.</li> <li>- Focus on context.</li> <li>- Use of a combination of methods.</li> </ul> </li> <li>▶ As illustrated in table 1, the authors' study was conducted in depth, in a natural setting, with focus on context and using a combination of methods.</li> </ul>
4	<p>Determine the type of single case study design.</p> <ul style="list-style-type: none"> <li>▶ Decide the type of case study that will be used according to Yin's typology: <ul style="list-style-type: none"> <li>- Holistic single case design.</li> <li>- Embedded single case design.</li> <li>- Holistic multiple case design.</li> <li>- Embedded multiple case design.</li> </ul> </li> <li>▶ The authors conducted an embedded case study (see table 3).</li> </ul>
5	<p>Define the boundaries of the case(s) and institution, select the case(s).</p> <ul style="list-style-type: none"> <li>▶ Define the case and how it fits within its broader context. and the outcomes of the training in the host investigated.</li> <li>▶ The case was bounded by examining the relevant activities in the teaching <ul style="list-style-type: none"> <li>▶ Select the case or cases that will be training institution for the trainees, instructors and clinicians who would be in a position to comment on the impact of the training.</li> </ul> </li> </ul>
6	<p>Prepare to collect data. waves</p> <ul style="list-style-type: none"> <li>▶ Elaborate a case study protocol that provides a detailed description of the methods that will be used during the data collection.</li> <li>▶ The study protocol included data collection during three time periods: two initial of data collection in years 1 and 2 with participating residents, and a third year of follow-up data collection to assess the impact of training.</li> </ul>
7	<p>Collect and organize the data.</p> <ul style="list-style-type: none"> <li>▶ Use quantitative, qualitative or mixed methods to collect the data, depending on the research questions and the type of case study design used. (3)</li> <li>▶ Elaborate a case study database to organize the informants data.</li> <li>▶ The researchers implemented four data collection arms: (1) post-training evaluations from the residents and instructors; (2) follow-up semi structured interviews with residents; semi structured interviews with key (nurses and medical assistants); and (4) a web-based questionnaire given to residents.</li> </ul>

8	Analyse the data.	<ul style="list-style-type: none"> <li>▶ Analyse the qualitative data. <ul style="list-style-type: none"> <li>– Follow a data-driven or concept-driven themes. approach to code the data. data</li> <li>– Search for patterns in the data and identify and major themes.</li> </ul> </li> <li>▶ Analyse the quantitative data. <ul style="list-style-type: none"> <li>– Enter the data in a software package and run not statistical analyses.</li> </ul> </li> <li>▶ Use analytical techniques suggested by Yin: <ul style="list-style-type: none"> <li>– Pattern matching.</li> <li>– Explanation building.</li> <li>– Time-series analysis.</li> <li>– Logic models.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ The authors used a linear type of analysis logically organized by emergent</li> <li>▶ The authors inductively analyzed the guided by the research questions conducted a thematic analysis.</li> <li>▶ The authors conducted descriptive statistics. the specific programme used was reported.</li> <li>▶ The analytical techniques focused on pattern matching between training and skills used, and explanation for the outcomes.</li> </ul>
9	Write the case study report.	<ul style="list-style-type: none"> <li>▶ Write a report that has the following characteristics: <ul style="list-style-type: none"> <li>– Provides a comprehensive description of the case. medical</li> <li>– Presents the data in a concise and SPIs in transparent manner. sexual</li> <li>– Considers the needs of its primary audience.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▶ The researchers created a report of the findings from the resident, nurse and assistant participants' reports about skill proficiency, relevance of gender and health discussions, and potential for Japan.</li> <li>▶ The researchers tracked the residents' self-reports of the number of actual sensitive examinations conducted.</li> </ul>
10	Appraise quality.	<ul style="list-style-type: none"> <li>▶ Use quality frameworks or checklists suggested in the literature to appraise the quality of the authors case study.</li> </ul>	<ul style="list-style-type: none"> <li>▶ While explicated by the authors, in accordance with recommended quality criteria, the conducted the research in a real-life setting, the case criteria are described, the study is about a delimited phenomenon, the authors provide relevant details about the settings, the authors employed multiple methods, the authors' descriptions are balanced with strengths and limitations for a holistic perspective, and the authors considered the generalizability of the study. The authors did not discuss the role of reflexivity in the study.</li> </ul>

---

SPI, standardized patient instructor.

## **ANNEXURE 4.2: PILOT STUDY EMAIL INVITE**

Dear Colleague,

My name is Mphoentle Modise, I am a doctoral student at the University of South Africa. I am kindly requesting your participation in a doctoral research **pilot study** that I am conducting titled: Academic professional development and support of academics for digital transformation in African large-scale open and distance education institutions. The intention of the study is to increase the understanding of how large-scale open and distance education (ODE) institutions in Africa develop and prepare their faculty for digital transformation for teaching and learning, with specific attention to Unisa and the National Open University of Nigeria (NOUN).

You are being invited to take part in this pilot study because you are in an ideal position to provide valuable first-hand information from your own experience and perspective. The interview takes around 30 minutes on Microsoft Teams or ZOOM.

Your responses to the questions will be kept confidential. Each interview will be assigned a number code to help ensure that personal identifiers are not revealed during the analysis and write up of findings.

There is no compensation for participating in this study. However, your participation will be a valuable addition to our research and findings could lead to greater understanding of digital transformation in higher education.

If you are willing to participate, please suggest a day and time that suits you between 25<sup>th</sup> January and 10<sup>th</sup> February 2021. Please see the attached participation consent form, information sheet and ethical clearance certificate for your perusal.

Thanking you immensely in advance for your help and support, should you have any questions I will be happy to answer them, my contact details are included below.

My supervisors can also be contacted for further information on the study, Prof Geesje Van Den Berg ([vdberg@unisa.ac.za](mailto:vdberg@unisa.ac.za)) and Prof Olaf Zawacki-Richter ([olaf.zawacki.richter@uni-oldenburg.de](mailto:olaf.zawacki.richter@uni-oldenburg.de)).

Sincerely,

**Ms Mpho-Entle Puleng Modise**

Lecturer and PhD Candidate

Department of Curriculum and Instructional Studies

College of Education (CEDU), UNISA

E-mail: [modismp@unisa.ac.za](mailto:modismp@unisa.ac.za) | Mobile: +27 79 489 0018

### ANNEXURE 4.3: DATA EXTRACTION TOOL

CODES	1 <sup>ST</sup> LEVEL	2 <sup>ND</sup> LEVEL
[Not selectable (no checkbox)]	[Selectable (show checkbox)]	
<b>Definition of keywords</b>	academic professional development e-learning readiness Not specified	
<b>Type of higher education institution</b>	distance education open and distance learning traditional institution	
<b>Location</b>	Developing country Developed country (collaborations)	
<b>Country</b> where the study was undertaken?	Specified Not specified	
<b>Article Details</b>	<b><i>Year of publication</i></b>	2010 to 2021
	<b><i>Number of Authors</i></b>	1 author 2 authors 3 authors 4 authors 5 authors (plus)
	<b><i>Publication (Journal)</i></b>	
<b>Participants characteristics</b>	<b><i>Sample Focus</i></b>	Students Lecturers/ academic/ facilitators/ instructors Others
	<b><i>Sample size / Number of participants</i></b>	Specified  1 – 25 participants 26 – 50 participants 51 – 100 participants 101 – 200 participants 201 – 300+ participants  Not Specified
	<b><i>Inclusion criteria</i></b>	Yes / No
	<b><i>Age</i></b>	Not stated Explicitly stated (specify, and why)
	<b><i>Gender</i></b>	Female Male Other Not specified
	<b><i>Position held</i></b>	Lecturer/ Senior Lecturer Professors (Associate or Full) Other
<b>Methodology</b>	Qualitative Quantitative Mixed Methods Theoretical	
<b>Research Question</b>	Research questions stated (specify) Research questions not stated	
<b>Theoretical Framework</b>	Yes (specify) Not specified	

<b>Findings/Results</b> [Outcome classification code]	<b>Academic Professional Development</b>	
	<b>E-learning readiness of academics</b>	
<b>Benefits of APD</b>	<b>Academic Professional Development</b>	Creativity and innovation Improved efficiency Student achievement Time for self-reflection Course reflection and improvement Deeper subject knowledge Life-long learning skills Increase Retention Collaborative environment Engaged teaching Improved student support Job satisfaction Competitive institution Technology adoption and usage
	<b>E-learning readiness of academics</b>	Digital literacy Technology adoption and usage Creativity and innovation
<b>Challenges</b>	<b>Academic Professional Development</b>	Lack of awareness Lack of resources (funding) Workload for academics Skill development Upskilling Academic institutional Support Digital literacy Technology adoption and usage
	<b>E-learning readiness of academics</b>	Lack of awareness E-learning readiness Digital literacy
	<b>General challenges</b>	Internet/technology issues Bandwidth/connectivity Accessibility

**ANNEXURE 4.4: QUALITATIVE SYNTHESIS METHODS (HONG ET AL. 2017 P. 7)**

<b>SYNTHESIS METHOD</b>	<b>AIM</b>	<b>DESCRIPTION</b>
Critical interpretive synthesis [62]	To build a theory from the synthesis of a diverse body of evidence.	Adapted the strategies of meta-ethnography (reciprocal translational analysis, lines-of-argument synthesis, and refutational syntheses) for qualitative and quantitative evidence
Framework synthesis [63]	To produce a new framework based on a priori and new themes.	Consists of analyzing data using an a priori framework, creating new themes by performing thematic synthesis, and producing a new framework.
Grouping and clustering [44]	To describe included studies.	Summarizes and organizes included studies into groups (categories).
Meta-ethnography [64]	To build a theory from the synthesis of qualitative studies.	Uses three main strategies: translating the concepts from studies into one another (reciprocal translational analysis), exploring and explaining contradictions between studies (refutational synthesis) and linking constructs and building a picture of the whole from studies (lines-of-argument synthesis).
Meta-narrative synthesis [65]	To make sense of complex and conflicting findings by unfolding the storyline of research traditions.	Maps research traditions and consider how they have been conceptualized, theorized, and empirically studied over time.
Meta-synthesis [66]	To understand a phenomenon of interest across qualitative studies.	Uses hermeneutic (portraying individual constructions) and dialectic (comparing and contrasting the constructions) approaches.
Narrative synthesis [44]	To summarize and explain the findings of included studies.	Adopts a textual approach to the process of synthesis and follows four elements: develop a theory of how the intervention works, why, and for whom; develop a preliminary synthesis; explore relationships within and between studies; and assess the robustness of the synthesis.
Qualitative content analysis [29]	To understand a phenomenon of interest by focusing on the manifest (patent) content or contextual meaning of text.	Uses an analytical coding process to organize content of textual data into fewer content categories.
Realist synthesis [67, 68]	To unpack how interventions, work in particular contexts through theoretical explanation (middle-range theory).	Uses theory-driven context-mechanism-outcome configurations, demi-regularities, and abduction (hunches).
Textual description [44]	To describe included studies.	Provides a descriptive paragraph of each study.

Textual narrative synthesis [69]	To describe included studies.	Arranges studies into homogeneous groups and compares similarities and differences across studies.
Thematic synthesis [70]	To identify and develop themes across included studies.	Uses line-by-line coding, develops descriptive themes, and generates analytical themes. This might lead to propose a conceptual framework.

## **ANNEXURE 4.5: PILOT INTERVIEW QUESTIONS (644 words)**

### **Title: Academic professional development and support of academics for digital transformation in African large-scale open and distance education institutions**

*Researcher and PhD Candidate: Ms Mpho-Entle Puleng Modise*

*Institution: University of South Africa*

*Email: [modismp@unisa.ac.za](mailto:modismp@unisa.ac.za)*

*Major topics that will be addressed in the interviews will emanate from the research question driving this study, which is “How are academics professionally prepared, developed and supported for digital transformation in large-scale open and distance education institutions?”*

### **PART ONE**

#### **Salutations, introductions and explanation about the research.**

#### **Biographical information:**

##### **5. Please indicate your age in numbers**

##### **6. Please indicate your gender**

- Male
- Female
- Other

##### **7. Please indicate how many years have you been teaching? 2, 5, 10 or more?**

- How many years have you been in your current institution?
- How many years have you been teaching using e-learning technology?

### **PART TWO**

22. When did your institution officially introduce the e-learning mode of delivery?
23. How did you learn about the implementation of e-learning in your institution?
24. What was your involvement in the implementation process?
25. What are some of the technological tools and systems your institution uses to deliver e-learning?
26. What are some of the advantages/benefits e-learning has provided for your institution?
27. What key competencies and skills do you think are necessary and needed by today's academics, in the face of emerging technologies and e-learning?
28. To what extent do you think lecturers currently use technology in their teaching? To what extent do you use technology in your teaching?
29. Would you say, all lecturers in your institution are comfortable using the e-learning technology tools to teach and learn? Why?
30. When an e-learning innovation is introduced in a university, when do you think would be the most appropriate time for faculty members to acquire the relevant digital skills and know-how? How was it done in your institution?
31. Does your institution have an e-learning policy? How is this helping with the e-learning?
32. Are academics in your department/institution motivated to use the new technology for learning and teaching? How? Why?
33. What strategies do you think should be employed to support academics to acquire the necessary digital competencies/skills needed to teach in the new e-learning system?

34. *On a scale of 1 to 10, 1 being 'not prepared at all' and 10 being 'well prepared', how prepared are faculty members in your department or institution for online teaching?*
35. *When your institution introduced e-learning, what was the process that was followed in preparing the teaching staff for the new e-learning system?*
36. *How should open and distance education (ODE) faculty members be prepared for eLearning?*
37. *What do you think have been or continue to be some of the challenges associated with e-learning in your institution?*
38. *Which departments in your institution participate actively in supporting lecturers for e-learning?*
39. *How is your country's government supporting the teaching and learning with educational technologies?*
40. *Is your institution involved in any local, regional or international capacity building programmes with other institutions? Can you name them?*
41. *In your opinion, why is it important for your institution to be innovative and invest in modern technologies for teaching and learning?*
42. *In your opinion, what are the benefits of academic professional development in higher education, and especially in ODL institutions?*
43. *Obviously, the idea of e-learning and subsequent decision to implement it was a long time before the actual implementation, who was involved in that process?*
44. *To what extent does your institution monitor and evaluate the skills acquired by academics, how often does your institution conduct skill audits?*
45. *How does your institution ensure that acquired skills are optimally used?*

Thank you so much for your time, for availing yourself for this interview, and for your invaluable input to this research. I really appreciate it.

Mpho-Entle Modise

**ANNEXURE 5.1: OVERVIEW OF THE INCLUDED ARTICLES 1<sup>ST</sup> SCREENING IN EPPI-REVIEWER (ABSTRACT AND TITLE SCREENING)**

#	ITEM	SCREEN ON TITLE & ABSTRACT
1.	Abata-Ebire (2019) (ID:55794130)	-INCLUDE for Second Opinion
2.	Abusalim (2020) (ID:55794518)	-INCLUDE on title & abstract
3.	Adam (2015) (ID:55794279)	-INCLUDE for Second Opinion
4.	Adegbenro (2015) (ID:55794347)	-INCLUDE for Second Opinion
5.	Agbaje (2019) (ID:55794470)	-INCLUDE for Second Opinion
6.	Agyei (2011) (ID:55794482)	-INCLUDE on title & abstract
7.	Ahmed (2020) (ID:55794521)	-INCLUDE on title & abstract
8.	Alomari (2020) (ID:55794529)	-INCLUDE on title & abstract
9.	Amini (2016) (ID:55794564)	-INCLUDE for Second Opinion
10.	Arthur (2016) (ID:55794402)	-INCLUDE on title & abstract
11.	Bezuidenhout (2018) (ID:55794138)	-INCLUDE on title & abstract
12.	Bharuthram (2013) (ID:55794588)	-INCLUDE on title & abstract
13.	Bitzer (2010) (ID:55794322)	-INCLUDE for Second Opinion
14.	Botha (2015) (ID:55794478)	-INCLUDE for Second Opinion
15.	Braimoh (2010) (ID:55794454)	-INCLUDE for Second Opinion
16.	Farid (2015) (ID:55794585)	-INCLUDE on title & abstract
17.	Farid et al. (2015) (ID:55794444)	-INCLUDE for Second Opinion
18.	Foley (2014) (ID:55794399)	-INCLUDE for Second Opinion
19.	Frantz (2015) (ID:55794159)	-INCLUDE on title & abstract
20.	Hassan (2011) (ID:55794238)	-INCLUDE for Second Opinion
21.	Jacobs (2013) (ID:55794178)	-INCLUDE for Second Opinion
22.	Joubert (2020) (ID:55794118)	-INCLUDE for Second Opinion
23.	Kanwar (2018) (ID:55794383)	-INCLUDE for Second Opinion
24.	Kleynhans (2017) (ID:55794143)	-INCLUDE for Second Opinion
25.	Lautenbach (2010) (ID:55794374)	-INCLUDE for Second Opinion
26.	Lawal (2020) (ID:55794523)	-INCLUDE on title & abstract
27.	Machika (2018) (ID:55794327)	-INCLUDE for Second Opinion
28.	Makoe (2012) (ID:55794186)	-INCLUDE on title & abstract
29.	Mbanga (2020) (ID:55794302)	-INCLUDE on title & abstract
30.	Mbatha (2015) (ID:55794581)	-INCLUDE on title & abstract
31.	McCaul (2020) (ID:55794123)	-INCLUDE on title & abstract
32.	Memon (2018) (ID:55794546)	-INCLUDE for Second Opinion
33.	Ncube (2014) (ID:55794171)	-INCLUDE on title & abstract
34.	Ndebele (2016) (ID:55794197)	-INCLUDE on title & abstract
35.	Okyere-Kwakye (2016) (ID:55794414)	-INCLUDE for Second Opinion
36.	Roberts (2018) (ID:55794135)	-INCLUDE on title & abstract
37.	Shava (2016) (ID:55794190)	-INCLUDE on title & abstract
38.	Singh-Pillay (2020) (ID:55794522)	-INCLUDE for Second Opinion
39.	Snowball (2010) (ID:55794272)	-INCLUDE for Second Opinion
40.	Sow (2020) (ID:55794524)	-INCLUDE for Second Opinion
41.	The experiences of lecturers (ID:55794407)	-INCLUDE on title & abstract
42.	Tshabalala (2014) (ID:55794164)	-INCLUDE on title & abstract
43.	Unwin (2010) (ID:55794447)	-INCLUDE for Second Opinion
44.	van den Berg (2018) (ID:55794334)	-INCLUDE on title & abstract
45.	van den Berg (2018) (ID:55794245)	-INCLUDE for Second Opinion

## ANNEXURE 5.2: IDENTIFIED E-LEARNING CHALLENGES

CHALLENGES	LITERATURE
1. Lack of instructional designers	[37], [38]
2. Lack of instructional design processes	[39]
3. Lack of software quality assurance processes	[40], [41]
4. Bandwidth	[42], [43]
5. Lack of formal implementation processes	[44], [45], [19], [46],
6. Lack of faculty interest	[11], [45], [19]
7. Lack of ICT enabled teachers	[47], [48], [34], [45], [38], [49], [50]
8. Lack of ICT enabled students	[51], [45], [38], [19], [17]
9. Power failure	[52], [44], [16], [17]
10. Lack of LOs in the local language	[53], [30], [38], [17]
11. Socio-Cultural Norms	[16]
12. Lack of resources	[53], [16]
13. Accessibility to Internet broadband	[38], [18]
14. Access to the latest computers	[53], [38], [17],
15. Borrowed e-learning models	[14], [54]
16. Lack of leadership	[45]
17. Change in university structure	[55], [56], [45]
18. E-learning environment	[45]
19. Software interface design	[57]
20. Support for students	[57]
21. Support for teachers	[57]
22. Role of teachers and students	[53]
23. Learning style	[53]
24. Cost of mobile Internet	[20]
25. Practical arrangements for practical oriented courses	[20]
26. Literacy rate	[20]

Source: Farid, S., Ahmad, R., & Alam, M. (2015). A hierarchical model for e-learning implementation challenges using AHP. *Malaysian Journal of Computer Science*, 28(3), 166-188.

### ANNEXURE 5.3: INCLUDED STUDY CHARACTERISTICS

Authors, Year	#. Of Authors	Methodology	Data Collection Tools used	Theoretical Frameworks	Sample Focus & Size	Type Of Institution Studied	Name of HEI	Mode of delivery	COUNTRY	Database	Main focus
Abusali m et al. (2020)	4	Quantitative	Questionnaire	Not mentioned/used	254 Students	Traditional institution	University of Jordan (UJ)	Blended learning	Jordan,	WoS	Technology adoption
Alomari et al. (2020)	4	Mixed	Survey & structured interviews	Not mentioned/used	256 Students, 146 Lecturers	Traditional institution?	Kuwait's HEIs	Blended learning	Kuwait, Germany & Turkey	WoS	Technology adoption
Bezuidenhout (2018)	1	Quantitative	Cross-sectional survey design	Systems theory (Biddle, 1986)	404 Lecturers	ODeL	Mega ODL university in South Africa	Blended learning	South Africa	Scopus	Competence of distance educators
Farid et al. (2015)	5	Mixed	Interviews	Not mentioned/used	20 Lecturers	Traditional institution & ODeL	Allama Iqbal Open University (AIOU)	Blended learning	Pakistan	WoS	Promotion of e-learning
Foley et al. (2014)	2	Mixed	Professional development workshops & two surveys	Not mentioned/used	70 Lecturers	ODeL	Institute of Open, Distance and e-Learning (ODeL), Kenyatta University	Blended learning	Kenya	EBSCOHost	Capacity building
Hassan (2011)	1	Quantitative	Questionnaire	Not mentioned/used	106 Lecturers	Traditional institution	Cape Peninsula University of Technology University of Limpopo (Medunsa Campus)	??	South Africa	Sabinet	Professional development of academics

Authors, Year	#. Of Authors	Methodology	Data Collection Tools used	Theoretical Frameworks	Sample Focus & Size	Type Of Institution Studied	Name of HEI	Mode of delivery	COUNTRY	Database	Main focus
<b>Kanwar et al. (2018)</b>	4	Mixed	document analysis of relevant reports, policies and websites; and a structured questionnaire	Diffusion of Innovations (Rogers, 1962) Innovation framework (Wisdom et al., 2014)	12 Deans or directors of ODL centers, 21 ODL staff, 2 Staff from the Ministry of HE overseeing ODL	Traditional institution & ODeL	University of Rwanda (UR)	Blended learning	Cameroon, Kenya and Rwanda	EBSCOHost	Technology adoption (dual-mode delivery)
<b>Lautenbach (2010)</b>	1	Qualitative	Interviews	Activity theory (Engeström 2001)	11 Lecturers	Traditional institution	University of Johannesburg (UJ)	Traditional institution	South Africa	Scopus	Technology adoption
<b>Machika &amp; Dolley (2018)</b>	2	Qualitative	Interviews, document analysis of LMS	Not mentioned/used	90 Lecturers, 400 Students	Traditional institution	Vaal University of Technology	Blended learning	South Africa	EBSCOHost	Technology adoption
<b>Makoe (2012)</b>	1	Qualitative	Training needs analysis questionnaire & focus groups	Not mentioned/used	23 Lecturers, 87 training reps, 41 Learner support personnel	ODeL	University of South Africa	Blended learning	South Africa	Sabinet	Technology adoption
<b>Mbatha (2015)</b>	1	Qualitative	Focus group interviews	Not mentioned/used	76 Lecturers	ODeL	University of South Africa	Blended learning	South Africa	Sabinet	Technology adoption
<b>Ncube et al. (2014)</b>	3	Qualitative	Observation, in-depth interviews, and document analysis.	Not mentioned/used	8 Lecturers	ODeL	University of South Africa	Blended learning	South Africa	Sabinet	E-learning readiness of academics and technology adoption

Authors, Year	#. Of Authors	Methodology	Data Collection Tools used	Theoretical Frameworks	Sample Focus & Size	Type Of Institution Studied	Name of HEI	Mode of delivery	COUNTRY	Database	Main focus
<b>Ndebele et al. (2016)</b>	3	Qualitative	Self-evaluation reports (document analysis) & semi-structured interviews	Theory of Rurality (Balfour, De Lange and Khau 2012) Social realist framework and draws heavily on Margaret Archers work (1995; 2000; 2007)	10 Members of the senior management, 20 academics	2 Traditional institutions	X	Traditional institutions	South Africa	Sabinet	Professional development
<b>Roberts (2018)</b>	1	Quantitative	Web-based survey	Systems theory (Laszlo & Krippner, 1998)	Teaching and research staff (n=119)	ODEL	University of South Africa	Blended learning	South Africa	WoS	Training and professional development needs of academics
<b>Shava (2016)</b>	1	Qualitative	Semi-structured interviews	Process of teacher change Model (Guskey 1986)	Lecturers (n=10)	Traditional institution	University of Zimbabwe	Blended learning	Zimbabwe	Scopus	Professional development and learner achievement
<b>Singh-Pillay et al. (2020)</b>	2	Qualitative	semi-structured interviews & lecturers' reflective journals	Reflection on action and reflection in action (Schön, 1983)	Lecturers (n=3)	Traditional institution	X	Blended learning	South Africa	Sabinet	Technology adoption (during Covid-19 pandemic)
<b>Tshabalala et al. (2014)</b>	3	Qualitative	Survey and group focus group interviews	Technology Acceptance Model (TAM) developed by Davis (1993) and the Innovation Diffusion Theory (IDT) by Rogers (1983: 246-250)"	Academic staff members, heads of academic departments, as well as the dean of the Faculty (n=25)	Traditional institution	X	Blended learning	South Africa	Scopus	Technology adoption (blended learning)

## ANNEXURE 5.4: EMERGENT THEMES AND SUBTHEMES FROM THE INTERVIEWS

THEME	SUB-THEME	RESEARCH QUESTION
<b>THEME 1: E-LEARNING COMPETENCIES AND TEACHING WITH TECHNOLOGY IN HEI AND ODEL CONTEXT</b>	<b>Subtheme 1.1 Key e-learning and digital skills competencies and skills</b> <ul style="list-style-type: none"> <li>• <i>Basic computer skills</i></li> <li>• <i>Digital literacy and skills</i></li> <li>• <i>Online examinations and assessment</i></li> <li>• <i>Design and development of learning materials</i></li> <li>• <i>Facilitation of learning and teaching with technology</i></li> <li>• <i>Student support using technology</i></li> </ul>	Q1 - Which competencies are needed for online teaching in large-scale open and distance education (ODE) institutions?
<b>THEME 2: ACADEMIC SUPPORT AND TRAINING IN ODE CONTEXTS</b>	<b>Subtheme 2.1: Academic support and training in higher education in ODeL contexts</b> <ul style="list-style-type: none"> <li>• <i>Training the trainers of academics</i></li> <li>• <i>Support strategies for academics in ODeL HEIs</i></li> <li>• <i>Institutional support</i></li> <li>• <i>Training as a tool for supporting lecturers</i></li> </ul> <b>Subtheme 2.2: Benefits of academic professional development in African ODeL institutions</b> <b>Subtheme 2.3: Challenges of academic professional development in African ODeL institutions</b> <ul style="list-style-type: none"> <li>• <i>Lack of prioritisation research over teaching activities and relevant training</i></li> <li>• <i>Lack of adequate funding for academic professional development</i></li> <li>• <i>Age as a factor for academic professional training</i></li> <li>• <i>Lack of relevant training for teaching</i></li> <li>• <i>Workload of academics</i></li> <li>• <i>Too much lecturer autonomy</i></li> </ul>	Q3 - How are academics professionally prepared and supported for e-learning in African large-scale open and distance education (ODE) institutions?  Q4 - What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions?
<b>THEME 3: ACADEMICS' E-LEARNING READINESS AND TECHNOLOGY ADOPTION</b>	<b>Subtheme 3.1: Recruitment trends in African ODeL higher education</b> <b>Subtheme 3.2: Appropriate time to prepare lecturers for e-learning</b> <b>Subtheme 3.3: E-learning preparedness of lecturers</b> <b>Subtheme 3.4: Technology Adoption</b> <b>Subtheme 3.5: Benefits of e-learning</b> <b>Subtheme 3.6: Challenges of e-learning</b> <ul style="list-style-type: none"> <li>• <i>Lack of awareness of e-learning within the university community</i></li> <li>• <i>Lack of understanding of e-learning and blended learning approaches</i></li> <li>• <i>Lack of relevant skills</i></li> <li>• <i>Lack of resources for lecturers and students</i></li> </ul>	Q2 - How prepared are lecturers for online teaching/e-learning in African large-scale open and distance education (ODE) institutions?  Q4 - What are the critical factors that affect the successful implementation of e-learning in open and distance education (ODE) institutions?

	<ul style="list-style-type: none"> <li>• <i>Poor design and functionality of the LMS and other technology tools</i></li> <li>• <i>Leadership, cultural shift and change management</i></li> <li>• <i>Auditing, monitoring and evaluation of the skills</i></li> <li>• <i>E-learning policy</i></li> </ul>	
<b>THEME 4: IMPACT OF COVID-19 ON ACADEMIC'S PROFESSIONAL DEVELOPMENT, E-LEARNING READINESS AND TECHNOLOGY ADOPTION IN AFRICAN HEI and ODEL INSTITUTIONS</b>		

## ANNEXURE 5.5: A SAMPLE OF CODES AND CATEGORIES

#	CODE GROUPS / CATEGORIES	CODES
<b>1</b>	<b>Academic support, training and development</b>	
		benefits of professional development
		capacity building programmes
		challenges of professional development
		Collaborations
		Compulsory and voluntary training
		E-learning champions
		training and development
		types of training (formal or informal)
		incentives
		institutional support
		Support strategies for lecturers
<b>2</b>	<b>E-learning implementation (process)</b>	
		communication strategy
		Digitization (ODL to ODeL)
		e-learning implementation process
		e-learning policy
		government's role
		involvement/consultation with lecturers & other stakeholders
		monitor and evaluate the skills
		ROI (optimally using acquired skills)
		skill audit
		year e-learning was officially implemented/adopted
<b>3</b>	<b>E-learning competencies</b>	
		assessment
		basic computer skills
		design and development of learning materials
		digital literacy & skills
		Key competencies and skills
		learning with technology
		Student support
		teaching with technology
<b>4</b>	<b>E-learning</b>	
		benefits of e-learning
		Blended Learning
		challenges of e-learning
		e-learning
		E-learning champions
<b>5</b>	<b>Covid-19</b>	
		Before Covid-19
		During Covid-19
		E-learning champions
<b>6</b>	<b>E-learning readiness</b>	
		appropriate time for lecturers' training for e-learning
		comfortable using the e-learning technology tools
		how prepared are lecturers
		motivation to use new technologies
<b>7</b>	<b>General HEIs challenges</b>	
		Access to the internet
		Awareness
		Connectivity

	Infrastructure
	Lack of resources for lecturers
	Lack of resources for students
	Mobile data issues
	Training funds
	Workload
	Resistance to change
<b>8</b>	<b>Leadership and change management</b>
	Institutional leadership
	Leadership style
	Change management
<b>9</b>	<b>Participants characteristics</b>
	Age
	Gender
	Ethnic Groups
	Number of years in current institution
	Number of years teaching
<b>10</b>	<b>Technology adoption</b>
	Fourth Industrial Revolution (4IR)
	Learning management system (LMS)
	Social media (e.g. WhatsApp, FB, Twitter, etc.)
	Actual use of technology for teaching and learning
	Perceptions and attitudes towards technology

## ANNEXURE 5.6: FREQUENCY OF CODES

CODE	COUNT	CODE	COUNT
Challenges of e-learning	106	Incentives	19
Institutional leadership	60	Lack of relevant skills	19
Training and development	57	Mobile data issues	18
Monitor and evaluate the skills	54	Awareness	18
Key competencies and skills	43	Design and development of learning materials	18
Training to use technology to teach	42	Lack of resources for lecturers	18
Student support	41	Actual use of technology for teaching and learning	18
Benefits of e-learning	41	Basic computer skills	18
Government's role	37	Communication strategy	17
During Covid-19	37	Perceptions and attitudes towards technology	16
E-learning policy	37	Motivation to use new technologies	16
Technological tools and systems	32	Organisational culture	15
Support strategies for lecturers	31	Fear of change	14
Challenges of professional development	30	Relevant training	13
Digitization (ODL to ODEL)	28	Access to the internet	13
Recruitment trends in ODEL	27	Innovation and creativity	13
Involvement/consultation with lecturers & other stakeholders	27	E-learning champions	12
Digital literacy & skills	27	Infrastructure	11
Institutional support	27	E-learning readiness	11
Change management	27	Workload	11
E-learning implementation process	26	Connectivity	9
Blended Learning	26	Years teaching using online teaching technology tools	9
Collaborations	25	Lecturers do not attend CPD training	9
Resistance to change	24	Social media (e.g. WhatsApp, FB, Twitter, etc.)	9
Appropriate time for lecturers' training for e-learning	24	Finances for e-learning	9
Learning management system (LMS)	24	Compulsory and voluntary training	9
Capacity building programmes	23	Preparing lecturers for e-learning in ODL	8
How prepared are lecturers	23	Onboarding training	6
Comfortable using the e-learning technology tools	23	Years teaching	6
Lack of resources for students	23	Teaching with technology	5
Covid-19	22	Planning	5
Benefits of professional development	22	Before Covid-19	5
ROI (optimally using acquired skills)	21	Leadership style	5
Types of training (formal or informal)	21	Skill audit	4
Year e-learning was officially implemented/adopted	20	Fourth Industrial Revolution (4IR)	4
E-learning	20	Training funds	4
Assessment	20		
Years in current institution	19		

**ANNEXURE 5.7: PROOF OF EDITING**

**EDITING SERVICES**

**To whom it may concern**

This letter serves to confirm that editing and proofreading was done for:

**MPHO-ENTLE PULENG MODISE**

Doctor of Philosophy in Education  
Curriculum and Instructional Studies  
University of South Africa

**ACADEMIC PROFESSIONAL DEVELOPMENT AND SUPPORT OF  
ACADEMICS FOR DIGITAL TRANSFORMATION IN AFRICAN LARGE-SCALE  
OPEN AND DISTANCE EDUCATION INSTITUTIONS**



Cilla Dowse

21 December 2021

Cilla Dowse	Rosedale Farm
PhD in Assessment and Quality Assurance in Education and Training: University of Pretoria 2014	P.O. Box 48 Van Reenen
Basic Editing and Proofreading: McGillivray Linnegar Associates 2008	Free State <a href="mailto:cilla.dowse@gmail.com">cilla.dowse@gmail.com</a>
Programme on Editing Principles and Practices: University of Pretoria 2009	Cell: 084 900 7837
Editing and Proofreading for Academic Purposes: McGillivray Linnegar Associates 2021	
Professional Editors' Guild Associate Member, DOW003	

## ANNEXURE 5.8: TURNITIN REPORT

Academic professional development and support of academics for digital transformation in African large-scale open and distance education institutions

### ORIGINALITY REPORT

19%

SIMILARITY INDEX

16%

INTERNET SOURCES

7%

PUBLICATIONS

5%

STUDENT PAPERS

### PRIMARY SOURCES

1	<a href="http://uir.unisa.ac.za">uir.unisa.ac.za</a> Internet Source	2%
2	Submitted to University of South Africa Student Paper	1%
3	<a href="http://hdl.handle.net">hdl.handle.net</a> Internet Source	1%
4	<a href="http://microblogging.infodocs.eu">microblogging.infodocs.eu</a> Internet Source	1%
5	<a href="http://researchspace.ukzn.ac.za">researchspace.ukzn.ac.za</a> Internet Source	<1%
6	<a href="http://link.springer.com">link.springer.com</a> Internet Source	<1%
7	<a href="http://www.researchgate.net">www.researchgate.net</a> Internet Source	<1%
8	Liezel Frick, Chris Kapp. "The Professional Development of Academics", 'AFRICAN SUN MeDIA', 2017 Internet Source	<1%