VOLUME ONE

Does Distance Education in the Developing Context Need More Research? Building Practice into Theory

Edited by
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ESI Press
University of Pretoria, Lynnwood Avenue, Hatfield, South Africa
https://www.esipress.up.ac.za

Cover design: Stephen Symons
Typography and design: Stephen Symons
Printed and bound in 2023
First published by ESI Press 2023
ISBN: 978-0-7961-1782-3 (Print)
ISBN: 978-0-7961-1783-0 (E-book / digital)

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ESI

EMERGING SCHOLARS INITIATIVE

Acknowledgements

The book *Why research distance education?* was borne out of some decades of practice by the editors on how research can impact practice in the field of distance education.

We hope that the budding field of distance education as a field of study on the continent will also find the book useful.

We are indebted to Dr Heather Thuynsma of ESI Press and the University of Free State, South Africa for their support.

Our appreciation to Dr Tony Mays (Commonwealth of Learning, Burnaby, Canada), who closely worked with us for his recommendations and valued advice throughout our journey. We also thank Prof. Lynette Jacobs for the initial critical reading of some of the chapters. A special word of gratitude also goes to the academics who tirelessly contributed to the double-blind review of the manuscripts and the valuable comments that have enhanced the quality of the book.

Thank you also to Dr Mary Ooko, Manager, Unit for Distance Education, University of Pretoria for her continued support of the publication.

Finally, our sincere appreciation to all the authors for their dedication to distance education and their willingness to be part of the publication by sharing their knowledge and experience.

Foreword

I am deeply honoured to contribute a foreword to this book, *Does Distance Education in the Developing Context Need More Research? Building Practice into Theory*, by the editors, Dr Folake Ruth Aluko and Professor Daniella Coetzee. The editors ask the most pertinent question in the book's title, a question that is of profound importance to educators in general, but to open distance and e-learning scholars, researchers, and specialists in particular. The question is whether 'distance education in the developing context needs more research?' UNESCO's (2021) International Commission on the Futures of Education report, *Re-imagining our Futures Together: A New Social Contract for Education* asks a pivotal question that pertains to Aluko and Coetzee's book, "What role can education play in shaping our common world and shared future as we look to 2050 and beyond". UNESCO observes that the world faces "multiple, overlapping crises. Widening social and economic inequality, climate change, biodiversity loss, resource use that exceeds planetary boundaries, democratic backsliding, disruptive technological automation, and violence are the hallmarks of our current historical juncture". UNESCO (2021) paints a gloomy and sombre picture of the world's *futures*:

> *"Paradoxical development trends are leading us on a path toward unsustainable futures. Global poverty levels have fallen, but inequalities between and within countries have grown. The highest living standards coexist with the most gaping inequalities in history. Climate change and environmental degradation threaten the survival of humanity and of other species on planet Earth. More and more people are actively engaged in public life, but civil society and democracy are fraying in many places around the world. Technology has connected us more closely than ever yet is also contributing to social fragmentation and tensions*".

UNESCO (2021) makes a damning judgement call, which underscores the publication of the book, *Does Distance Education in the Developing Context Need More Research? Building Practice into Theory* as a timely response and intervention against the above-mentioned trends and challenges that have the potential to render the world's futures unsustainable:

> *"These crises and challenges constrain our individual and collective human rights. And they are largely the result of human choices and actions. They derive from social, political, and economic systems of our creation, where the short-term is prioritized over the long-term, and the interests of the few are allowed to override the interests of the many".*

What this means is that we need a new social contract for education that can address entrenched inequalities and repair injustices while simultaneously transforming the *futures*. There is growing consensus that given the fast-changing pace of processes in the world due to the advent of the Fourth Industrial Revolution (4IR), which is largely driven by the affordances of artificial intelligence (AI) we need to conceive education in general, and distance education in particular, differently.

In 2015 open distance and e-learning (OdeL) was on the spotlight, its efficacy challenged and widely ridiculed. There were widespread concerns about its relevance and fit-for-purpose. Educationists, mostly from international ivy league contact universities cast aspersion on ODeL. The concerns suggested that students in ODeL are more likely to be (a) adults or post-experience, in the sense that they would not have come to study directly from school; (b) that they would be studying in the post-secondary sector; (c) be part-time students with family or work responsibilities, or both, and that they would have (d) gained access to programmes of study that are more open than those of the elite universities. The International Council for Open and Distance Education (ICDE) commissioned a Task Group that was led by Open University, United Kingdom (OU UK)'s emeritus professor, Alan Tait "to examine the ways in which student success can best be supported in open, distance and e-learning programmes, and student drop-out and failure diminished" (ICDE, 2015. *Student Success in Open, Distance and e-Learning*). The mandate of the Task Group was to (a) to propose for agreement data points to support definitions of student success at institutional level; (b) to identify current best practice in strategies for improving student success; (c) to make recommendations for improving rates of student success, and (d) to create a dissemination strategy for outcomes.

Tait's Task Group noted that students on ODeL programmes were profiled and deemed to be more likely to come from lower socio-economic demographic cohorts than those in traditional contact universities. The Task Group noted that while it is impossible to generalize in any absolute way on an international basis about this set of characteristics of students on ODeL programmes, and to collect data to evidence these observations, the above-mentioned descriptors of the social and educational background of ODeL students were gaining wide acceptability. And yet the distinctions between ODeL and campus-based students were less clear at postgraduate level as

opposed to Certificate, Diploma and Bachelors' levels. The Task Group further noted that student success rates are widely reported to be lower for part-time than full-time students, and much lower for ODeL students than for part-time students as a whole. It seemed then that the issue was therefore between the perceived strengths and weaknesses of ODeL students on the one hand, and on the other, the OdeL modes of study themselves.

Generally, the term 'distance education', also known as 'open distance and e-learning', refers to all forms of education in which there is a physical separation between students (the recipients) and the facilitator and/or the institution for a significant part, and sometimes all, of the learning journey. Widening access to higher education has fostered a greater interest in the use of distance education for all levels of education, though to differing degrees. UNISA *Policy on Open Distance e-Learning* (2018) 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". The policy defines open distance learning 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 e-learning focuses on removing barriers to access learning, flexibility of learning provision, student-centredness, supporting students and constructing learning programmes with the expectation that students can succeed". Scholars of the OU UK, Brenda Gourley and Andy Lane (2009,) describe OU UK as an institution that "has no barriers to entry, no entry requirements - only exit standards. A person's background and previous advantage or disadvantage is entirely irrelevant". They contend that "open education potentially opens up not only who produces the 'content' and the 'context' in which the 'content' is learned, but also who validates that learning so that it has the currency in the labour and/or interest markets".

This book examines research trends in ODeL on the African continent with a view to identifying the missing gaps and building research into practice. It is premised on the assumption that evidence-based research has the potential to improve theory and practice while at the same time informing policy. The book is an invitation to distance education policymakers and specialists to be research-informed and research-informing. It is a rich volume comprising twenty-four (24) chapters by mostly South African scholars and researchers. However, there is also a presence of ODeL views by scholars and researchers from other countries, such as Botswana, Cameroon, Canada, Eswatini, India, Kenya, Nigeria, and Rwanda. This adds the desired diversity of trends and challenges in distance education. The book is structured around six (6) guiding themes, namely, (a) History, philosophical and theoretical approaches, and paradigms in distance education; (b)

Building frameworks in distance education research; (c) Praxis in distance education research; (d) Regional trends and gaps in distance education research; (e) Scholarship in distance education research, and (f) Quality assurance in distance education research.

My overall assessment starts with an attempt to answer the question the book asks in the title: "Does distance education in the developing context need more research?". And my answer is a resounding 'yes'. The trends and challenges that UNESCO's (2021) report, *Re-imagining our Futures Together: A New Social Contract for Education* raises, of widening social and economic inequality, climate change, biodiversity loss, resource use that exceeds planetary boundaries, democratic backsliding, disruptive technological automation, and violence. The fact that global poverty levels have fallen, but inequalities between and within countries have grown; that the highest living standards coexist with the most gaping inequalities in history; that climate change and environmental degradation threaten the survival of humanity and of other species on planet Earth; more and more people are actively engaged in public life, but civil society and democracy are fraying in many places around the world, and that while technology has connected us more closely than ever, ironically it is also contributing to growing social fragmentation and tensions, all require more evidence-based research for their solutions.

In my view this book is suited for a diverse and multifaceted audience. It is an invaluable source for education academics seeking a nuance understanding of the ODeL playing field or context. But it can also serve as an invaluable resource for researchers and specialists trying to carve an ODeL theme for themselves and their future research ideas and projects. Most importantly, it can serve as an informative 'go-to' reference point for ODeL policy makers. I highly recommend the book.

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Preface

The editors of the series titled *Does Distance Education in the Developing Context Need More Research? Building Practice into Theory* have had the opportunity to work individually and together in the field of distance education and have had the privilege of occupying offices where decisions that influence practice in the field are made. This series was the result of some serious discussions and reflections around this field.

Although research in distance education is nascent, the field has a long history and much work has been done. Given this rich past, the aim of our work is to raise some pertinent questions which researchers and specialists in the field need to start pondering. For instance:

- After research, what next?
- To what extent do we apply research findings to our practice?
- To what extent does research influence decisions in our field?
- Are there tangible examples of how research has impacted policy and practice?

Due to the importance of the field and the overwhelming interest this project generated among researchers (mostly from sub-Saharan Africa), what was intended to be one book needed to be split into two volumes. Volume 1 pays attention to the history, philosophical and theoretical approaches, and paradigms in distance education. Others areas covered in this first volume include building research frameworks and providing some examples of praxis regarding the mode of delivery.

In Volume 2, the authors are divided into another three thematic sections and explore regional trends and gaps in distance education research, scholarship in the disciplinary field, and suggest how to build research into practice to improve the quality of the offerings.

The COVID-19 pandemic has now brought down the blurred boundaries between contact and distance education delivery modes. As a result, all higher education institutions were forced to adopt the latter, making the question "Which mode is better?" redundant. Now researchers and specialists in the field need to explore how they can enhance their practices.

We acknowledge that these volumes cannot attend to all questions in one field. It is our hope, however, that these two volumes will help to boost the quality of practice.

Distance education is indeed the *New Normal*!

VOLUME 1

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Chapter 1:

Setting the scene – Why research distance education?

Folake Ruth Aluko, University of Pretoria and Daniella Coetzee, University of the Free State

Introduction and background

One could argue that the need to widen access to education has fostered a greater interest in the use of distance education for all levels of education, though to differing degrees. In addition to this is the link between higher education and a nation's economy. The ongoing COVID-19 pandemic has been a great teacher for all stakeholders that education can no longer be at its former status quo, where it was compulsory for the majority of students to be on campus. Education providers are compelled to think out of the box and be innovative in the delivery of their programmes – hence, the greater acceptance of distance education.

Although there are presently different terminologies for the term "distance education", it generally refers to all forms of education in which there is a physical separation between students (the recipients) and the facilitator and /or the institution for a significant part, and sometimes all, of the learning journey. Technology is key in this form of education because it determines to what extent the geographical distance is minimised and how the benefits of technology are maximised. This is because as noted by Moore (2007), there is a transactional distance in all forms of teaching and learning, and distance is likely to be increased if there is also a physical distance as well. This has led to various terms that are now being used for distance education such as open and distance learning (ODL), open distance e-learning (ODeL) and blended learning, to mention but a few.

Lingard (2013: 115) defines educational research as research with "educational or educative purposes, that is ... progressive in the sense of seeking and desiring to improve both education policy and professional practice in education." One could thus argue that the purpose of distance education research is not essentially different from that of educational research in general, if the purpose is to improve practice, among others.

Although distance education dates back to over a century of theory, research and practice (Zawacki-Richter & Qayyum, 2019), Zawacki-Richter and Naidu (2016) indicate that research in the field is comparatively fledgling in comparison to educational research in general. Distance education in Africa as well, has a long history with one of the biggest mega universities in the world being hosted in South Africa, known as the University of South Africa (Prinsloo, 2019) However, research in the field on the continent is yet to come into its own. Nonetheless, these assertions do not take away from the huge advancement that has been made within a short time both internationally and on the continent (Peters, 2014).

If the mode has come to take a centre stage in the field of education, distance education practitioners need to return to the salient question: "Why research distance education?" "How can we improve in distance education research to impact our practice? Both Lingard and Renshaw (2010) cited in Lingard (2013: 116) assert that "policy-makers in education and teachers need to be both research-informed and research-informing".

Distance education

As earlier indicated, distance education denotes a field of study in which the student is essentially separated from the author that therefore, necessitates the use of technology. According to Biao (2012, section 3.3), "distance education is a process whereby an individual or institution packages information in a learnable way with the view to helping another individual or group of individuals to learn at a distance" with the help of "all available media, methods and techniques to enable learners access needed information". Due to its ability to widen access to educational opportunities, the mode speaks the language of justice for the disadvantaged in the society (Simpson & Anderson, 2012; Saykili, 2018). Therefore, the mode has become almost a worldwide phenomenon and is becoming more popular in emerging economies due to the key role higher education plays in "knowledge and human resource development" (Makoe, 2018; Zawacki-Richter & Qayyum, 2019).

The challenges facing the mode in Africa include: the lack of national ODL policies, the reluctance to accept ODL products, paucity in ODL quality assurance frameworks and ODL experts in the area of philosophy, principles and methods, ODL programmes irrelevant to the context, and the low-level usage of ICTs due to a myriad of reasons, among which is shortage of electricity supply (Biao, 2012). Although not downplaying the achievements so far, a decade after these findings, the mode still struggles with these challenges on the continent (Reju, 2016; Makoe, 2018; Mayanja, Tibaingana & Birevu, 2019; Shikulo & Lekhetho, 2020). In spite of these challenges, many

institutions in Africa have adopted "open, online and distance education-based models as the most viable delivery tools in expanding access to higher education" (Makoe, 2018: 5). This move has been acceleratedby the COVID-19 pandemic (Dhawani, 2020) that has forced institutions to adopt at least the hybrid model. More expansion into the distance education delivery mode, forced by the pandemic and the need for physical distancing, could be said to be a blessing in disguise for emerging economies due to the fact that the GDP of a country is tied to its educated citizenry (Rivza, Bikse & Brence, 2015).

Although the delivery mode cannot be divorced from technology, Gunawardena and McIsaac (2013) explain that the course which the mode takes in each country would depend on what technologies are available in such a country. This means that the landscape of the mode is not levelled, while some countries, especially in the developed context have advanced with the mode's delivery, emerging economies are only experiencing massive growth in recent times, and therefore, some level of technological development (Zawacki-Richter & Qayyum, 2019). Buttressing this fact, Mishra and Panda (2022), assert "benefits from technology-enabled learning (TEL) are not comparable across the board". Undoubtedly, technologies have brought changes to how education is delivered. Tagged the "digital turn", Zawacki-Richter and Qayyum (2019) assert that various nations and educational institutions are reacting inversely to the macro process of digitalisation.

Distance education research

Song (2021) defines academic or scientific research as that which has to do with "(i) linking (that is a 'conversation') what has been done (the past) with what has to be done (the present and/or future) in a way to generate new knowledge and (ii) objectifying what you are doing in a way to contribute to your chosen field (or community)" (p. 407). Directly linked to this is educational research which focuses on educational matters such as students, teachers, pedagogies, context, and management of teaching and learning, to mention, but a few. According to Lingard (2013), research in the field of education (an ever-growing field) can be defined by its focus or subject and the hypothetical and procedural resources to bring an understanding to the subject. Research in distance education is not essentially different from other scientific fields since it also focuses on investigating and providing answers to specific phenomena, in order to better understand the past, evaluate the present and prepare for the future. Thus, distance education research reflects research in other educational fields (Simonson, 2019); Satyanarayana and Mantha (2018), for instance, cite

adult learning to buttress this point. According to Abedini, Abedini and Zowghi (2021), adults were the ones previously mostly involved in distance education, while digital technologies have further opened wider opportunities to adult learners. Research and erudition in distance education builds the mode for the future (Anderson & Simpson, 2012).

Research in distance education is as old as the mode itself (Zawacki-Richter & Qayyum, 2019), however, literature shows early research in the 1960s focused on comparative studies between different delivery media and student performance with the results showing no significant difference (Gunawardena & McIsaac, 2013; Saykili 2018). In addition, at this stage, research in the field was accused of a lack of theoretical foundations (Saykili 2018). However, research in the field has since moved beyond this level to focus more on learners' characteristics and perceptions in addition to interaction patterns and their contributions to the general learning milieu with what medium can add more value to learners' learning experience instead of technology per se (Simonson, 2019). The author also asserts current research in the field has the tendency to be more theoretically sound, thereby adding value to practice.

In spite of these improvements, scholars (Zawacki-Richter & Qayyum, 2019; Zawacki-Richter & Naidu, 2016) in the field have indicated research is still in its embryonic stage, with more to be done in emerging economies. For instance, in their survey of research in Indian distance education, Satyanarayana and Mantha (2018), highlighted three areas of concerns: "comprehensiveness, methodology and coverage of research problems studies" (p. 137). In addition, in their analysis of open distance and education research trends, Çakıroğlu, et al. (2019, Conclusion and recommendations, lines 10-30) identify gaps in areas such as "distance education technologies, support systems, teaching practices, and pedagogical approaches, better understanding of the relation between paradigm shifts that occur in open and distance education and how to design and deliver online courses effectively". Others according to the authors are "remote labs and virtual environments to provide improvements in the field, a more mixed research method (due to the shortcomings of qualitative and quantitative methods), the legality of distance formal education and their standards, and online learning design and the use of learning analytics to create actionable knowledge that can contribute to pedagogical effectiveness". Although the distance education mode is taking root in Africa and other emerging economies, practitioners would need to pay serious attention to these research niche areas.

The distance education delivery mode has been adopted worldwide, and especially in emerging economies due to its ability to widen participation. Makoe (2018) thus recommends for instance, futures research as a tool to analyse policies relating to the mode in Africa, where governments

are beginning to realise the potential danger of staying glued to the brick-and-mortar system of education. The World Economic Forum (2021) defines futures research as the methodical study of possible, probable and desired futures aimed at helping leaders and the society at large manage improbabilities and build-up their resilience and innovation. The recent COVID-19 pandemic has driven this point home for the world when countries had to find a way to continue to educate its citizenry in the face of school closures; the only mode that came to the rescue was distance education.

In addition, most of the research areas earlier highlighted by Çakıroğlu, et al. (2019) could be regarded as aspects that Africa, especially with other emerging economies, would need to pay serious attention to if it were to reap the benefits of the mode. For instance, citing the example of South Africa, Zawacki-Richter and Qayyum (2019) indicate that online technologies are mostly currently being used to support teaching and learning rather than being mainstreamed. As well, Satyanarayana and Mantha (2018) emphasise the incorporation of "research philosophies, methods and designs would benefit the developments of theory and practice in distance education" (p. 137).

The value of research to distance education

The purpose of research is multifaceted. It has the potential to contribute to knowledge, lead to innovative ideas, and support refinement, critique and synthesis of concepts (Satyanarayana & Mantha, 2018). Research can also challenge and alter policy and practice (Bourke & Loveridge, 2017). Vickers (1994) cited in Lingard (2013: 121) earlier identifies four ways in which research outcomes could impact policy, if used by policy-makers and politicians: "research as warning of problems; as guidance for possible policy options; as enlightenment, which can lead to the reframing of policy problems and approaches; and as mobilisation of support for a politically desired policy option". Research does all of these by providing answers to the questions of what, when, how and why; diagnosing diverse problems; providing first-hand information regarding the nature of social and educational institutions; and suggesting possible corrective measures (Basu, 2020). Furthermore, Heyard and Hottenrott (2021) opined systematic research occupies an important place in knowledge-based communities, which drives scientific and technological advancement and impacts the wider economy and society. Educational research is so named because of its focus on educational practices (Lingard, 2013), which goes the same for distance education as its research focuses on practices and processes in the field (Simpson, 2019).

Distance education research has added value to the field by giving it its foundation and moving it forward (Anderson & Simpson, 2012; Simonson, 2019). Although with some caution, Simonson (2019) identifies twenty-two areas of research in distance as confirmed by literature that can assist to enhance the field. A critical aspect in the field is the nexus between its research and the quality of its programmes, which has been a long-term debate. Nonetheless, Simonson (2019: 32) asserts "scientific inquiry, conducted with rigorous attention to correct procedures, is the key to success of our field. Research and theory are at the foundation of credibility and quality". Therefore, scholars (Srivastava, et al., 2020; Bozkurt & Zawacki-Richter; 2021) have encouraged further and wider research coverage due to the ever-changing landscape of the field.

Despite these benefits, Ponce and Pagán-Maldonado (2017: 24) identify the challenges facing education research as "the political nature of education; the problem of definition of educational research as a science and the dislocation between educational research and practice of education". The latter leads to the need for research-informed practices which scholars (Anderson & Simpson (2012; Boser & McDaniels, 2018) have identified as a gap in the field. As asserted by Simonson (2019: 41), "distance education is not different education, what we know about best practices in education is directly applicable to distance education". Notwithstanding this assertion, there are some unique features about distance education which need to be researched if improvement is to be effected.

Why this book?

Research in the field of distance education, globally, is still in its embryonic stage, this is more so in the developing context. This book is an attempt to examine research trends in the mode of delivery on the continent, identify what the missing gaps are, and how to build research into practice. If distance education is here to stay and there have been continual concerns about its quality, this book argues that research properly understood, applied and measured has the potential to improve theory, practice and policy. Both Lingard and Renshaw (2010) cited in Lingard (2013: 116) assert that "policy-makers in education and teachers need to be both research-informed and research-informing".

Although the book provides insight into diverse areas of distance education, focusing on the South African context and international perspectives, its engagement with some aspects of the field is insufficient. This is simply because it is not possible for one book to cover all areas: further work

is still needed in the field. Although we initially set out to write one book, due to the importance of the theme and the interest it generated, we decided to divide the contributions into two volumes. We hope this work which has drawn a wide range of academic discussions on the field of distance education will inspire works.

Organisation of the two volumes

The series of two volumes has a total of 24 chapters that are divided into these six thematic sections:

1. History, philosophical and theoretical approaches, and paradigms in distance education
2. Building frameworks in distance education research
3. Praxis in distance education research
4. Regional trends and gaps in distance education research
5. Scholarship in distance education research
6. Quality assurance in distance education research

Volume 1

Theme 1: History, philosophical and theoretical approaches, and paradigms in distance education

The first theme is addressed by three chapters. *Chapter 2* traces the history of distance education in terms of its different generations linked theoretically to the pedagogical approaches, dominant in each generation with its research development in line with the trends and advances on distance education provisioning. The chapter provides pointers on the future of distance education research, with a view to suggesting new paradigms for research in the field. In *Chapter 3*, the author highlights the importance of grounding distance education research in philosophy. It is argued that theory is an essential tool for future research and development of distance learning in the rapidly changing environment. However, the lack of guiding theories in the field is viewed as a critical weakness of open distance education practices. Despite earlier calls by Moore (1973) and Holmberg (1987) to

establish a theoretical framework for the study of distance education, this has not yet been fully realised (Wolf, et al, 2020). The chapter subsequently explores theories that have been applied in distance education research and focuses finally on the uncritical permeation of inter alia neoliberalism on distance education theory and practice. *Chapter 4* focuses on the development of a framework for teaching and learning in online distance education. Situated in theoretical and interpretative analysis of connectivism, the Community of Inquiry and *Ubuntu*, the author argues that despite the advantages of the mode, pedagogical strategies must support the increasing role of technology in teaching and learning within this unfolding landscape.

Theme 2: Building frameworks in distance education research

There are three chapters within this theme. In *Chapter 5,* the authors take a look at the field of distance education research, the impact of research on practice over the years and proffer suggestions (with examples) on how practitioners in the field can improve on using research to improve practice and build practice into theory. The authors borrowed from Gibson's Affordance Theory which states that the form of the objects surrounding us shape the perception of what it is possible to do with them. With a focus on Alan Tait's framework for student support, *Chapter 6*, stresses the need for institutions in emerging economies to contextualise student support services in distance education for effectiveness to correct the mismatch between what is needed and what is availed by institutions. The chapter also suggests indices, which should serve as a guide to practice. *Chapter 7* focuses on driving innovation and excellence in distance education practice through Practitioner Enquiry. The author expounds on the nature and rationale of Personal Inquiry as a research methodology within the distance learning milieu, while seeking to establish criteria and practical procedures for its integration into day-to-day personal reflective practices and departmental, faculty, or even institutional academic quality assurance initiatives.

Theme 3: Praxis in distance education research

The third theme has 6 chapters. *Chapter 8* through a meaningful self-directed learning approach takes a look at learning, teaching and assessment methodologies in distance education research, especially given the COVID-19 pandemic. This chapter aims to provide guidelines for the DE

facilitator to provide learning opportunities for critical reflection and engagement, thereby becoming an anti-oppressive facilitator. In *Chapter 9*, the authors, while looking into the future, present the learner support initiative the University of Rwanda's Distance Training Programme has adopted. The findings from their mixed-methods design recommend high quality modules, establishing study centres, an increase and diversification of learning resources, incentives for module writers, a timely distribution and revision of modules and investment in ICT in the developing context to make up for the rural-urban divide. Facilitator support services are of crucial importance in distance education, hence, the focus of *Chapter 10*. In relation to these, it explores the trends and gaps in student access and success in the utilisation of e-learning resources, open e-learning resources in terms of technology and media, student and staff support and library matters, learning and assessment methods. Suggestions are provided on the management of these services in the 21st century. The author in *Chapter 11*, tests Anderson's Interaction Equivalency Theorem (EQuiv) in an Open Distance Learning University by focusing on student-student online discussions. This was done with the aim of "getting" the "right" interaction "mix". The findings indicate one form of interaction was not adequate to support students in distance education environments, which necessitated a suggested framework. With focus on the work of OER Africa, in *Chapter 12*, the authors adopt an action research framework informed by three of Guskey's (2000) levels of CPD impact to share the innovative CPD approaches developed for African academics. The chapter discusses their experience for ODL institutions and research in the field. It concludes with recommendations for larger scale models for CPD in African higher education institutions. Although the UNESCO General Conference has unanimously adopted the UNESCO Recommendation on OER, the authors in *Chapter 13* advocate for the need to measure the effectiveness of the instrument and particularly its impact on improving educational outcomes. They thus put forward a conceptual model that could be considered in this important aspect of distance education.

Concluding thoughts

Clearly distance education is no longer a second-option mode, but has been mainstreamed, especially given the COVID-19 pandemic. The question then is no longer which mode is better, but what we can do as practitioners in the field to enhance it. Volume 1 deals with the history, philosophical and theoretical approaches, and paradigms in distance education, while other authors have shared how we can build frameworks in research in the field. In addition, others

have shared their experiences of some examples of praxis in the mode of delivery. In Volume 2, the authors in the last three thematic sections relate some regional trends and gaps in distance education research, scholarship in distance education research, and how to build research into practice to improve the quality of the offerings. If distance education is here to stay and there have been continual concerns about its quality, these books argue that research properly understood, applied, and measured has the potential to improve theory, practice, and policy in distance education.

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THEME 1: HISTORY, PHILOSOPHICAL AND THEORETICAL APPROACHES, AND PARADIGMS IN DISTANCE EDUCATION

As a first theme the chapters will focus on philosophical prerequisites that featured in distance education research since its inception and continues to play a role in this field. Three distinctly different chapters will focus on development in distance education and particular philosophies and theories underpinning distance education theory and practice.

Chapter 2:

Tracing Distance Education Research: The Influence of Technological and Pedagogical Developments

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Introduction and chapter 'map'. A brief overview of the chapter, its theme, and purpose

In this chapter, the researcher discusses the technological and pedagogical developments in distance education and their influence on distance education research, suggesting future trends. The different generations of distance education are tracked and linked to the pedagogical approaches' dominant in each generation. Key research issues in each generation are also discussed in line with the advances in technology and pedagogy. The issues such as content, focus, philosophical assumptions, and methods shall be explored in understanding the development of distance education research. The chapter will concentrate on the macro, meso, and micro levels of content in studies on remote education (Bäcker and Vogt 2009). Examining the main theories that guide research on distance education, as well as examining the prevalent research methodologies and strategies in distance education research, is also obligatory in this chapter. In order to provide new paradigms for remote education research, the chapter will conclude by offering advice on the direction of the field. The figure below summarises the thrust of the chapter.

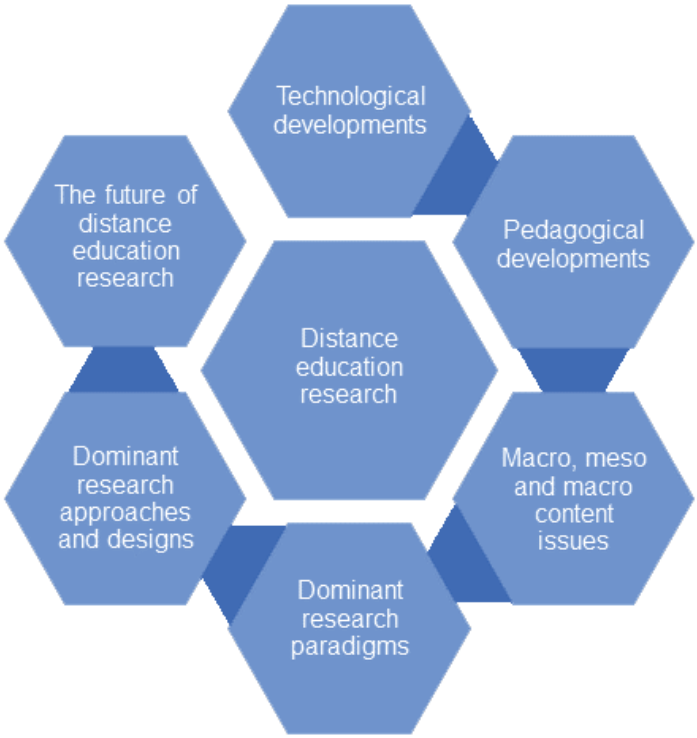


Figure 1: Chapter focal areas

Technological developments—the generations of open and distance learning

According to Taylor (2001), there are five generations of distance education in line with technological developments.

Table 1: The five generations of distance education according to Taylor (2001)

Generation	Model	Dominant technologies utilised
First generation	Correspondence Model	Print
Second generation	The Multimedia Model	Print Audiotape Videotape Computer-based learning Interactive video (disk and tape)
Third Generation	The Tele-learning Model	Audio teleconferencing Videoconferencing Audio graphic Communication Broadcast TV/Radio Audio/teleconferencing
Fourth Generation	The Flexible Learning Model	Interactive multimedia (IMM) online Internet-based access to WWW Computer-mediated communication
Fifth generation	The Intelligent Flexible Learning Model	Interactive multimedia (IMM) online Internet-based access to WWW resources Computer-mediated communication, using automated response system. Campus portal access to institutional processes and resources
Emerging generation	Emergent model	Web 2.0 tools Artificial intelligence Augmented Reality (AR) Virtual Reality (VR)

Adapted from Taylor (2001: 3)

As noted by Taylor (2001) and illustrated in Table 1, there have been significant technological developments in distance education since the correspondence model, which predominantly utilised print material in course content delivery. The fifth generation and the emerging generation through emergent technologies underscore how learning has become flexible, convenient, mobile, self-paced, self-directed, and highly engaging through the utilisation of different technologies in synchronous and asynchronous ways. The use of technologies in distance education has heightened collaboration, creativity, conversation, community, and control in learning (Hicks and Graber 2010). The use of mobile devices enables learners to learn on the go. As further noted by Ahmad (2020), through the utilisation of technologies there is enhanced collaboration, communication, and creativity in distance learning.

Focus on online distance education

Online delivery is given a lot of importance in the present generation of distance education. The new standard for teaching and learning is now primarily conducted online. Learning has undergone a revolution as a result of the usage of the internet in teaching and learning which allows for unrestricted learning (Carruth and Carruth 2013). According to Verawardina et al. (2020: 386) online learning is 'learning that uses internet technology that allows teachers and students to carry out learning wherever and whenever outside the classroom'. The online approaches in distance education have numerous implications for research in distance education. There are some prerequisites for online distance education, especially in developing contexts and such prerequisites are pointers to research in online distance education. Table 2 summarises some of the prerequisites.

Table 2: Prerequisites for meaningful online teaching and learning

Infrastructural	Technological	Pedagogical
Appropriate internet bandwidth	Appropriate technological devices	Online course design
Stable and reliable internet	Ability to utilise the technological devices	Online facilitation/ assessment skills

Relevant technology such as learning management system	Ability to navigate the LMS	Online learning skills
Software/hardware licencing	Learner/focus instructor technological support	Suitable online learning material

The infrastructural, technological, and pedagogical prerequisites shown in Table 2 indicate a plethora of possible research areas to be undertaken to establish the meaningful implementation of online distance education in developing and deprived contexts. Such research would inform policy and practice on ODeL planning and delivery. As noted by Wollscheid, Stensaker, and Bugge (2019), effective education policies should be grounded on empirical research and draw on its findings. Policy and practice for ODeL planning and implementation are informed by empirical research in emerging environments, taking into account the specific and unique contextual factors. In understanding online teaching and learning, Van Wart et al. (2020) note some critical success factors such as instructional support, teaching presence, cognitive presence, online social comfort, online interaction, and social presence. This shows that the actual implementation of online teaching and learning should be researched in an attempt to suggest ways of improving practice.

Understanding developing contexts in higher education

As noted by Sharma, Jain, and Mogaji (2020), higher education systems are undergoing a paradigmatic shift as they embrace digitisation, yet there are inherent challenges to such transformation in developing contexts, which are higher education systems in developing countries. Some of the challenges of higher education systems in general and distance education systems in particular, are socioeconomic in nature (Mogaji and Jain, 2020). In instances where there are resource constraints and disparities in resource distribution, there will be challenges to access to distance education and effective delivery of distance education. Given technological developments in transforming distance education through online teaching and learning, there is a need for concerted efforts by governments and other stakeholders to invest in technological developments. Therefore, in understanding developing contexts because of open and distance e-learning provisioning, Figure 2 notes some of the pointers.

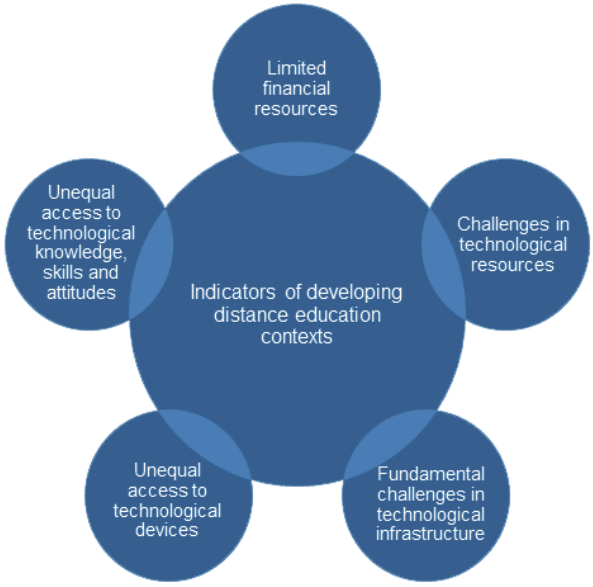


Figure 2: Developing distance education contexts indicators

Figure 2 alludes to the realisation that discussion of research in distance education in developing contexts should be understood in the context of lack and unequal access. The context becomes a research issue as there is a need to establish the nature, extent, as well as possible solutions to issues of resource constraints and unequal access. Therefore, as distance education institutions in developing contexts transition to online distance education, there is a need for research to be conducted to understand this transition, feed into policy, and assist in the meaningful implementation of online learning in the distance education institutions.

There are also contextual differences, with distance education institutions in developing countries operating at different levels. The disparities in institutions, invariably, impact the quality of online learning participation in terms of success in learning (Chávez et al. 2021). Issues such as access to technological devices for use in online learning, internet connectivity, as well as the pedagogical approaches employed by the course instructors contribute to disparities in the online learning experiences by learners. It is therefore vital to consider distance education research in terms of the unique contexts. Implementation of the integration of technologies for the enhancement of distance education delivery differs from one context to another, hence the need for systematic examination of research issues within specific contexts.

Implications for research in ODeL

In undertaking distance education research, it is always important to consider technological developments. Among other issues, researchers should interrogate the usability and efficacy of the technologies in ODeL delivery. Research could be carried out by establishing the views of the users such as course instructors and learners. Similarly, some technologies may be tried out and evaluated as a form of action research meant to improve practice. The following questions may be raised as informing ODeL research in line with technological developments:

- What are the predominant technologies utilised in ODeL delivery in a given context?
- How has ODeL delivery improved as a result of the utilised technologies?
- What are the structural, cultural, and agential enablers and constraints in the use of technologies in a given context?
- How do the users experience the use of technologies?
- What are the advantages, disadvantages, strengths, and weaknesses in the use of particular technologies, and what could be done to enhance technology use?
- What is the impact of technology use in ODeL delivery on access to distance education and the attainment of learning outcomes?

These are some of the questions revolving around the technological developments in distance education that may influence research areas that could be undertaken by ODeL researchers.

Pedagogical developments in distance education

There have been pedagogical developments in distance education delivery over the years. The understanding of these developments is important in distance education research. Research into pedagogical aspects results in an evidence-based approach to the selection and utilisation of appropriate teaching and learning approaches (Herodotou et al. 2019).

The pedagogical developments in distance education are linked to the different generations of distance education (Anderson and Dron 2011). The Figure below summarises the distance education generations and pedagogical approaches dominant in each generation.

Table 3: Pedagogical developments in distance education

Type of generation	Dominant pedagogies	Implications for ODL delivery
First generation	Cognitive-behaviourist pedagogies	Use of pre-packaged learning materials Print modules with structured content Objectives-centred learning and assessment Use of self-instructional activities Use of self-assessment activities Minimal or no interaction between learners and course instructors, as well as among learners
Second generation	Social-constructivist pedagogies	Active instead of passive learning Learning is more of a social activity Available technologies assisted in bringing more students' social presence in learning Learning is more learner centred More social learning approaches
Third generation	Connectivist pedagogies	Students learn by building connections with others online Ubiquitous learning opportunities online Synchronous and asynchronous learning approaches Participation in online learning communities Online connection with instructors, fellow learners, course content, and learning materials

Adapted from Anderson and Dron (2011)

The pedagogical developments in distance education as illustrated in Table 3 have profound implications for distance education delivery as well as research in distance education as explained in detail below.

Cognitive-behaviourist pedagogies and implications for research in distance education

The cognitivist-behaviourist pedagogies are rooted in two traditional learning theories: behaviourism and cognitivism. Behaviourism, as a learning theory, states that learning is external and responds to stimuli (Bush 2006). Furthermore, behaviourists advance the view that 'only observable, measurable, outward behaviour is worthy of scientific inquiry' (Bush 2006: 14). Several behaviourist principles are evident in distance education delivery, even up to the present day. These are principles such as practice, modelling, reinforcement, and active learning. Practice notes that distance learners should be provided with opportunities to practise what they would have learnt. The printed instructional material in the earlier generation of distance education were designed in a self-instructional manner. Despite the rapid utilisation of technology, printed material is still prevalently used in distance education delivery in developing contexts (Gaba and Dash 2004). As noted by Iqbal, Mahmood, and Idrees (2019), the printed self-instructional materials are designed with particular units, each unit has objectives, and the course content and activities are linked to the unit objectives. The self-instructional material replaces the course instructor as the learner can go through the course content and engage in the embedded practice exercises. The components of objectives and practice exercises are rooted in the behaviourist principle of practice.

The cognitivist school of thought views learning as an active, internal process in which the learners' mind is actively engaged in comprehending and processing their experiences of the outside world (Good and Brophy 1990). In addition, insight, information processing, memory, and perception are key components of the cognitivist approach, and the knowledge that is processed is typically stored in and retrieved from memory. In the delivery of ODL, it is necessary to make sure that students interact with the course material through thoughtfully created learning tools in ways that encourage them to use their minds and engage in higher-order thinking (Ally 2008). ODL environments offer an opportunity for active learning for students.

Given the cognitive-behaviourist pedagogies in distance education delivery, the researchers may interrogate related issues from a cognitive-behaviourist inclination as shown in Figure 3.

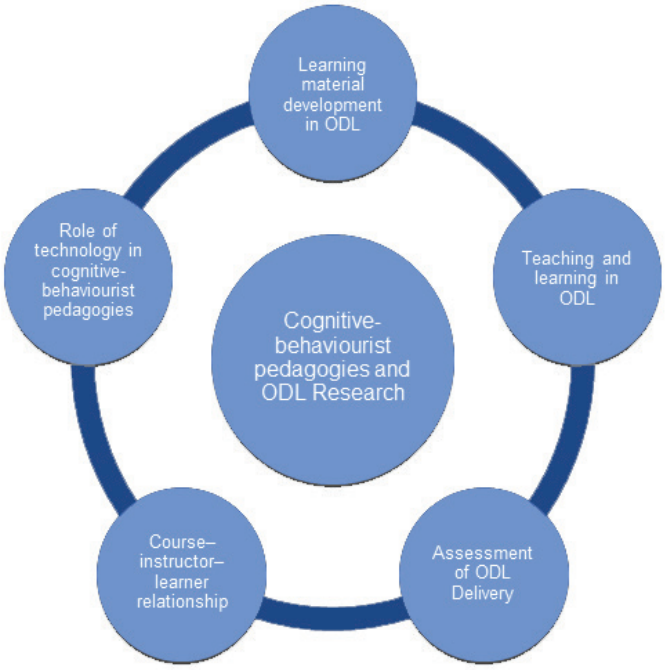


Figure 3: Cognitive-behaviourist pedagogies and ODL Research

Learning materials in ODL

The importance of learning materials in distance learning cannot be overemphasised. The learning materials are utilised in different multimedia formats and constant and sustained research should be conducted on learning material design, as part of instructional design, and the utilisation of such materials in different contexts. The purpose of such research would be to understand the pedagogical and theoretical underpinnings of learning material design and utilisation in distance learning**.** The way learning materials are developed and utilised in the ODL context is heavily informed by the pedagogical persuasion, hence the need to interrogate learning materials within the cognitive-behaviourist pedagogies. As noted by Ally (2008), the use of technologies in ODL

delivery, as informed by cognitive-behaviourist pedagogies, should be considered in ways in which learning is enhanced. Bates (2015) notes the importance of pedagogy before technology, underscoring the need for establishing the pedagogical persuasion first and then employing technology to advance the established pedagogical approaches.

Teaching and learning in ODL

Research in ODL may also focus on the role of technology or online teaching and learning as informed by the cognitive-behaviourist pedagogies. There are some principles of the behaviourist and cognitivist theories that could be utilised in the instructional design and implementation of online teaching and learning. Basing teaching and learning on predetermined learning objectives to achieve specific outcomes borrows from behaviourism, as learning is geared towards attaining the set objectives or outcomes which is behavioural change. The utilisation of game-based elements in online teaching is a reward and a reinforcement aspect drawn from behaviourism. Therefore, as researchers interrogate teaching and learning in a technology-enhanced learning environment, there is always a need to note the role of cognitive-behaviourist pedagogies in modern-day ODL delivery.

The use of problem-centred online activities which allow learners to work online on solving real-life problems by applying their minds is an important aspect of cognitivism. Learners are not passive but active in processing knowledge to solve problems. Furthermore, Papadopoulou and Palaigeorgiou (2016) state that interactive videos may be utilised to promote online, self-directed learning. As the learners engage with the videos by applying their minds, they become active and self-directed learners which are important principles of cognitivism. It is therefore vital for ODL researchers to research teaching and learning issues in a technology-enhanced environment by addressing the theoretical basis of such teaching and its usefulness in ODL delivery.

Assessment in ODL

Research in distance education as informed by the cognitive-behaviourist pedagogies may focus on assessment issues. Assessment for learning and assessment for learning should be interrogated in terms of how they impact the quality of distance education teaching and learning. As noted by

Conrad and Openo (2018), assessment in distance learning should not be viewed solely as grading the learners but should be considered holistically in the context of providing efficient and effective distance learning practices by utilising proper and suitable assessment practices. The different types of assessments such as self-assessment, peer assessment, and instructor-led assessment should be explored fully to understand how they are planned and implemented, as well as their contribution to the quality of continuous distance learning (Adanir 2021). Furthermore, Adanir (2021) notes the utilisation of appropriate assessment methods that provide learners with opportunities to transfer knowledge to real-life contexts.

Course instructor-learner relationships

Because of the cognitive-behaviourist pedagogies, there is also a need to research course instructor and learner relationships in distance education. It would be important to establish such a relationship given the principles of behaviourism and cognitivism in distance learning. On the issue of positive reinforcement, for example, it would be vital to understand how this principle works in different contexts and how course instructors encourage the behaviour of distance learners who are physically and geographically separated from the course instructor (Croft, Dalton and Grant 2015). Similarly, the principles of shaping and modelling associated with behaviourism may need to be understood in the broad milieu of distance teaching and learning processes. At the heart of cognitivism is how learners construct knowledge by engaging mentally with the course content (Ertmer and Newby 2013). It is, therefore, vital to understand the role of learners and course instructors in distance learning informed by cognitivism.

Technology in ODL

The role of technology in distance teaching and learning, informed by cognitive-behaviourist pedagogies, is a broad research area, especially in developing contexts. According to Chen (2011), the behaviourist approaches had huge influences on technological developments in teaching and learning such as programmed instruction, individualised instructional approaches, and computer-assisted learning. It would be important to research the role of technology in the teaching and learning environment informed by behaviourism in distance education. The role of technology

in distance education teaching and learning as informed by cognitivism is worth exploring as technology is utilised in different ways to ensure that distance learners mentally engage with the course content. Anderson and Krathwol (2001) modified Bloom's original taxonomy of educational objectives by adding 'creating'. This suggests that with technology higher order skills should be promoted by teaching learners to create artefacts in a technological environment. As further noted by Ertmer and Newby (2013), given cognitivism, technologies should be utilised to promote active learning as the learners take active control of learning through self-planning, monitoring, and self-assessment techniques.

Social-constructivist pedagogies and implications for research in distance education

In this second generation of open and distance learning (the social-constructivist pedagogies) active instead of passive learning is emphasised, and learning is considered a social activity (Gergen 1995). The fact that distance learners are ordinarily separated from the course instructors and fellow learners call for scholarly research into how distance learning could be made more social and interactive. The utilisation of available technologies that could be harnessed to enhance interactivity and learner-centredness is another research area which could be interrogated from the point of view of the learners and the course instructors. As noted by Vygotsky (1978), social constructivism learning involves social, cultural, and language-based processes and there is a need to investigate the said three elements as they are applied to distance learning.

Connectivist pedagogies and implications for research in distance education

In line with the latest developments in distance education the online aspect has transformed the delivery system and has brought up new research focus areas, especially in the developing contexts. Connectivism is regarded as the learning theory for the digital age (Siemens 2005). The theory seeks to explain how learners learn in a networked environment and advances the view that learners learn by making online connections with fellow learners, course instructors, and content (Siemens and Downes 2009). The distance education researchers require exploring the different

aspects of online distance learning as informed by the connectivist pedagogies. The effectiveness of online delivery in terms of teaching, learning, and assessment are some of the topical issues in distance education research.

In the next section, possible research areas in distance education research are discussed using the classification by Zawacki-Richter, Bäcker, and Vogt (2009) of macro, meso, and micro areas.

Macro, meso, and micro research content areas

There are ways of classifying the content areas in distance education research. Zawacki-Richter, Bäcker, and Vogt (2009) call these macro, meso, and micro areas.

Table 4

Macro issues	Meso issues	Micro issues
- access, digital divide	- organisation of online learning systems	- online course design
- policy	- management of the online learning systems	- interaction and collaboration
- frameworks	- the technologies	- pedagogical issues
- technology infrastructure (equipment, hardware, software)	- staff training and support	- learning communities
- online learning systems	- student training and support	- online learning styles
- theories informing online learning	- quality assurance	- online teaching/learning opportunities and challenges

Macro issues and their influence on distance education research

The broader issues of access to higher education in the developing contexts remain critical areas for

research. Sub-Saharan African countries have very low participation rates in higher education, and female students are also underrepresented (Amin and Ntembe 2021). There is a need for distance education research to explore the nature and extent of higher education participation in Sub-Saharan Africa and the contributory factors, challenges, and role of distance education in enhancing access to higher education. The open and distance learning system is the answer to the problems with access to higher education, since it is accessible in terms of entry points and gives those who need the flexibility to study while engaged in other life commitments (Maphosa and Bhebhe 2020). According to Nigam and Joshi (2007, cited in Kuruppuarachchi and Karunanayake 2017: 42) '...the ODL delivery system has been observed as a reasonable and viable alternative to individuals who were denied education due to one reason or another.' There are many researchable sub-areas in the provisioning of access components of distance education that are worthwhile to pursue.

Access to higher education through open and distance e-learning has been further enhanced by the utilisation of digital technologies and open educational resources (OER)—this has resulted in open mass access as online education is offered through various digital learning platforms (Alevizou 2015). The delivery of online learning in developing contexts is an important area of research as it is also tied to the issue of the digital divide. It is vital to explore online learning in contexts where there are differences in access and abilities in the utilisation of digital technologies. The important aspects of social justice in education should be brought to the fore in instances where higher education through online distance education should address equity and equality concerns.

All the different aspects of online distance education such as the technology infrastructure in terms of equipment, hardware, and software are important aspects for distance education research in developing contexts. As noted by Dlamini and Ndzinisa (2020), universities in developing countries encounter serious challenges regarding the full and meaningful implementation of online learning, hence the need to have more research into such challenges to proffer solutions on what could be done to address them and ensure effective delivery of online learning. Furthermore, the utilisation of the different digital learning platforms is a research issue as meaningful online delivery depends on the technological and pedagogical abilities of the course instructors.

At the macro level of distance education research, an important issue in line with online teaching and learning is the issue of theories informing and underpinning online delivery. Contemporary learning theories such as the online collaborative theory (Harasim 2012), connectivism (Siemens 2005), and the community of inquiry framework (Garrison and Archer, 2001) which should feature prominently in current distance education research are informing online teaching and learning. According to Harasim (2012), the online collaborative learning (OCL) theory underscores the

importance of creating and sustaining online learning environments that promote collaboration and knowledge building. Similarly, the connectivism theory places emphasis on learning through forming online connections, whilst the community of inquiry presents the importance of the three presences, teaching cognitive and social presences in creating rich and rewarding online learning experiences. The said theories may be utilised as theoretical underpinnings for online teaching and learning and may also be fully researched as separate theories. The traditional and classical learning theories also remain relevant in distance education research.

Meso issues and influence on distance education research

The distance education researchers may look at the organisation of online learning systems as a meso issue of distance education research. Online learning ordinarily takes place on a defined learning management system also known as a digital learning platform such as Moodle, Blackboard, Sakai, Google Classroom, or others. As noted by Srichanyachon (2014), a learning management system (LMS) is a web-based software application that is specifically developed and designed to perform different functions such as content delivery, content, student interaction, learning and learner assessment, as well as reporting on learning progress and learner activities. Research should focus on how learning is organised on the LMS, the way content is delivered, how learners' interest and assessment is conducted, among numerous other issues in the organisation of online learning systems.

To understand how online learning is carried out and how it could be improved, it is important to undertake studies on the various technologies used, such as digital whiteboards. Technologies are important forces behind educational innovation because they are used to change how students learn (Reguera and Lopez 2021). Therefore, it is crucial to examine how various technologies are used, particularly in developing countries, to determine their value for delivering online learning. To ensure the meaningful use of the technologies and the general acceptability of their use, it is crucial to train and support course instructors and students in their use.

Micro issues and their influence on distance education research

Several micro issues could be researched in line with the technological developments in online

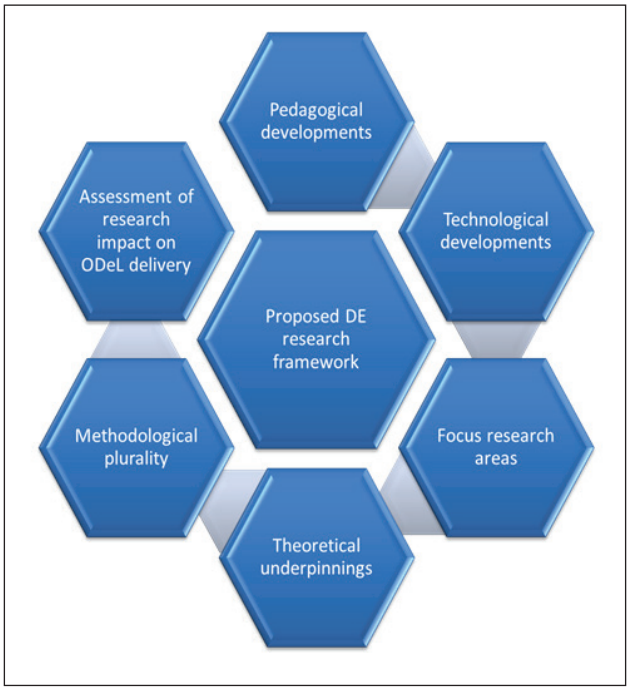
teaching and learning. The issue of online course design is very important as meaningfully online course design separates true online learning from emergency remote teaching. Stewart and Lowenthal (2022) note that comparing online learning with emergency remote teaching is comparing apples with oranges as the two are different. Emergency remote teaching is unplanned and temporary as an alternative to teaching during a challenge like a pandemic, yet online learning is a well-defined paradigm which commences with effective online course design. As stated by Brigance (2011), there is a need to ensure that higher education institutions offering online learning develop the capacity of course instructors to develop high-quality online courses. Instructional design issues are, therefore, important issues for research investigation as meaningful online learning stems from the designing of appropriate online courses.

The way learners learn in online courses is worth researching as indicators of effective and meaningful online teaching and learning. The way the learners interact and collaborate in online learning is critical in the attainment of learning outcomes in online courses. The nature and extent of interaction and collaboration in online learning are critical success factors in an online course (Razali, Ahmad, and Noor 2020). Tied to the issues of collaboration and interaction in online learning are the overall online pedagogies. According to Archambault, Leary, and Rice (2022), there are five pillars of online teaching expected of a course instructor, and these underpin the online pedagogies. The pillars are the course instructor's ability to build online relationships and an online learning community, utilisation of active learning strategies online, enhancing learner control of online learning processes, personalising the learning process, and embracing mastery of learning.

Online teaching and learning opportunities and difficulties should be the main topics of online learning research. To take advantage of the benefits and address the obstacles, the entire online teaching and learning scenario should be examined from a variety of angles. There are several obstacles to online teaching and learning in developing environments, hence it is essential to analyse the kind, scope, and effects of these obstacles on online learning delivery systems. Comparative studies also help in learning how online teaching and learning are applied in various contexts and under various circumstances.

In the next section, the author proposes a distance education research framework considering the preceding discussion.

Figure 4: Proposed distance education research framework



Distance education research should be contextualised in the pedagogical and technological developments in distance education. The pedagogical developments allow researchers to understand distance education delivery from the first generation to the current generation. The dominant pedagogical theories in the different distance education generations afford the researcher to understand the new online learning theories and appreciate the contributions of the classical learning theories to online learning. Research in distance education also needs to be wary of the technological developments from the print technology of the first generation to the emerging and emergent digital technology of the current generation. The focus areas upon which distance education research is carried out should be understood from broader issues to more specific micro issues. Such an understanding provides a holistic understanding of distance education research issues. The current online learning theories should serve as theoretical underpinnings to guide distance education research in online environments. It is also time to embrace methodological plurality in understanding distance education research. Where possible different research methods

and approaches should be combined in a single study to provide a full understanding of the issues under investigation. The need for meta-research is equally important. There is a need for research on distance education research as well as the assessment of the impact of distance education research on distance education provisioning.

Conclusions and recommendations

Distance education is a growing field, and it continues to grow. Distance education research is at the heart of the development of distance education practices. There is, therefore, a need for systematic and sustained distance education research, especially in the developing contexts.

The following recommendations are made:

a) There is a need to develop a critical mass of distance education researchers in developing contexts. This is possible by training and supporting budding researchers to consider distance education as a research field. There should be deliberate training programmes in distance education institutions where students at the postgraduate level and lecturers at the early career level take distance education research seriously.

b) Distance education institutions should employ distance education research champions whose mandate it is to popularise and advance distance education research. The research champions may be involved in training and mentoring junior researchers in the different aspects of distance education research and publication.

c) There should be deliberate efforts to incentivise research in distance education by encouraging postgraduate studies, conference presentations, and publications in the different areas of distance education.

d) The institutionalisation of local symposia and conferences in individual distance education institutions is important in developing a culture of scholarly exchange, debates, and reflection on the different facets of distance education.

e) The concept of research in practice should be encouraged among distance education practitioners, as meaningful research is generated through action research and practitioners seek solutions to address challenges in distance education practice.

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Chapter 3:

Philosophy and Theories as Prerequisites for Distance Education Research

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Introduction

Like conventional education, distance education is deeply rooted in philosophy, which provides the basis for fundamental questions on the purpose and nature of distance learning, the role of the teacher and the learner, the nature of the instructional process, and the quality of distance education. Much has been written on distance education practice but with little reference to the way in which distance education practice is grounded in diverse philosophical traditions, such as pragmatism, individualism, (social) reconstructionism, humanism, idealism, realism, Ubuntu, existentialism, Confucianism, and particular education philosophies (Association for Educational Communications and Technology 2001, Higgins 2020). While the application of technologies appears to augment distance education, literature in the field exposes a theoretically fragmented framework, wanting in both theoretical depth and focused research. Despite recommendations that philosophy and theory be included in research on distance education and appeals from Moore (1973) and Holmberg (1987) that researchers should build a theoretical framework which would embrace distance education, this has not yet been achieved (Wolf et al. 2020).

Lacking a strong base in research and theory, distance education has battled for recognition by the traditional academic community. Some scholars (Garrison 1999, cited in Jung 2017; Hayes 1990, cited in Association for Educational Communications and Technology 2001) describe distance education as no more than a potpourri of ideas and practices borrowed from traditional classrooms and imposed on students who are physically separated from a lecturer. As distance education struggles to associate with appropriate theoretical frameworks, implementation issues come to the fore. These issues embrace the learner, the teacher, and the technology or mode of delivery.

The following paragraphs explore the necessity of framing distance education research within a philosophical tradition and concomitant theories.

Why a philosophy of distance education and theoretical frameworks?

The Philosophy Foundation (2022) defines philosophy as a way of thinking about ethics, knowledge, existence, time, meaning, and value. As such it deals with ultimate reality and focuses on the general causes and principles of things (Higgins 2020). For the purposes of this chapter, broad philosophical traditions can be distinguished, such as idealism, realism, pragmatism, logical positivism, philosophy of mind, and existentialism. However, in a narrow sense, philosophy can also be defined as the study of the general principles of a particular branch of knowledge, experience, or activity such as education, thus denoting a philosophy of education (Higgins 2020). While a philosophy is conceptual and uses critical, logical, and systematic thinking to study deeply held beliefs (Higgins 2020), a philosophy of law or a philosophy of education would study questions related to the subject—that is, education or law. The latter thus represents the study of the theoretical basis of a particular branch of knowledge or experience such as education (distance education), law, science, and so forth.

Various philosophies of education can be distinguished, such as perennialism, essentialism, progressivism, behaviourism, postmodernism, social reconstructionism, and connectivism, amongst others, each grounded in one or more of the philosophical traditions noted above (Perez 2022). As such, perennialism is rooted in the philosophies of idealism and realism, progressivism originates in pragmatism, behaviourism in logical positivism, postmodernism and social reconstructionism are both rooted in pragmatism and existentialism, essentialism is grounded in Plato's idealism, while connectionism is rooted in Thorndike's behaviourism and the philosophy of mind (Hogan and Tienson 2008; Banan et al. 2020).

Philosophies of education

A philosophy of (distance) education is thus made up of beliefs about distance education and would deepen the understanding of research in this field. A philosophy (of distance education) is also linked to theories, which means that while a philosophy influences the way in which one perceives the distance education environment, theory shapes the way one interacts with that environment. A philosophy impacts the definition of important problems, while theories provide strategies to arrive at solutions to those problems. Hagen (2005, cited in Himes and Schulenberg

2013; Higgins 2020) explains that a theory is a set of assertions, principles, or ideas on the basis of which we make statements about the world, in this case the world of distance education. In other words, a theory is an explanatory construct that helps structure action by distinguishing key relationships that can be used to explain, predict, or alter an occurrence in a distance education context (Jaeger et al. 2013, cited in Himes and Schulenberg 2013). In other words, theories tend to answer the questions that arise within the context of a philosophy. Together, philosophy and theory guide decisions about the approach taken in distance education research (Himes and Schulenberg 2013).

The importance of a theory of distance education rooted in a philosophy of education cannot be underestimated (Shearer 2021), since distance education theories are specific and formulated to serve the particular educational needs in the curriculum, teaching, and learning (Tan 2006; Shearer 2021). According to Aydemira and Özkeskinb (2015), theoretical frameworks generally involve an understanding of theories and concepts related to a specific topic or field, such as distance education. An unambiguous statement of theoretical assumptions allows the researcher to evaluate the theory critically and to pose research questions within a theoretical framework (Zawacki-Richter and Anderson 2014). Jung (2019) asserts that theory and research function in a transactional association where theory determines what questions to ask in the research, what information to collect, and what to do with the data once it has been collected. As in other fields of study, theory is thus an invaluable tool for distance education researchers to identify and solve meaningful research problems and to concurrently contribute to theory building and improvement (Jung 2019).

Scholars of distance education argue that there are several advantages of applying theoretical frameworks for research in this field:

- The theoretical framework links the distance education researcher to other studies and knowledge in the field. Guided by a relevant theory, the researcher is given a foundation for forming hypotheses and deciding which research methods and research questions to use.

- Enunciating the theoretical assumptions of a research study requires the researcher to address 'why' and 'how' questions.

- Distance education theories remind us to ask the hard questions about what we are trying to achieve for the learner and to what end, and through which design approaches.

- A theory provides patterns for the analysis of data, allows the researcher to move from simply describing a perceived phenomenon, and identify to what extent generalisations can be made.

- The theory allows the clarification of larger meanings of findings for other researchers, as well as distance education researchers and theorists.

- It assists the distance education researcher to organise, summarise, and explain knowledge and carry out empirical studies needed in the field.

- A theoretical framework indicates which key variables impact on a phenomenon. It permits the researcher to observe how the key variables might differ and under what circumstances.

- It also helps to prescribe optimal approaches and make future projections.

- Theories assist the researcher to keep focused on the learner, learner characteristics, and the personalised nature of distance learning while undertaking design and development work (Shearer 2021; Jung 2019; Garrison and Anderson 2020; Aydemira and Özkeskinb 2015; Garrison 2000; Krieger 2017; Agonacs and Matos 2019; Hartnett 2019).

Anderson (2016) argues that distance education (DE) theories cannot be equated to learning theories in the sense in which we think about motivation theory, cognitive learning theory, or particular design models. He asserts that distance education theories rather assist the researcher to think beyond learning theories and design models. They help us to focus on how our students might individually approach learning and therefore how it will affect our course designs.

Even though a weak knowledge base in theoretical foundations of distance education has been indicated as a challenge in some literature (Garrison 2000), a number of theories have greatly contributed to the understanding and development of the field (Jung 2019). Jung (2019) refers to foundational, emergent, and borrowed theories. For the sake of this chapter, only a limited number of theories that have been widely documented to ground distance education research will be explored—namely, autonomy and independence, transactional distance, community of inquiry, connectivism, industrialisation, and neoliberalism.

Theory of autonomy and independence

The foundational theory of autonomy and independence was originally developed by Wedemeyer between the 1960s and 1970s as a theory of correspondence education and revised in the 1980s to include a theory of adult learning. According to this theory, open distance education focused on the independence of the adult student while studying at a distance (Jung 2019). It appears that Wedemeyer's idea of independent study was aimed at self-directed learning and self-regulation (Aydemira and Özkeskinb 2015). According to Jung (2019), Wedemeyer's theory of autonomy and his preference for using the term 'independent study' instead of distance learning, as well as his realisation that the ubiquity of information technology would secure a future where learning would take place at anytime and anywhere, showed great foresight. His theory was the basis upon which subsequent theories of distance education evolved, such as the transactional distance theory of Moore; Holmberg's work on 'guided didactic conversation', which falls into the category of interaction and communication theories; and the theory of 'andragogy' of Malcolm Knowles, which formed the basis of heutagogy theory by Stewart Hase and Chris Kenyon in 2000 (Agonacs and Matos 2019).

Michael Moore's theory of transactional distance

In his discussion of the importance of theory in online and open education, Shearer (cited in Hartnett and Field 2020) describes Moore's theory of transactional distance as an example of a good theory. Shearer also draws attention to the rich research base offered by the conceptual frameworks of Moore to newcomers to distance education research. Moore's theory of transactional distance (TD) (1993) was developed over several years of observations of distance education (DE) learning environments as technology evolved. Moore's aim was not to duplicate the classroom learning experience but rather to address the needs of the individual learner. Recent research by Huang et al. (cited in Krieger 2017) supports Moore's theory as a very useful guide for research on distance learning. A core component of transactional distance theory is the interaction between the three variables of dialogue, structure, and learner autonomy based on Dewey's pragmatist ideas of the transaction between teacher and student (Krieger 2017). In essence, Shearer (2021) regards the educational transaction as a dialogue between two or more individuals, which is supported and continuously affected by structure and the characteristics of the learner and is as such unique

for each learner. Moore (1980) defines structure as the measure according to which the goals, implementation processes, and evaluation procedures of a distance education programme are prepared to meet specific objectives of individual students (Jung 2019). Since the three variables are viewed as dynamic, when dialogue increases structure and transactional distance decrease. The distance experienced by the learner is, however, affected by his/her autonomous qualities and the teaching style of the instructor. According to Shearer (2021), each of the variables can be seen as being on a continuum. The way in which the variables are implemented in the design of distance education models will impact on the learner's experience of transactional distance.

While the only available dialogic resources in distance education were audio and video conferencing at the time when Moore developed his theory, he anticipated that highly interactive electronic media and computers would allow rigorous, personal, individualised, and dynamic dialogue and that the nature of each communication medium would impact on the scope and quality of the dialogue between teachers and students (Jung 2019).

Moore's transactional distance theory has thus gone through several changes due to the changing technology for distance education (Krieger 2017), but has been widely used to ground research projects in this field of study (Rena 2006; Abuhassna and Yahaya 2018; Doo et al. 2020; Falloon 2011; Quong, Snider and Early 2018). This theory has been described as one of the core theories of distance education in a web-based learning environment and accounts for excellence in this field. In a study to determine trends in theory use in open distance learning research journals by Ukwoma and Ngulube (2021), transactional distance was found to be the most frequently cited theory. It was, however, criticised as not being synchronised with the current field of practice and lacking a social component (Kang and Gyorke 2008, cited in Ukwoma and Ngulube 2021). While Moore's theory provides a useful conceptual 'lens' through which to analyse online learning practices, Falloon (2011) recommends revisiting some of its tenets to align with synchronous communication tools in online distance education.

The theoretical framework of community of inquiry

Another foundational theoretical framework that Shearer (cited in Hartnett and Field 2020) regards as influential in the field of distance education is the theory of community of inquiry (COI). This theory is grounded in John Dewey's progressive understanding of education and was developed by Garrison, Anderson, and Archer (2000). It is viewed as an important theory in the field of distance

education research that was studied by scholars such as Picciano (2002) and Swan (2002) and continuously revised by Garrison and associates (Shearer, 2021). Community of inquiry relates to a two-way interface between teacher and student in an open and online learning environment and investigates the formation of meaningful collaborate-constructivist deep learning through three overlapping presences: social presence, cognitive presence, and teaching presence. However, researchers saw the need to extend the community of inquiry framework: a fourth dimension, learning presence, has been added to the classic framework of teaching, social, and cognitive presences (ElSayad 2022). Researchers were of the opinion that the COI framework does not sufficiently address the roles of students' learning experience and participation in such learning environments (Shea and Bidjerano 2010, quoted in ElSayad 2022). A research project by ElSayad (2022) examined whether the additional learning presence structurally represents relations with teaching, social, and cognitive presences. It was subsequently established that learning presence has strong correlations with the three original presences, especially cognitive presence (ElSayad 2022). In this context, the socio-cultural construction of knowledge is accentuated (Jung 2019; Shearer 2021). As with the theory of transactional distance, the presences are dynamic.

Social presence is explained as a sense of being a part of a community of learning even when one is not physically present, which means that social presence is about engagement and interactions (Shearer 2021). Garrison et al. (2000) view cognitive presence as the extent to which students are able to construct meaning through continuous communication. In the third edition of *E-Learning in the 21st Century*, Garrison (2000) focuses specifically on the framework of community of inquiry and the way in which it can inform research and practice in e-learning. The third element of the theory, teaching presence, relates to design and facilitation through which the cognitive and social processes are guides for the purpose of attaining significant learning outcomes (Garrison et al. 2000). This means that the teacher creates an ideal environment for cognitive presence when assisting the students to engage in critical thinking. The fourth and newly identified presence, learning, reflects motivational and behavioural traits of self-regulation and co-regulation, proposing that students intend to achieve desired goals, which is not reflected in the classic COI framework (Hayes et al. 2015, quoted in ElSayad 2022).

Each learner or group of learners ultimately selects their levels of social presence or cognitive presence in combination with and through the guidance of the instructor through teaching presence (Shearer 2021). Swan, Garrison, and Richardson (2009; Roberts 2019) note that when the four elements of social, cognitive, teacher, and learning presence interact, an ideal collaborative, constructive learning experience occurs. The latter assumption makes this theory suitable for the

evaluation of effective online education.

Garrison et al. (1999, cited in Jung 2019) introduced the COl theory to determine how distance education designs and instruction need to develop, in order to include an education learning environment that provides immediate dialogue and social construction of knowledge into distance education programmes. Outcomes of the original theory were published in peer-reviewed journals which, in turn, have resulted in hundreds of research studies applying and extending the original COI theory, method, and instruments (Jung 2019). The groundbreaking paper 'Critical inquiry in a text-based environment: Computer conferencing in higher education' (Garrison, Anderson and Archer 2000) has been cited more than 7 000 times (as reported by Google Scholar, July 2021) and provided the basis for important empirical research in learning theory across multiple disciplines and in a variety of educational settings, such as distance education.

Connectivist theory

When network technology-based, open distance education became known in the field, new theories to align with different contexts emerged. One of these theories is connectivism. While open and distance learning environments have gained popularity, the quality of the information learnt and the importance of converting the information into knowledge processes has made the connectivist theory important for open distance research (Aydemir, Özkeskin and Akkurt 2014). Jung (2019) notes that connectivist theory assists researchers to develop an understanding of the changing aspects and opportunities of the socio-technical context for technology-enabled learning. Assuming that learning takes place across networks of people with different socio-cultural backgrounds, connectivism emphasises new learning opportunities created by Internet technologies (Jung 2019). While it is a young and new theory, connectivism is based on the epistemology of connective knowledge and provides new opportunities for distance education research. Connective knowledge, as a third type of knowledge in the networked world, adds to traditionally accepted qualitative and quantitative knowledge, is formed by interactions with people linked to networks, and is distributed across a web of individual people (Jung 2019). Knowledge is therefore seen as a collective undertaking in communities of learning.

Although connectivism is one of the most prominent of the network learning theories developed for e-learning environments (Goldie 2016), and researchers regard it as a theoretical framework that can assist them to understand and support networked learning (Jung 2019), some criticism has emerged. Goldie (2016) argues that connectivism is not a 'new' theory and that Vygotsky's social

constructivism had already highlighted the networked and distributed nature of knowledge. Some epistemological and psychological problems have also been identified with connectivism, such as the under-conceptualisation of the role of the other and oversimplification of the meaning of interaction. Future research is also needed on the theoretical framework of connectivism to clarify the key variables of autonomy, diversity, openness, and interactivity (Goldie 2016). However, Goldie (2016) notes that it is possible that connectivism will become one of the theories which can explain certain aspects of networked learning.

Theory of industrialisation

The theory of distance education as an industrialised form of education was developed by Otto Peters in 1960 who applied concepts from the corporate world to distance education. Peters compared distance education with the industrial production of goods and proposed a new terminology, which strongly emphasises the concepts from industry for the analysis of distance education (Zawacki-Richter 2019). While the theory was developed during the era of correspondence education and might not appear to be relevant now, it seems important to refer to Peters' theory when considering the influence of corporatisation of education and distance education in the current neoliberalist era. The central elements of the theory of Peters were rationalisation based on the division of labour in the instructional design and development of distance education materials, the use of scientific control measures to evaluate the quality of materials, formalisation and standardisation of communication, and assessment (Zawacki-Richter 2019). The rationalised method of providing knowledge to large numbers of distance students justified the development of large distance education institutions as a reflection of contemporary industrial society. However, it consisted of the reproduction of objective teaching activities, and according to Hülsmann (2000, cited in Jung 2019), the effect of mass production that enables economies of scale was obvious. Haughey, Evans, and Murphy (2008, cited in Zawacki-Richter 2019) also criticised the theory of Peters as avoiding the underlying pedagogical assumptions in his model. Peters subsequently denied the validity of these claims and argued that his principal motive was pedagogical, but that his challenge was the extension and improvement of the educational system by including distance education (Peters, cited in Zawacki-Richter 2019). Regardless of the critique among educationists, the large-scale introduction of online learning in a massive process of change and innovation still requires systemic and 'industrial' approaches such as recommended by Peters (Zawacki-Richter, 2019) but

in an adapted form. According to Zawacki-Richter (2019: 27), it thus appears that Peters' theory is still very relevant today:

> to build upon the systems approach to distance education that enables a professional implementation and management of (national) digital learning systems and provides flexible learning opportunities for very large numbers of students, especially in developing economies, where the "world education crisis" has not been overcome.

At this juncture it appears necessary to refer to the impact of the philosophy of neoliberalism on education, particularly on distance education, and the way in which it defines all social, economic, and political aspects of society, such as, inter alia, the role of education.

Neoliberalism and distance education theory

Associated with globalisation, the discourses of neoliberalism, included in policies for education, and debates about standards and changed funding regimes, have emerged strongly since at least the 1980s. Over the last three decades the neoliberalist philosophy has reshaped the value and practice of society, including (distance) education, transforming universities into powerful consumer-oriented institutions (Lynch 2014). In this context economic imperatives have become the organisational logic in all societal relationships, and the role of higher education globally has been significantly changed through a shift to business-like decision-making. Distance education has therefore not only gained importance because of the rapid growth in technology, but also as a result of economic and social transformation according to which the market has become strategic for the distribution of goods and services such as education to learners at a distance (Cornell 2013, cited in Ugur 2017). Ugur (2017) argues that neoliberalist education policies and the implementation thereof are characterised by the commercialisation of educational institutions and activities, which means integrating them into free-market relations by privatisation policies and the adjustment of the content, methods, and the instruments of education to free-market needs.

Although the industrialisation theory of Peters as discussed in a preceding paragraph thus carries value in terms of managerial and logistical aspects of distance education, the preoccupation of the neoliberal theory with finances, competitiveness, effectiveness, and efficiency of institutions shifted the focus away from pedagogical presuppositions, especially in a developing context

(Fourie 2009). It appears thus that neoliberalism has added new dimensions to the industrialisation of distance education, which do not seem to align with the theory of Peters.

Given the critical impact of neoliberalism on society and education in particular it is important to note that very little research has been done on neoliberalist philosophy and its association with distance education. This identifies a definite gap in distance education research and not only on the impact of neoliberalism on distance education theory but also the appropriateness of a neoliberalist theory of distance education.

Discussion and conclusion

With the rise of new modes of study for both distance education and blended learning such as flipped learning, massive open online courses (MOOCs), small private online courses (SPOCs), and distributed open collaborative courses (DOCCs) it has become important for researchers to revisit the theories that were developed in the era of correspondence and traditional distance education, and to refine and update the theoretical frameworks to align with the rapidly changing environment (Jung 2019). While only a few of the existing theories of distance education featured in this chapter, primarily due to limited space, the idea was to remind the reader of the way in which some of the 'old' correspondence theories, such as the theory of interdependence and autonomy and the theory of industrialisation paved the way for the development of emerging theories such as transactional distance and connectivism.

This chapter underlined the importance of research on distance education being firmly framed within a theory and noted advantages of theory-based research. While theory is viewed as a critical tool for future research, it also plays a part in the development of distance education in changing teaching and learning contexts. Jung (2019) asserts that distance education theories provide important descriptions and explanations about current knowledge on distance research and practice and provides guidelines for future research and practice in changing open and distance learning environments.

The low frequency of the use of theories to guide distance education has been noted as a deficiency in this field of research. Wolf et al. (2020) found that distance education researchers who use qualitative research methods often describe their work as case studies, exploratory, or descriptive research. While case study work has been critiqued as atheoretical, positive responses to the criticism led to a broad, instead of a focused foundation for distance education research. Moore

(cited in Wolf et al. 2020) reminded distance education researchers that the inherent problem with conducting atheoretical work is that the research question that is supposedly addressed by the data has very little connection with the previous knowledge in the field. According to Wolf et al. (2020) the implication is that although many individual studies are grounded in theory, a cohesive theoretical foundation has not been identified in the area of distance education. The implication is that there is a gap in the field of distance education research that signifies the importance of developing new distance education theories and refining existing theories. It is important that open distance education researchers and practitioners have access to theories that assist them to understand new technological innovations such as artificial intelligence and blockchain, and the trend of moving away from online to mobile (Jung 2019). It is also essential that educational philosophies, distance education traditions, and experiences from unexplored regions such as the East be considered when developing new theories and revisiting current theories.

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Chapter 4:

Towards a Theoretical Framework for Teaching and Learning in Online Distance Education

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Introduction

Rapid developments in technology had a direct influence on education at all levels, specifically on higher education institutions (HEIs) which offer distance education. Education at a distance involves a teaching model in which student and instructor are separated, teaching and learning are mostly asynchronous, and it is always distributed (Anderson and Rivera-Vargas 2020). Currently, distance education is offered online, since it takes place in virtual environments in which users use various tools available on the internet to teach, learn, and communicate. For this reason, it makes sense that researchers such as Harasim (2017), Huang, Lin, and Huang (2012), and Kocdar, Karadeniz, and Bozkurt (2018) use the terms 'distance education' and 'e-learning' (electronic learning) interchangeably. For the purpose of this chapter, though, the term 'online distance education' will be used to distinguish it from traditional and earlier generations of distance education.

Although a plethora of research exists on topics related to distance education, new frameworks and perspectives on how teaching and learning are taking place within fast-changing environments are largely lacking. Rapid developments in the use of technologies for teaching and learning necessitate ongoing revisions of theories, interactions, roles, and strategies—as Anderson and Dron (2012) argued more than a decade ago. Karatas and Arpaci (2021) support this statement, noting that the Covid-19 pandemic has revealed that virtually all higher education systems require technological, theoretical, and/or pedagogical improvements.

Employing a theoretical and interpretative analysis, based on an integrative literature review (Hambaloyi and Jordan 2015) of relevant articles, chapters, and related documents, the present chapter reflects on current online teaching and learning practices. This approach is useful for reflecting an up-to-date body of literature and serves to summarise, synthesise, draw conclusions,

identify research gaps, and propose future theoretical underpinnings (Cronin, Ryan, and Couglan, 2008). To contextualise this chapter, it commences with a brief history of distance education, before focusing on several pertinent changes in the domain of online distance education, with a view to put forward a theoretical framework to underpin current and future online distance education in a developing context. The chapter ends with a number of conclusions and recommendations for the future.

The history of distance education from a pedagogical and technological perspective

Distance education is not a new field; in fact, it dates back as far as the nineteenth century. Since then, it has evolved thanks to both social and technological developments. In its current e-learning iteration it represents the evolution of a model (characterised by rapid changes since the 1980s), from correspondence education (primarily reliant on printed materials) to the widespread use of digital technologies and devices (internet, online platforms) (Anderson and Rivera-Vargas, 2020).

Anderson and Dron (2012) note that, historically, distance education has accommodated three pedagogical approaches—namely, cognitive-behaviourism, social-constructivism, and connectivism. The cognitive-behaviourist approach defined the first generation of individualised distance education, allowing large numbers of students to obtain an education at lower costs than traditional education permitted. The technologies in use were mainly printed books, newspapers, and related mass media. The second generation, social-constructivism, evolved from the first and specifies that learning is socially constructed—it is similar to the former in that learning occurs as an internal process. According to Anderson and Dron (2012), second-generation pedagogy focuses on interactions between students and lecturers rather than on the mere transmission of knowledge, which is a characteristic of the first generation. Technologies mainly include teleconferencing and (basic) online modes (a later development). Advances in technologies which serve to facilitate teaching and learning have strengthened collaboration and led to the virtualisation of social environments through the creation of expansive networks. Whereas in social-constructivist learning models any social relations are established and collaborative learning takes place within individuals and in a social way, in terms of the connectivist approach (the third generation of distance education), learning is achieved through recognition and interpretation within technologically advanced networks, which can reside either in- or outside of human beings (Siemens, 2005).

Related technologies include the use of Web 2.0 tools (for example, social networking sites, blogs, and video hosting sites) and/or Web 3.0 tools (for example, the semantic web, learning analytics, and artificial intelligence [AI]). These tools should be seen as integrated communication systems rather than simply video-versus-audio-versus-data technologies. In summary, diverse technologies have largely contributed to, enabled, and even advanced the different generations of distance education. Also, due to such progress, both the definition and practice of distance education have changed and will continue changing as ever-newer technologies and pedagogies emerge.

Changes

Several changes in society, in student behaviours and expectations, as well as in emerging technologies, have prompted a rethink of the pedagogies which are applied in or are applicable to online distance education. Although potentially there are myriad changes to discuss, based on the literature consulted and within the scope of this chapter, the following changes have been identified and will be interrogated in greater detail: the Covid-19 pandemic, the need for twenty-first century skills, social media and technologies for collaboration, and mobile learning and open educational resources (OERs).

The Covid-19 pandemic

The process of rethinking pedagogy has been accelerated by the Covid-19 pandemic, with news of a coronavirus outbreak, first widely reported in December 2019 after which the virus spread rapidly across the globe. National governments had to take radical steps, including imposing social distancing regulations, quarantine measures, and restrictions on travel and education (Hebebci, Bertiz, and Alan 2020). The sudden closure of universities, which was unexpected and unpredicted, necessitated a move to online distance education, leaving many students feeling overwhelmed, demotivated, and isolated. This has brought about significant changes in the way students learn and lecturers teach. Digital technology use in education has become increasingly important, with learning management systems (LMSs) playing a crucial role in managing teaching and learning.

As Bozkurt and Sharma (2021) point out, however, the pandemic has not only affected teaching and learning, but has also generated a social and psychological crisis which, arguably, created a

need to humanise pedagogy with care and empathy. The psychological impact of the pandemic has been confirmed in a study by Browning et al. (2021), with 2 500 student respondents across the United States– they found that the most frequently reported consequences of the pandemic were a lack of motivation, changes in the way students learn, a sense of anxiety, feelings of isolation, and symptoms of depression. Similarly, a comprehensive study with 13 000 respondents on the impact of the pandemic on higher education students in South Africa, found that 65 per cent of all students reported mild to severe psychological distress in 2020 (O'Regan 2020). Such psychological consequences confirm the need for a pedagogy of care, as confirmed in the study by Rapanta et al. (2020). When asked how university lecturers should think about themselves and their roles in a post Covid-19 reality, a participant predicted that the instructor's role will increasingly involve a complicated form of caring for both students and colleagues, which implies greater knowledge of these parties' lives and the challenges they face. In respect of post-pandemic learning communities, Bozkurt and Sharma (2021) mention that these have to be reconstructed with equity and social justice as underlying and overt values. The pandemic laid bare injustices and inequities, specifically in respect of the digital divide, in developing contexts in particular (Bozkurt and Sharma 2021; Leacock and Warrican 2020; Mathrani, Sarvesh and Umer 2021). In this regard, Peters and Rizvi (2021) argue that the pandemic offers an opportunity to rethink not only new digital, online, and pedagogical possibilities but also the basic purposes of education and how a renewed vision of education might assist in developing a more democratic and just society.

The need for twenty-first century skills

The second reason behind the proposed rethinking of current pedagogies, is the need for twenty-first century skills, notably those deemed necessary for surviving and thriving in the workplace and society of the twenty-first century. Although these skills are not necessarily new, they can be regarded as 'newly important', since students need them to analyse information from multiple sources before using the information to make decisions and germinate fresh ideas (Silva 2009: 631). Many of these skills are associated with deep learning, creativity, problem solving, and teamwork (Graham 2015), which have gained prominence in the face of the challenges presented by Covid-19. Various authors have identified the twenty-first century skills needed to adapt to fast-changing realities as collaboration, problem solving, creativity, the ability to use information and communications technology (ICT), information literacy, critical thinking, and independent learning

(Karatas and Arpaci 2021; Schleicher 2012; Senturk 2020). The acquisition of such skills requires active learning in rich and complex environments, with sufficient opportunities to develop, apply, and practice related skills. With regard to the twenty-first century skills needed for online learning, a study by Karatas and Arpaci (2021) found that the identified competencies were strong predictors of students' readiness for online learning, while Martin, Stamper, and Flowers (2020) found that students with the requisite skills benefitted more from online learning opportunities than those lacking these specific skills.

Social media for technological collaboration

Over the past decade, social media have come to affect the lives of almost every individual in every society, and the education sector is no exception. Hew (2011), for instance, found that students spent between ten and 60 minutes a day on social media, even when studying. Many studies have shown that students use social media platforms to socialise (see Everson, Gundlach, and Miller 2013; Sharma, Joshi, and Sharma 2016) and for collaborative learning activities (Chugh and Ruhi 2018; Madhusudhan 2012; Vandeyar 2020). A notable finding is that HEIs are increasingly integrating social networks in their teaching and learning (Forkosh-Baruch and Hershkovitz 2012; Sarapin and Morris 2015).

Social media encompass a variety of internet-based social computing technologies that facilitate the creation and exchange of user-generated content (UGC) (Jang 2015). In recognition of the social affordances of social media, several researchers have argued for their integration in teaching and learning (Jang 2015). The availability of social media grants students' greater control over and access to information. These technologies also allow for academic collaboration, access to course content, and the (co-)creation of knowledge (McLoughlin and Lee 2007). By empowering students in this way, lecturers can use various technologies to increase the former's engagement and motivation to learn, given that social media are not only highly interactive but also social in nature (Bolanos and Ketola 2018). Jang (2015) adds that social media are valuable tools in creating networks which support collaborative learning, particularly amongst Generation Z students who grew up with various technologies as part of their daily lives. The increased focus on collaborative approaches to learning in higher education has precipitated a growing interest in online learning communities. A sense of community is deemed essential for engaging learners in collaborative learning activities, to provoke questioning and the sharing of experiences, and to effect interaction

not only amongst members of the student cohort themselves but also between students and lecturers as they construct knowledge. As Anderson and Rivera-Vargas (2020) point out, although it is challenging to completely eliminate the physical distance between student and instructor through the use of technologies, it is possible to build collaborative environments which do not reproduce distance between the different actors—or the actors and the content—in the educational process. Anderson and Rivera-Vargas (2020: 210) refer to this possibility as a 'utopian learning environment reality', which they hope to see unfolding in the near future.

Social media platforms such as Facebook, Twitter, and WhatsApp have further enabled and encouraged the development of communities of inquiry in which students can share knowledge, information, and experiences; discuss theories and practices; and learn from one another (Popescu and Badea 2020). Lecturers are no longer the only source of information but perform the roles of facilitator, guide, and assessor of learning. They can conceivably encourage contributions from the wider public or experts in the field outside their institution of learning, thereby providing students with essential contacts. A study by Ansari and Khan (2020) revealed that the online social media selected and used for collaborative learning had a significant impact on students' interactivity with their peers and teachers and influenced their online knowledge-sharing behaviour and (consequently) their success. As an approach, collaborative learning requires a reconsideration of the diverse roles and authorities involved, and the ways in which learning can be achieved and assessed.

Mobile learning and open educational resources

With the advent of smartphones and other mobile devices, a new era of teaching and learning emerged, which allows for student interaction and communication at anytime from anywhere. As an example, Barhoumi (2015) explains that WhatsApp can enhance student learning in various ways: through discussion forums, the sharing of information, and the integration of learning resources. Artificial intelligence has taken (and will continue to take) mobile learning to new dimensions, as indicated in a study by Chassignol et al. (2018) who found that AI can result in better feedback, facilitate personal learning, and help to monitor student performance.

Information access, sharing, and creation are possible through, and supported by, mobile devices, with OERs facilitating these actions. Hylén (2021) confirms that the term 'open educational resources' was first used in 2002 at a conference hosted by the United Nations Educational,

Scientific and Cultural Organisation (UNESCO). At that event, participants defined OER as 'the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes' (Hylén 2021: 2). The use and production of OERs to address content-specific needs, generate discussion, and share multiple viewpoints, can result in deep learning experiences.

To assist in bridging the digital divide, several initiatives worldwide (for example, MERLOT, OER Commons, OER Africa, Share my lesson, Open Textbooks, and Wikimedia Commons) are facilitating access to OERs that can be used, re-used, adapted, and/or created—depending on the licence. This means that students and lecturers have access to material, course videos, and other resources, which they can share or adapt to suit their specific needs. Although not all materials may be of high quality, easily accessible on small screens, or free of charge, they offer opportunities for teaching and learning that were not previously available.

Proposed theories for a theoretical framework in online distance education

The aforementioned developments in online distance education confirm the need to reconsider current pedagogies and the theories underpinning them. Cognitivist and socio-constructivist approaches (where communication mainly exists between lecturers and students) are no longer sufficient in a highly connected networked and knowledge-based society. A different set of theories is necessary, as it must provide the basis for understanding how students learn and how lecturers teach. Those theories further have to accommodate a way of explaining, describing, and predicting learning, in addition to guiding lecturers in making informed decisions on learning design. Given its complexity, no single theory can sufficiently underpin online distance education. Based on the recent changes outlined in this chapter, three relevant theories are proposed as theoretical frameworks. As Grant and Osanloo (2014) argue, a theoretical framework should be derived from a tested and validated theory/theories. This does not mean, however, that these are the only teaching and learning theories that could or should underpin online distance education. Rather, they should be seen as pertinent for advancing our understanding of the role of the instructor/educator and the student, and the manner in which learning takes place.

The following theories were identified, and will be discussed in more detail:

- Connectivism
- The revised Community of Inquiry framework
- Ubuntu

Connectivism

Authors such as Goldie (2016), Jung (2019), and Korkmaz and Toraman (2020) argue that current online learning is mainly based on the theory of connectivism. This is in line with the assertion by Anderson and Dron (2012) that connectivist learning can be categorised under the third generation of distance education. According to Siemens (2005), traditional theories such as behaviourism, cognitivism, and constructivism are unable to fully explain how learning takes place in a digital age, hence connectivism is proposed as an alternative. Siemens (2005), who developed the theory in collaboration with Downes (2006), asserts that connectivism is a learning theory for the digital age, given the impact of concepts such as globalisation, technology access, and digital information where knowledge has come to reflect a wealth of diverse opinions. Kivunja (2014) adds that the shift towards connectivism in the current pedagogy, emphasises the development of twenty-first century skills such as problem solving, critical thinking, and digital literacy.

In a connectivist learning environment, knowledge may reside in humans as well as in non-humans—for example, in libraries, websites, or journals thereby contributing to the notion of openness. Kivunja (2014) further argues that nurturing and maintaining connections is imperative for facilitating continuous learning, which is where the ability to see connections between fields, ideas, and concepts becomes a core skill. The aim of all connectivist learning activities is to have accurate, up-to-date knowledge being disseminated across a network, both in the human brain and in the memory of AI (Barnett, McPherson, and Sandieson 2013). Goldie (2016) argues that the starting point of learning occurs when knowledge is activated by students who are connected and contribute to a learning community or node, which is always connected to a larger network. In such connections students need to be self-directed and connected in order to share ideas and think together, which in turn results in the creation (or removal) of, or an adjustment in, the strength of connections (Goldie 2016). Connectivism implies the need to be distributed; in other words, it is not located at any given time or in any given place but is fluid and comprises distributed connections which can occur outside the boundaries of place and time (Goldie 2016).

As with all theories, criticism of connectivism exists, such as the fact that it might not be a unique

or new theory but rather one whose principles flow from existing learning theories, such as social constructivism (see, for example, Bell 2011; Clara and Barbera 2014). Kop (2011) raises the question whether students would manage to be self-directed learners, while Pando (2018) found that students were largely disconnected from their online learning experience. Notably, the literature on connectivist learning is not clear on the role and responsibility of the instructor, and it appears to be dismissed as 'just another human connection'. Despite its limitations, however, most authors recognise the potential of connectivism for explaining how learning takes place in a digitally connected world (Bell 2011; Clara and Barbera 2014).

Based on the principles of and literature on, connectivism, clearly learning depends on the self-directedness of students, the connections they establish and maintain, and the manner in which knowledge is accessed and understood in such connections. In this regard, Ravenscroft (2011: 155) argues that to embrace connectivism new designs need to be added to explain future learning 'that place[s] the person, their social behaviour and their community at the centre'. Downes (2008) also foregrounds the importance of community in describing connectivism. For these reasons, the community of inquiry (CoI) framework was deemed necessary to establish the theoretical underpinning of online distance education.

Community of inquiry

The CoI framework, first proposed by Garrison, Anderson, and Archer (2000), emphasises social learning in the creation of a community of inquiry. Garrison (2009) states that the concept of inquiry is used extensively to understand and guide online learning design and delivery. The framework proposes three interrelated presences for deep learning to take place, related to teaching, the social, and the cognitive. Later research on the CoI revealed that insufficient emphasis tends to be placed on the role, involvement, and experience of students in the online learning process, and this led to a fourth presence being identified, namely learning presence (Shea and Bidjerano 2010; Shea et al. 2012). That will also serve as an important presence in the current discussion, as the learning presence changes the paradigm from one that is primarily based on teaching to a teaching and learning theory which aligns with a student-centred approach.

Learning presence relates to students' responsibilities in the educational process, which include their proactive use of specific processes such as goal setting, strategy selection, and personal monitoring and effectiveness (Shea et al. 2012). According to Shea and Bidjerano (2010), this presence

articulates popular beliefs about the importance of self-direction and has significant implications for the design of learning communities. Teaching presence contributes to learning presence by developing learners' self-direction skills. Additionally, teaching presence is essential in creating a social presence in the online teaching and learning environment to establish a sense of meaningful communication and connection (Pool, Reitsma, and Van den Berg 2017), and enable purposeful discourse and reflection. Pool, Reitsma, and Van den Berg (2017) argue that social presence in turn is a mediating factor that provides context for the educational process, while the study by Rapanta et al. (2020) mentions the role of social presence in improving student motivation. Once students are engaged, teaching presence has an important influence on the facilitation of their learning. In this way learning presence becomes an important mediator between the teacher and social and cognitive presences (Pool et al. 2017). Garrison (2009) argues that cognitive presence is at the heart of the CoI, as it is defined by a process whereby students are tasked with a problem or issue at hand, and, through discourse and reflection, construct meaning and confirm their understanding thereof. Without collaboration, according to Garrison (2009), discourse is very likely to consist of fragmented personal comments, which will not serve the purpose of the CoI. Collaborative learning activities are what set online learning apart from traditional distance education. Bozkurt and Zawacki-Richter (2021) confirm that social and collaborative learning are trending while Karakaya (2021) emphasises that if students are to be at the centre of the learning experience, human-centred approaches are needed. For this reason, the final theory which this chapter proposes in underpinning current online distance education, is that of Ubuntu.

Ubuntu

Ubuntu, which holds that a person is a person because of other people—*motho ke motho ka batho* (SeSotho) or *umuntu ngumuntu ngabantu* (isiZulu)—is an African philosophy that prioritises the welfare and well-being of others and articulates social interdependence (Letseka 2011). For these reasons it was deemed suitable to complement connectivism and the CoI framework in underpinning current online distance education. Additionally, this aligns with the viewpoints of academics such as Metz (2011) and Letseka (2016) who refer to Ubuntu as a moral theory, which promotes critical reflection on beliefs and practices to trigger and improve practice and innovation.

In describing Ubuntu, Coetzee and Roux (1998) refer to sympathy, care, sensitivity, the needs of others, and respect as social traits, while Teffo (1992) refers to the value of social responsibility.

Of further relevance is the notion of Makhudu (1993:40), that Ubuntu encompasses 'the ability to communicate, [and to effect] open communication and interaction'. Closely linked to the notion of communication is the observation by Metz (2011), that Ubuntu values participation, inclusion, equity and respect—traits that are similar to those of social justice, showing the close link between these concepts. Letseka (2011) adds justice and generosity as Ubuntu values, noting that knowledge should be shared generously to benefit the development of society. Despite limited research on the intersection between Ubuntu and social justice within the higher education context, Leibowitz and Bozalek (2016) explored these concepts in the scholarship on teaching and learning. Importantly, Ngubane and Makua (2021) identify a compelling connection between Ubuntu and social justice, stating that these concepts are in harmony, since living in a socially just, respectful, and harmonious environment is a central tenet of Ubuntu.

As regards Ubuntu and the online distance education environment, Letseka (2016) mentions connectedness and conviviality as two core values which have the potential to relieve feelings of loneliness and isolation. For this reason, students and lecturers should be able to interact on various platforms (for example, discussion forums) and/or by making use of technologies which foster collaboration. As another core value of Ubuntu, Broodryk (2002) documents humanness, which aligns with Bozkurt and Sharma (2021) advocating for the humanising of education.

Synthesis and discussion

The need for a paradigm shift in education, specifically in a post Covid-19 era, is confirmed in studies by Hebebci et al. (2020), Jones and Sharma (2020), and Rapanta et al. (2020). From the literature, it is clear that no single theory can describe the complexity of online teaching and learning (Saykili 2018).

Different theories relate to recent changes that have had an impact on teaching and learning. In the table below, the key concepts pertaining to these changes and related teaching and learning theories are indicated, based on their principles and research from the literature consulted.

Table 1: Key concepts and applicable proposed theories

Key concepts of recent changes necessitating different pedagogical approaches	Relevant theories
Covid-19 pandemic Social distancing Isolation Compulsory move to online distance education Feelings of isolation, anxiety, and depression A need to humanise pedagogy A need for social justice and equity Digital divide The need for new pedagogical approaches	Connectivism Community of Inquiry Ubuntu
Need for twenty-first century skills Collaboration Problem solving Creativity Digital literacy Teamwork Independent thinking Deep learning Critical thinking	Connectivism Community of Inquiry Ubuntu

Social media and collaboration The need for user-generated content Student control and access to information Social learning Interaction Network creation Collaborative learning Questioning Sharing of experiences The development of communities of inquiry The facilitator as guide and facilitator	Connectivism Community of Inquiry Ubuntu
Mobile learning and OERs Student interaction and communication, anytime and anywhere Access to information Sharing, adapting, and creating knowledge Openness Addressing context-specific needs Artificial intelligence Addressing the digital divide	Connectivism Community of Inquiry Ubuntu

It appears that the proposed theories of connectivism, CoI, and Ubuntu are all closely related to recent changes which have necessitated a rethinking of current pedagogies. For this reason, by combining with and supplementing one another to serve as a more holistic base, these theories are relevant and are proposed to serve as a theoretical framework or lens for current pedagogies. This unique combination of Western and African theories also shows how theories from different contexts can enhance and strengthen a theoretical base.

Aligning theories and pedagogies with appropriate technologies is an ongoing challenge in online teaching and learning. Technologies allow lecturers to teach differently and to meet student needs. It also allows students to learn differently thanks to access to digital content, mobile learning,

new forms of learning analytics to guide their choices and progress, and through interaction with their peers, lecturers, and content from around the world. Current social trends—specifically in higher education—show that students should take an active role in, and responsibility for, their own learning. The role of the lecturer is to create a caring, fair, and open learning environment in which s/he acts as a facilitator in guiding students to become responsible learners, who are ready to face the demands and opportunities of the twenty-first century.

Conclusion and Recommendations

The current body of literature bears testimony to the wave of change taking place in higher education environments, specifically regarding the pedagogy, underpinning theories, and new technologies. Innovative applications in the use of technology for teaching and learning are being researched and evaluated as they change and/or become available. The experience of remote learning because of the Covid-19 pandemic has contributed to this process, leading to the identification of both best practices and failures, as well as the need for frequent learning, un-learning, and re-learning to improve current practices. The disruption of our educational experiences, caused by various factors and recent changes, has prompted researchers and practitioners alike to critically reflect on, and make the necessary changes to address, the needs of a rapidly changing society.

For an effective learning experience, different theories need to be considered. Although the cognitive-behaviourist and social-constructivist approaches are still in use and have a role to play, connectivist learning took hold at a time when technology began entering the social domain in a seamless manner, and the distinct role of technology in teaching and learning reached its peak, such that extant learning theories lost prominence and gave way to new generations of distance education approaches. The CoI framework highlights teaching presence, learning presence, cognitive presence, and social presence, facilitated by technology, in online distance education environments. Ubuntu as an African moral philosophy has been added as an underpinning theory because of its appropriateness, specifically in the context of Covid-19. It is regarded as a human theory, being concerned with the well-being of others and because it is grounded in social justice, interdependence, and connectedness.

Different theories have influenced pedagogy in the past and will continue to do so as contexts and technologies change and develop. Lecturers should be aware of this and select the most

appropriate theories to suit their contexts and assist them in achieving the envisaged learning outcomes. Also, the principles of leading theories should form an integral part of learning design, but a unitary approach might not be appropriate. This implies that the context needs to be considered when choosing both theories and pedagogies in online distance education environments.

The theoretical framework proposed in this chapter provides for teaching students how to master vital twenty-first century skills, such as thinking critically, solving problems, being creative and innovative, and expanding their digital literacy. Being effective as modern-day lecturers requires a pedagogical paradigm shift, to be able to prepare students not simply to memorise content and follow instructions, but to develop these important skills. Lastly, ongoing research is needed to keep abreast of events in a fast-changing digital era if we are to appropriately address student needs.

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THEME 2: BUILDING FRAMEWORKS IN DISTANCE EDUCATION RESEARCH

The contributions in this section provide a rich variety of perspectives on frameworks in distance education research. The research-practice gap in distance education is elucidated, while student support services is contextualised, and practice through practitioner enquiry is considered.

Chapter 5:

Building Theory into Practice

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Introduction

The idea of open flexible learning, which may take the form of distance education, is not a new phenomenon. Anderson and Simpson (2012) cite the examples of preachers and Greeks who practised it before the advent of the printing press and gave rise to distance delivery. Distance education by its very nature can offer everyone, irrespective of their background, demography, and gender, to mention but a few, an equal opportunity to education depending on how openly it is applied.

According to Cleveland-Innes and Garrison (2010: 13), 'the history of distance education has seen a preoccupation with geographical constraints along with technologies to neutralise distance and increase access'. From its print-based, correspondence beginnings to radio and television, the telelearning model that makes synchronous learning possible, and further generations that have emerged from new technologies, the mode has indeed come quite a long way (Moore and Kearsley 1996; Taylor 2001; Anderson and Simpson 2012; Abdrahim 2018). The term *generations* brings to the fore the changing landscape of technologies employed in distance education provision. Although being previously taken on reluctantly in some instances, the recent COVID-19 pandemic with its negative impact on education worldwide, which Pregowska et al. (2021) describe as 'brutal', has generated more interest in the field. In addition, 'the field of distance education has been a significant change agent in the digital transformation of higher education' (Bozkurt and Zawacki-Richter 2021: 19) and will be playing a big role in the education for all agenda (Zawacki-Richter and Naidu 2016). There is ample evidence that if well-designed and well-taught, distance education works well (Simonson 2019).

According to Anderson and Simpson (2012, 2019), the field of distance education has a rich heritage of scholarly work that serves as a foundation for new developments in the field, although the research on teaching and learning at a distance is not necessarily always significantly different from

other educational fields. As the mode's history moves through diverse generational frameworks, a term first mooted by Nipper (1989), research into the mode has gathered momentum. Anderson and Simpson (2012) assert that sound scholarship serves as a basis for 'sensible and defensible decisions' and the promotion of further work from young scholars, who need to be encouraged. Literature shows research has the potential to improve policy and practice, if rightly applied (Comber et al. 2018; Datnow et al. 2002; Higgins et al. 2022). It also shows that research into practice can be used to generate new or improved theory (Eden and Ackerman 2018; Hofmann 2020). As well, seasoned practitioners in the field have challenged upcoming scholars to articulate and question their own underpinning assumptions and build on them as they impact the future of the field (Anderson and Simpson 2012). However, despite the growth in the area of research, our concern as the authors of this chapter is the extent to which practitioners in the field apply research findings to their practice and conversely the extent to which they research their practice to generate new or improved theory. To maximise the potential of distance education, it is not only important for institutions to do the right things, but they also need to begin to do things differently (Dolence and Norris 1995).

In this chapter, the authors take a look at the field of research in distance education, the impact of research on practice over the years, and proffer suggestions on how practitioners in the field can improve on using research to improve practice and build practice into theory. To probe this phenomenon, we have borrowed from Gibson's affordance theory which states that the form of the objects surrounding us shape the perception of what it is possible to do with them (Gibson 1979).

The research journey of distance education

In the last decade, distance education has brought a massive change to the field of teaching and learning (Simonson 2012), the literature of the field has matured, and the related research has improved. Historically, distance education-focused research began during the first generation when there were no journals dedicated to the mode (Anderson and Simpson 2012). According to Srivastava et al. (2020: 264), the *Distance Education* journal published by the Open and Distance Learning Association of Australia (ODLAA) was the first to publish '...research specifically in the field of distance education'. With many current dedicated journals (Mays n.d.), research in the field has grown by leaps and bounds. It is gratifying that quite a number of journals are now linked to the mode with practitioners being given an opportunity to share their experience of the field (Anderson and Simpson 2012). Nonetheless, there remains a dearth of dedicated distance education journals

in some contexts, for instance in India (Srivastava et al. 2020).

Referring to the earlier comments of James Finn (1953), Campbell and Stanley (1963), and Richard Clark (1983, 2012)—previous education leaders— Simonson (2019: 32) asserts: 'Each of these scholars had a message of critical importance to distance education—scientific inquiry, conducted with rigorous attention to correct procedures, is the key to success of our field. Research and theory are at the foundation of credibility and quality.' Srivastava et al. (2020) also echoed the same sentiment emphasising that for any system to flourish and retain reviewing and maintaining its quality and standard is key. Equally important is 'to ensure the efficacy and effectiveness of the system' (Srivastava et al. 2020: 264). In addition, Bozkurt and Zawacki-Richter (2021) assert that scholarship is needed to predict the future, especially given the unabated changes taking place in the landscape.

Holmberg (1987, cited in Simonson 2019: 32), earlier identified the following as the structure for distance education research:

- philosophy and theory of distance education
- distance students and their milieu, conditions, and study motivations
- subject matter presentation
- communication and interaction between students and their supporting organisation (tutors, counsellors, administrators, other students)
- administration and organisation
- economics, systems (comparative distance education, typologies, evaluation, etc.)
- history of distance education

Other scholars (Berge and Mrozowski 2001; Lee et al. 2004; Zawacki-Richter 2009; Bozkurt et al. 2015) have also identified a similar structure albeit with some differences in these categories, since the distance education field keeps changing, especially with newer technologies springing up. According to Bozkurt and Zawacki-Richter (2021: 19), the mode mirrors and takes on the socio-cultural, demographic, political, and technological domain changes taking place in its environment. Therefore, the authors identified three main threads of distance education research, which are: '(a) issues related to open education; (b) the design, support, and quality assurance of online DE; and (c) the implementation and use of educational technology, media, and digital tools' (Bozkurt and Zawacki-Richter 2021: 19). Gone were the days when distance education research was criticised for its lack of rigour and mostly descriptive nature (Perraton 2000). Nonetheless, scholars have drawn

attention to the need to broaden the scope of its research to cover school learners, especially with the advent of COVID-19 that has changed the general landscape of education, psychological and social characteristics of the learner, the implications of the mode for institutions, and the role of different media on learning outcomes (Simonson 2019; Bozkurt and Zawacki-Richter 2021).

Our concern

Although the field of distance education research has grown over the years, the challenges remain the low proportion of research focused on the mode (in many contexts in relation to the populace it serves), lack of strong institutional policy on research, lack of collaboration among institutions, and a low number of publications. Srivastava et al. (2020) cited the example of India in this instance. Above all, the authors emphasise the often-missing link between research outcomes and practice in its totality, which 'needs to be systematic, professional and action based' (Srivastava et al. 2020: 281).

Bozkurt and Zawacki-Richter (2021) are examples of the scholars who have called for role definition, envisioning the future, and the preparation of a research agenda for the future. We, the authors of this chapter, assert that one of the major tasks ahead of distance education practitioners is to start working towards how research can begin to impact both our practice and our theoretical understandings even more than before. This is our focus in this chapter.

The research-practice gap

The research-practice gap, also known as the theory-practice gap, is nothing new because it has pervaded literature for years (Bansal et al. 2012). Although it is gladdening that research in the field of distance education has grown and is still growing with a brighter future, research without action does not impact practice (Boser and McDaniels 2018). Hutchings (1990: 1) also echoed the same sentiment decades earlier when he asserted that 'what's at stake is the capacity to perform, to put what one knows into practice'. Anderson and Simpson (2012) lament the lack of real dedication to act on research findings that will improve the quality of teaching and better student experience. Although rigour that leads to excellence in research is good, Ortega (2005, cited in Mehrani 2014) posits that the benefit of research should not only be based on this; it is in the long run its

prospective value to resolving social and educational problems that should be of importance. Therefore, practitioners in the field need to adopt the evidence-based practice approach, which connects research and practice and leads to better decision making with improved practice (Brown, Schildkamp, and Hubers 2017; Diery et al 2020).

According to Diery et al. (2020), there is a need for more research on finding out to what extent practitioners engage with empirical evidence, the extent to which they apply such evidence to practice, what their perceptions are on this important issue, and what the personal factors influencing their perceptions are. The paucity according to the authors also includes the tangible advantages of evidence-based practice in teaching.

Nonetheless, despite its benefits, the scholars, citing several authors, cautioned that evidence-based research practice is not devoid of its own challenges. Among these, according to the authors, are mixed-methods research approaches that sometimes make it difficult to determine the most pertinent evidence and the inability to provide empirical evidence for every single decision in teaching contexts. Therefore, evidence from research should be used as a guide, not as an inhibitor to the instant decision-making needed so often in teaching-learning practice. Research can, however, be useful to guide reflection that improves future practice. Other key things to consider according to the authors are what makes up evidence, how and when evidence should be used, and the relationship between the evidence and individual proficiency (Diery et al. 2020).

What are the challenges?

Despite its value, some of the reasons for inaction among practitioners include the instinctive resistance to change, lack of funding, poor or non-existent reward systems for evidence-based research, a disconnect between research and practice, and because there is no direct path from evidence to making decisions (Boser and McDaniels 2018). Other challenges are a lack of skills to acquire and apply knowledge from practice (Wrenn and Wrenn 2009); poor time management, absence of institutional support/incentive, lack of time, and heavy workloads (Allison and Carey 2007, cited in Mehrani 2014); and sometimes the lack of a clear link between curriculum content and workplace need (Schultz and Hatch 2005). In addition, Shaharabani and Yarden (2019) identified the persistent use of traditional transmission methods of teaching at higher education institutions, despite research evidence for the constructivist approach. Karaman and Kurşun (2014: 353–354) also identified 'organisational and structural constraints, challenges in conducting experimental

studies because of the nature of distance education students that allows them to study at their own pace; challenges in valid and reliable data collection; heterogeneous sampling; various dependency of distance education (e.g. a platform); lack of consistent terminology; and lack of theoretical framework'.

Affordances theory in the space of the theory-practice gap in distance education and implications for practice

Affordances theory emanated from James Gibson in the 1970s (Gibson 1977). He states that, 'The affordances of the environment are what it offers the animal, what it provides or furnishes... It implies the complementarity of the animal and the environment' (Gibson 1979: 127). According to Sarkis (2021), the theory has its roots 'in cognitive psychology and philosophy as part of perception theory and valences'. Although the theory is very popular in relation to the use of technology and its design, in this chapter the authors focus on the complementarity between an affordance (in this case, what practitioners could do with their research) and researchers (who are the producers of research).

Although Norman, who later expanded on the term, focuses on the perception of the animal with the potential of leading to action (Norman 1999; McGrenere and Ho 2000; Blewett and Hugo 2016), one could regard both as complementary because the animal can only act on what it perceives (as useful to it) in its environment. Hutchby (2000: 444) indicates that 'affordances are functional and relational aspects, which frame, while not determining, the possibilities for agentic action in relation to an object'. Consequently, 'affordances neither belong to the environment nor the individual, but rather to the relationship between individuals and their perceptions of environments' (Parchoma 2014: 361). Based on these assertions, Evans et al. (2017: 39) strongly aver that an 'affordance is neither the object nor a feature of the object'—while it only invites behaviours (with a range of variability), it is not the outcome itself.

Sarkis (2021) also uses the same idea while referring to management—he indicates that research studies, findings, and outputs are entities that afford scientific interrogation and innovation that should lead to managers doing their jobs better. The latter part speaks to the application of knowledge. Therefore, the author asserts that inquirers 'as entities could see research as an object of scientific investigation' (Sarkis 2021: 6) and it is hoped that new knowledge will range from managers' experience from practice to proof-based research for application. Although the

practical use to which a researcher puts a research finding differs from individual to individual as indicated by Evans et al. (2017), one still expects researchers to appropriate their findings to their practice, which the authors assert will depend on the 'attributes and abilities of users' (Evans et al. 2017: 36), among other factors.

According to Young and Cleveland (2022), people's abilities to sense and subsequently use affordances are believed to relate to both their physical and mental capacities. However, authors suggest there is a strong link between intention and perception for action to take place (Heft 1989; Young and Cleveland 2022). Heft (1989: 12) defines intention as 'possibilities that are only instantiated in a particular form in interaction with situational factors'. According to Heft (1989: 10), 'which particular affordances are utilised in a given environmental setting will depend on intentional processes of the perceiver'. Hence, Pozzi, Pigni, and Vitari (2014: 6) differentiated between 'affordance perception', 'affordance actualisation', and 'affordance effect', which invariably implies that practitioners can only see the effect of actualised affordance. There should be a deliberate 'search for the affordances of the environment' and an 'active behaviour' 'controlled by perceiving those affordances' (Gibson, 1974: 387–388). Institutions and individual practitioners thus need to be purposeful in their intention and perception.

Further describing 'the causal relations between affordance and the perceiver', Heft (1989: 10) indicates that these are 'ontinuous, reciprocal, and cumulative... in order to provide an historical basis for subsequent perceptual development and environmental discovery'. This leads to quality which is built over time as an individual continuously engages with his environment. According to Dewey (1896, cited in Heft 1989: 15), 'the perceived meaning of an environmental object emerges from a continuous, transactional interchange between the individual and the environment'. It is well-understood in the field of distance education that institutions need to pay attention to the quality of their programmes (Aluko 2021). Anderson and Simpson (2012) argue that although enthusiasm is key to enhance the field of distance education, without understanding this will lead to things not being done particularly well, which is the essence of professional development. In addition to this is the fact that training is needed to awaken the perception of latent affordances (Gibson 1969).

The implication of this for bridging the gap between research and practice is that distance education researchers would need to first perceive what value their research findings could add to their practice in order to intentionally act on them.

However, scholars such as Rietveld and Kiverstein (2014) added that individuals' abilities might be relative to received tutoring and sociocultural practices experience. This brings to the fore

the necessity of training programmes being offered by distance education institutions for their staff members if they would like to see the gap between research and practice being bridged. Professional development of staff will hone their skills to maximise the affordances in their vicinity (Young and Cleveland 2022). According to the authors, this will eventually lead to staff's communal ability, thus becoming a 'form of life', which is the 'norm of practice' (Rietveld and Kiverstein 2014: 340). Thus, this becomes an institutional culture because 'much of the functional meaning in our perceptual experience is... culturally-derived' (Heft 1989: 17). New staff members joining the institution will also imbibe this culture. In these ways it becomes possible to build a 'wisdom community' (Gunawardena 2020) which draws on the rich diversity of staff and other stakeholders to build shared understandings. Institutions need to create the ambience for bridging the gap between research and practice to aid understanding because the institution's inaction can make an affordance perceptible by staff hidden (Young and Cleveland 2022). In addition, Gaver (1991, cited in Zhao et al. 2020) indicates that affordances are sometimes opaque and are sometimes not sensed correctly by users. Practitioners need to be taught how to find 'a balance between the level of generality to enable theoretical linkage, and the level of specificity to make theory useful' (Laksov 2019: 373). Argyris (2003) and Hoffman (2004, cited in Schultz and Hatch 2005: 337) earlier lamented that, unfortunately 'existing institutional systems and professional expectations often generate more restrictions than incentives to create... relevant or actionable knowledge'.

Lastly, factors that are connected to the institutional context include the need to reduce the workload of staff members and to introduce a reward system that links research with practice. Borrowing a leaf from Diery et al. (2020), we advocate that institutions should encourage researchers to use their research findings because it is a way for them to become role models in the field and underwrite the growth and spread of research-based knowledge, thus bridging the gap between the two. Also to be considered is what research to undertake and when and how to close the feedback loop to improve on practice.

Given that the development of a new distance education programme, its content, and its support and assessment strategy are all very time-consuming, it seems appropriate to begin by undertaking some research into the needs of learners and employers, what already exists, and the profile of the learners (increasingly addressing their technology profile and their readiness for more independent learning) (Fidalgo et al. 2020; Hamaluba 2022; McGunagle and Zizka 2020; Seaman et al. 2018).

During the design and development of the curriculum, an action research type engagement in which the various components of the programme including the technologies chosen to mediate the learning are tested, evaluated, and improved could help to ensure the highest possible quality

of what is offered (Anderson and Rivera Vargas 2020; Salmon et al. 2020).

During the implementation of the programme, mechanisms are needed to monitor, evaluate, improve, and make ethical use of the data and learning analytics increasingly available (Mays et al. 2021; Prinsloo 2020).

At the end of a course offering, there is need to evaluate the efficiency and effectiveness of the offering, including getting feedback from the learners themselves and to ensure closure of the feedback loop into improved practice (Allela et al. 2020; First et al. 2017; Harrison 2019; He et al. 2020; Siddiqui 2021). This will logically include some longitudinal studies which follow up on graduates and other stakeholders to see how well they were prepared for the learning, teaching, and work roles they subsequently assumed (Herodotou et al. 2020; Muir et al. 2019).

It is also possible to use the information from several iterations of a course offering or several course offerings offered over a period to develop or improve the theory of practice (Bozkurt 2019; Mitra 2020; Naidu 2022). This may now also involve distance education providers needing to re-invent themselves, again (Teixeira et al. 2019).

Conclusion

In this chapter, the authors have briefly traced the history of distance education and its research, focused on our concern: the research-practice gap in the field and what the challenges are. We have also used affordances theory to tease out some of the implications of this concern for practice. The use of the theory affords us the opportunity to shift attention to human activities that could inhibit or encourage bridging the gap between research and practice. Anderson and Simpson (2012) have requested young practitioners in the field to carve out their own heritage in order to add their voice and value to the field. As practitioners we opt to stress the importance of bridging the gap between research and practice in the field, which we believe will add value to much research going on in the field with the potential of expanding due to distance education becoming a 'go-to-mode'. Anderson and Simpson (2012) earlier rightly stressed that in the end 'it is the combination of the human, the technological and the organisational that works. The mix, and attention to balance of those three elements, must remain at the forefront of our vision' (section 4.6) as distance education practitioners.

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Chapter 6:

Contextualising Student Support Services in Distance Education for Effectiveness: Guidelines for Producing Evidence

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Introduction

Despite the value that the distance education delivery mode adds to education, especially by opening opportunities for once-denied groups, the mode's deficit is a huge concern. According to Simpson (2013: 105), who first used the term 'distance education deficit' in 2013, the term refers to 'the problem of student retention and dropout' that creates a huge gap between the graduation rates of distance education and conventional institutions. Woodley and Simpson (2014: 459) refer to the deficit as 'an elephant in the room in distance education' and if it is not addressed, the value that distance education adds to teaching by increasing access will be eroded by the relative lack of success. To stem this tide, scholars (Simpson 2013; Peters, Crawley, and Brindley 2017; Sánchez-Elvira, Paniagua, and Simpson 2018) have recommended a change of attitude by institutions to student support matters. According to Lumadi (2021: 114), 'student support is a universal term that is applied to the variety of services that are established by institutions to assist their students in achieving their learning aims; to improve their knowledge to be successful and to complete their academic studies'. Simpson (2012: 13) asserts that the services include, 'all activities beyond the production and delivery of course materials that assist in the progress of students to succeed in their studies'. The need to focus on such services is as old as the mode itself (Zuhairi, Karthikeyan, and Priyadarshana 2020). Although practitioners are agreed that such services are important, and while many go to great lengths to support students (Tait 2015), there is scant evidence regarding the effectiveness of such services. However, literature (Richie and Fox 2014) show that tailor-made support services that suit students' context can go a long way to minimise the distance education deficit gap by making a huge difference in retention. However, according to Zuhairi et al. (2020),

despite technological advancement in the field the ideologies of support services have not changed: students are involved in learning and are encouraged to do so autonomously.

This chapter focuses on Alan Tait's (2015) 'overall student experience' framework, which the author proposed on student support. The purpose of the chapter is to discuss how the guidelines the author of this chapter has put together in an article (Aluko 2021) can be contextualised, especially in the developing context, to positively impact low throughput rates. The argument in this chapter is that for the distance education mode to be more effective and for a return on investment for all stakeholders, practitioners would need to contextualise their support services, especially in the developing context. According to Peters, Crawley, and Brindley (2017), providers in the mode need to purposefully invest in student support services, pay deliberate attention to students' challenges, and make an explicit effort towards assisting them. Student support services are central to student success (Sánchez-Elvira Paniagua and Simpson 2018) due to distance education, students' separation from the institution and other students, the negative impact that the lack of contact has on them and the institution's reputation, while scholars have even argued that the services are more essential in online education (Mirmoghtadaie and Mohammadimehr 2020). Institutions need to start asking themselves some tough questions on, for instance, why their students are not accessing such services where they are available (Arko-Achemfuor 2017; Lumadi 2021), the need to re-define their services (Tait 2014), and the value of the provision of appropriate services to their students and institutions. Providing distance education student support services is not just imperative; it is a matter of quality (Sanchez 2018). It is what makes the difference between a quality or a non-quality programme. It also goes a long way to determine the reputation of an institution.

Student support services in distance education

Distance education students by the nature of the mode have been known to be separated from their institutions. Therefore, the history of student support services is as old as the mode itself; however, the formal institutional and integrated support system according to Tait (2003) could be traced back to the Open University, UK in 1969. In Africa, Moja, Schreiber, and Luescher-Mamashela (2014) also traced back student support services to the provision of student affairs due to the exponential growth in higher education. According to Shabani and Maboe (2021), the term previously referred to the whole student life (personal, social, and academic). However, we need to think beyond support related to geographic separation alone.

There is also a need to close the transactional distance between students and their teachers (Tait 2003). Although focusing their work solely on online learning, one cannot but agree with Peters et al. (2017) that providing support for students in the distance mode is more crucial than for those on campus due to their diverse nature, more need for self-regulation, technical self-reliance, information competency, and isolation. Distance education students are mostly adults who are expected to be autonomous and self-managed; however, Bates (2014) is concerned for the group of students at the other end who are younger and often lack basic learning competencies, with a loss of confidence in learning and would therefore need more support to be successful. In addition to this group, there is another multitude in the middle. Oftentimes, registered distance education students face the problem of transiting from their face-to-face experience at high school to a mode that expects them to be independent and self-directed (Shikulo and Lekhetho 2020). Distance education students are required to possess special attributes and competencies for a reasonable chance of success (Rotar 2022).

Although the advent of technology has moved almost all student support services online, to Zuhairi et al. (2020) the ideologies remain the same: students registered for learning need to be motivated to learn and to access the available support.

When planning student support services, Sanchez (2018) encourages a holistic approach that combines both academic and non-academic services, which will assist institutions to detect early problems that students may have and the kind of support they will need. Haghighi and Tous (2014: 54) also encourage providers to focus on 'reducing the sense of learners' isolation, holding a number of workshops, allocating financial aids, providing learners with video and audio tools, and facilitating the interaction between the instructor and the learners'. Based on these findings, also supported by earlier studies (Tinto 1975; Simpson 2012), Sánchez-Elvira Paniagua and Simpson (2018) identified student support as the central area for student success. Early research shows that a majority of students want support, and that if the services are properly handled they yield benefits to the students and the institutions (Tait 2003). According to Shabani and Maboe (2021), the value of student support services has been widely researched. This includes its ability to give students a sense of belonging, satisfaction, and motivation, thereby leading to improved student performance and retention (Lehman and Conceição 2014), which Mirmoghtadaie and Mohammadimehr (2020) summarise as academic well-being. According to the authors, this determines students' attitude to their academic life, the academic staff, their peers, and the institution's organisational structure in general. Student support services make the difference between student success and failure (Raphael 2016; Munyaradzi and Addae 2019). Research clearly indicates that the lack of teaching presence has a negative impact on student performance and completion rates (Bates 2014).

What do student support services involve in distance education?

According to Shabani and Maboe (2021), student support services incorporate diverse aspects and a wide range of activities from initial academic inquiries to degree completion. These may include 'registration, counselling, learning support (academic), guidance, tutoring, learning advice, feedback on assignments, interaction with teaching and administrative staff, career services, provision of study centres and financial support when needed' (Nsamba and Makoe 2017). Lumadi (2021) describes other student support-related services as the administration of application and registration procedures, the distribution and receipt of study material, and feedback on assignments. Due to the advent of more interactive technologies, we can add 'interactive tutorials, workshops, teleconferencing or videoconferencing, interactive and specially designed materials, discussion forums, and tutor-graded assignments, chat rooms, podcasts, video clips, blogs and wikis" (Monyamane and Monyamane-LimkoKwing 2020: 35). The authors assert that these encourage communication between all tutors and students and vice versa, thereby enabling students to learn without inhibitions.

In providing information for students online (since more and more institutions in the developing context have adopted a hybrid mode), they could find the audit tool developed by The Centre for Transforming Student Services (CENTSS) useful (Crawley 2012: 193–198, cited in Peters et al. 2017: 5). The tool describes five generations which could serve as a guide for institutions to improve on their services. These are:

Generation 1: no information on student services evident
Generation 2: text-only information available
Generation 3: relevant information on student needs with easier navigation
Generation 4: personalised online student services with the opportunity to complete tasks, guide student information, and save information for later
Generation 5: this improves on 4.

Institutions can gradually plan to move their student support services up through the different levels.

In concluding this section, although a lot has been written about student support, authors

(Mirmoghtadaie and Mohammadimehr 2020; Shabani and Maboe 2021) lament the dearth of research on the skills needed to make such services available and what the dimensions and components of the concept of support in blended learning should be. In addition, Zuhairi et al. (2020: 15) raise further questions on 'the kinds of effective support to students, how they are designed to meet the needs of ODL students, and how student support is integrated with teaching and learning', among others. It is time for distance education institutions to start asking themselves why students are not accessing student support services they have spent so much money on, why it appears there is still no reduction in high attrition rates, and the continual low success rates (Arko-Achemfuor 2017; Lumadi 2021). Peters et al. (2017) wonder if this continual deficit has to do with a one-size-fits-all approach adopted by institutions regarding student support services. Therefore, Shabani and Makoe (2021: 25) have called for more research into the direct link between the efficacy and effectiveness of student support services and students' academic results.

Nonetheless, there appears to be a lack of focus on students' important role in being responsible for their own learning in the mode (Mpofu 2016). The author draws attention to the definition of student support of Heydenrych (2010: 7) as 'individuals' self-efficacy qualities that enhance learning opportunities in distance education' to 'ensure an optimal fit between the aspirations, resources and abilities of students'. This view purports that distance students also have a role to play in their own success, even when institutions make all resources available.

Lastly, lack of electricity, the cost of bandwidth, and data cost remain constant challenges to the provision of electronic support to distance education students in the developing context (Mayanja Tibaingana and Birevu 2019).

Minimising the elephant in the room

The distance education deficit has been referred to as the 'elephant in the room'. To minimise this deficit authors have called for diverse approaches. For instance, Mayanja, Tibaingana, and Birevu (2019) lament the attitude of institutions approaching student support services in the distance education mode as they would in face-to-face mode, with just a little tweak here and there. Institutions would need to start putting policies in place which are appropriate to the modality and being deliberate in their actions (Peters 2017).

In addition, Bates (2014) bemoans the lack of understanding by university and staff of the importance of student support services for the success of distance education students. The author

describes this attitude as 'It's my job to instruct and yours to learn', which will only increase the distance education deficit. To address this, Mayanja, Tibaingana, and Birevu (2019) call for the need to sensitise ODL stakeholders to their roles.

Closely related to this is the need for continual training af the staff involved in distance education delivery. In most cases, the full-time staff on the campus cannot adequately cater to distance education students due to their large number; therefore, quite a number of part-time staff is employed to assist. Both full-time and part-time staff need continuous training on andragogical matters and how to effectively deliver their services.

Shabani and Makoe (2021: 35) also call on institutions to first consider their 'technology infrastructure, scale, and geography... when designing and developing effective student support systems' because 'the type of technologies that students can use is critical'.

While admitting computer programs can assist institutions to provide student support online, Bates (2014) warns institutions to remember that 'high-level conceptual learning and skills development still need to be provided by an expert teacher or instructor in the subject area, whether present or at a distance, which may be labour intensive and difficult to scale up'. Institutions would need to build this into their planning, which most institutions lack (Raphael 2016).

Most times, students in the mode (especially depending on their age) would need to be trained on how to use the institution's LMS and other technical devices. Lack of adequate support, according to Bertrand (2010, cited in Raphael 2016) means lack of innovative practices whereby technical devices will be used to mirror on-campus practices.

Although it is a fact that malfunctioning computers are a reality at study centres in the developing context, this is worsened by lack of technical support for students and tutors, and lack of electricity and internet connectivity (Reju 2016; Shikulo and Lekhetho 2020). More needs to be done in these areas in collaboration with external service providers, some of whom could assist out of goodwill.

Sanchez (2018) also admonishes institutions to re-visit how long it takes them to attend to student queries and getting real-time feedback on the students' experience of the quality of teaching and learning. The author also raises the issue of proper monitoring of student success and drop-out rates —how the data is collected, evaluated, and used to improve the quality of students' total experience. Related to this is the need to involve students in a total quality management process. According to Nsamba and Makoe (2017), limiting the process to only the service providers gives a false impression of the state of the quality of the services which the institution renders. Unfortunately, there is paucity of research on the determinants of quality that can be used by distance education students (Nsamba and Makoe 2017).

One of the benefits that on-campus students enjoy is the provision of counselling services that are mostly absent in the distance education mode. Institutions need to critically investigate this aspect (Shikulo and Lekhetho 2020).

Similarly, Reju (2016) identified unreliable and limited internet connectivity and a shortage of textbooks and relevant course materials as major challenges facing ODL institutions in emerging economies. Unsurprisingly, students called for up-to-date books, technologies, and stable internet access to improve learning. Students and staff that took part in the study were also frustrated by lack of support for staff at study centres.

Alan Tait's student support services framework

As indicated earlier, the distance education deficit is a contentious issue due to the large disparity between contact and distance education throughput rates. To address this challenge, authors (Simpson 2012, 2015; Tait 2014) have identified student support as a panacea. The study that led to Alan Tait's (2015) framework of practice to support student success was initiated by the International Council for Open and Distance Education (ICDE) among its member countries in 2014. The purpose was the need 'to ascertain the level of engagement by institutions with best practices for encouraging and increasing student success rates' (Tait 2015: 1). Tait's (2015: 1) framework embodies 'student's whole experience of study' with the aim of establishing goals for student success, and means to monitor and improve it'. Students' whole experience as a good base for student support resonates with Subotzky and Prinsloo's (2011) earlier work on the 'student walk', which helps institutions not to treat student support in isolation and to recognise the changing needs of students as they progress through their studies.

In the report of his study, Tait identified the following key elements that support practice for student success:

- pre-study information, advice, guidance, and admission
- curriculum or programme design for student success
- intervention at key points and in response to student need
- assessment to support learning, as well as to judge achievement
- individualised and personalised systems of support to students

- information and logistical systems that communicate between all relevant participants in the system
- managing for student success

In the next section, the author of this chapter gives a description of the elements and discusses how distance education providers can contextualise them, especially in the developing context, thereby improving on their practices and initiating good practices that are not yet in place. Table 1 reflects the summary of the seven key elements of Alan Tait's (2015) framework and suggested indices by Aluko (2021).

Table 1: Guidelines on the Use of Tait's Framework

Key elements of Tait's framework	Suggested indices
Pre-study information, advice, guidance and admission	- Marketing strategies relevant to the context - Clear information regarding the programme to prospective students - Guidance on choice of programme - Clear line of communication (e.g., staff students could liaise with)
Curriculum or programme design for student success	- Programme aligned to institutional mission and vision - Programme aligned to national and student goals - Built-in student support - Technologies relevant to student context and the future plan of the institution (pull-and-push approach) - Training of staff and students regarding the use of technologies - Programme evaluation that involves all stakeholders

Intervention at key points and in response to student need (pre-study, in course, and through qualification)	- Pre-study a. Clear line of communication b. Review of readiness (Survey to measure student readiness and to know what to improve on and how to further support students) - In course a. Call centre b. Contact sessions/Tutoring (online/face-to-face depending on the context) c. Learner analytics on first assignment and mid-module d. Exam preparation: Contact sessions/Tutoring (online/face-to-face depending on the context) - Through qualification a. Guidance on next-module choice (as applicable) and qualification planning
Assessment to support learning and to judge achievement	- Relevant formative and summative assessment - Built into the programme design, not an after-thought - Training of staff (tutors) on effective feedback - Administrative and academic monitoring on timeous feedback
Individualised and personalised systems of support to students	- Call centre - Communication (e.g., tutor-student and student-student) - SMS - The use of social media (WhatsApp, Facebook, YouTube) - Quick response to student query - Funding - Students with disabilities

Information and logistical systems that communicate between all relevant participants in the system	- Management Information System (MIS) with diverse levels of accessibility - Learner analytics (information to improve practice)
Managing for student success	- Communication of mission and vision to all stakeholders (including academic and administrative staff members) - Communication of institution's stance on quality and how this relates to all staff - Management of key staff with clear line of responsibilities - Operational meetings with key staff members with timelines attached to actions - Periodic evaluation of all structures—short-term and long-term - Periodic institutional audit

Source: Aluko (2021)

Description of the key elements and how distance education providers can contextualise them

The dictionary.university (2022) defines *contextualise* as follows: the root word of *contextualisation* is 'to consider something in relation to the situation in which it happens or exists'. In this section, I have described Tait's seven elements and given suggestions (regarded as indices in Table 1) on how each of the elements can be contextualised by distance education providers. The motivation for this is guided by what research indicates about students in the mode not accessing the student support provision offered by their institutions and the unabating state of the distance education deficit (Arko-Achemfuor 2017; Shikulo and Lekhetho 2020).

Key element #1

Pre-study information, advice, guidance, and admission

According to Tait (2015), this element involves marketing the institution's programmes to potential students. The author advises institutions to avoid misleading statements and unrealistic goals. They should rather make clear the required admission requirements, time needed for study, number of years needed to complete the programme, as well as other necessary information. Advice and guidance should be provided, and if admitted, institutions should be transparent about the patterns of study, cost, and commitment.

Distance education providers, especially in the developing context, are confronted with a myriad of challenges, for instance, regarding marketing their programmes. This is because most of their students may be residing or working in semi-urban and rural areas. Therefore, they need to be innovative with their marketing strategies. The adopted strategies should be relevant to the prospective students' contexts. Institutions have sometimes contracted marketers that could do the groundwork by going to rural schools where teachers work—for example, in the case of upgrading teacher education programmes. The information should be presented in non-ambiguous language that the student's level of comprehension can relate to. In addition, the marketing staff should have been well trained to be able to provide guidance on choice of programmes. Sometimes a huge challenge arises when students have to get in touch with institutions and such institutions do not have a clear line of communication (e.g., staff whom students could liaise with). Research (Arko-Achemfuor 2017; Reju 2016; Shikulo and Lekhetho 2020) indicates that this leads to students being tossed here and there, which leads to discouragement. Although one may argue that such bad treatment could spread through word of mouth (another form of marketing strategy—Kundu and Sundara Rajan 2017), if the affected student eventually registers, the lack of or confusion pertaining to communication might lead to the student eventually dropping out of the programme. The registration point is also a key area of providing support to students. Institutions have sometimes been found to have platforms that are not user-friendly. One way of improving this area is to request prospective students to participate in a short online survey on how easily they have been able to navigate the platform and further suggestions for improvement (Butcher and Wilson-Strydom 2014).

Key element #2

Curriculum or programme design for student success

Effective learning design has been found to be key to student success due to its ability to encourage student engagement. Another important aspect to pay attention to here is curriculum relevance which should be in alignment with, for instance, the national, professional bodies, and labour market goals (Tait 2015). The information on this should also be transparent to students. Suggestions here include the need for built-in student support, technologies that are relevant to student context, and the plans of the institution for the future (Aluko 2021). In order to gradually bring students on par with the future the institution envisages for its ICT-in-education, the pull-push approach can be used. Although technology usage for teaching and learning in the developing context can be complex and may sometimes be out of the control of the institution (for example, bandwidth cost and irregular electricity supply), institutions can be innovative by using material that has been downloaded previously and allowing students a certain amount of material to be downloaded for free. Another possibility is zero-rating data for selected education websites (Manamela 2022). To further assist in this area, Reju (2016) and Shikulo and Lekhetho (2020) suggest institutions can collaborate with key providers.

Other aspects include the training of staff members and students regarding the use of institutional adopted technologies. According to Johnson et al. (2016), academic staff are ultimately responsible for the use of technology for teaching and learning, therefore, training should be ongoing. Research (Arko-Achemfuor 2017; Lumadi 2021) shows that sometimes there are no support staff to help students at regional centres of distance education students. In addition, many adult learners are not conversant and comfortable with the use of technology, which often leads to frustration (Arko-Achemfuor 2017). Research (Aluko 2020) indicates that a neglected area is programme evaluation (involving all stakeholders), which has been found to assist institutions with the improvement of their programmes. The ongoing challenge here is the need for institutions to close the feedback loop into improved practice.

Key element #3

Intervention at key points and in response to student need

- Tait (2015) identifies several key points of student experience where intervention is needed: the case may be that all students need support or that the institution has been alerted based on the measures that have been put in place. These key points are as follows:pre-study: post registration, and review of readiness to start
- in-course: early contact; first assignment; mid module; qualification progress check; preparing for examination
- through qualification: support for next module choice and qualification planning.

My suggested indices for each of the points raised by the author include the following:

- Pre-study
    a. Clear line of communication
    b. Review of readiness (Survey to measure student readiness and to know what to improve and how to support students further)
- In-course
    a. Call centre
    b. Contact sessions/tutoring (online/face-to-face depending on the context)
    c. Learner analytics on first assignment and mid-module
    d.Exam preparation: contact sessions/tutoring (online/face-to-face depending on the context)
- - Through qualification
    a. Guidance on next-module choice (as applicable) and qualification planning

Tait (2015: 7) cites the value of learning analytics, which 'makes intervention potentially much more immediate and powerful'. This assertion is also supported by Scanlon (2021) due to the opportunity to use these approaches to assist lecturers with the evaluation of their learning design choices and advance student success. However, Tait observed that although involved institutions in the ICDE project acknowledged the value of learning analytics, there was not much evidence that they used or maximised its potential, which reflects the failure to close the feedback loop. Nonetheless,

authors (Rienties and Jones 2019; Rienties et al. 2018; Ferguson and Clow 2017) have cautioned that despite its supposed possible value, there is not much evidence that institutions are ready to absorb it. There are ethical issues to be sorted out regarding its use as well, which has made scholars call for further research because it is gaining more popularity (Slaide and Tait 2019; Scanlon 2021).

Key element #4

Assessment to support learning, as well as to judge achievement

Tait identifies assessment as a core part of learning design and pedagogy, which supports students to success. Therefore, it should not be an add-on at a subsequent stage. Assessment strategies emanate from the learning objectives of the module and include both knowledge and skills. Advancement in technology now aids better formative and summative assessment, and both continuous and final assessment that can 'support student engagement and diagnose learning at shorter intervals' (Tait 2015: 8). Therefore, my suggested indices satisfy the need for the continuous training of both administrative and full- and part-time staff members in the design of authentic assessment activities, the interpretation of the students' responses, and in constructive ways of offering feedback. Part-time staff are always more in number than the full-time staff members due to the large enrolment of distance education students. Ensuring the quality of their services has therefore become a key management activity, and it starts with appropriate training and modelling. Such training should cover aspects such as relevant tools that match each form of assessment, the need and value of timeous and effective feedback to students, and the administrative and academic monitoring of the feedback. There is evidence in research that students sometimes receive feedback after examination has taken place (Aluko and Omidire 2020).

Key element #5

Individualised and personalised systems of support to students

Tait highlights the need for institutions to provide personalised support for students, which technology has made easier. In addition, he stresses the 'roles of tutor, counsellor, guidance

worker, and careers advisor, supported by information systems' (Tait 2015: 8). Unfortunately, research (Shikulo and Lekhetho 2020) shows that distance education providers do not normally make provision for these services like in the contact mode. Regarding this, Tait has cautioned institutions to effectively balance the cost of personalised support and learning material, which distance education institutions have been known to spend more money on. To assist institutions in this area my suggested indices are:

- the provision of a call centre
- enhanced communication (e.g., tutor-student and student-student)
- the use of SMS technology (which is the most prevalent in the developing context) and the use of social media (WhatsApp, Facebook, YouTube)
- quick response to student queries, which research has found to be imperative (Sánchez-Elvira, Paniagua, and Simpson 2018)
- the provision of funding—the assumption is that distance education students do not need funding, which is not true (Aluko 2021)
- support for students with disabilities—more students in this category are enrolling for distance education due to technology affordances (Kanwar 2017)

Key element #6

Information and logistical systems that communicate between all relevant participants in the system

Tait (2015: 9) stresses the need for a strong alignment between logistics and information systems, which is now made better by LMS and learner analytics that 'represents a significant priority in strategies for student success'. My suggestion from experience is that institutions should align their information and logistical systems to avoid unnecessary duplication of information and to avoid wasting staff's energy and time (Mays and Aluko 2019). There should also be diverse levels of accessibility provided to relevant stakeholders. As earlier indicated, learning analytics should also be maximised in this regard.

Key element #7

Managing for student success

For institutions to manage for student success, learners must be put at the heart of the system. This means the management of programmes in the mode should encompass all the elements identified by Tait. In addition, Aluko and Mampane (2022) advocate for transformational leadership that should embrace the philosophy of Ubuntu for total quality management. My suggestions (Aluko 2020) to enhance this key element are the following:

- the communication of mission and vision to all stakeholders (including academic and administrative staff members)
- the communication of institutions' stance on quality and how this relates to all staff
- the management of key staff should include a clear line of responsibilities
- operational meetings with key staff members with timelines attached to actions
- the periodic evaluation of all structures—short-term and long-term
- periodic institutional audit with line of actions on the feedback with responsible staff members and timelines attached

In concluding this section, one cannot but refer to the essence of effective quality assurance at every stage. As earlier indicated, student support is a matter of quality (Sánchez-Elvira, Paniagua, and Simpson 2018). It is what makes the difference between a quality programme and one that is of poor quality. However, students, who are at the receiving end of an institution's services, are important stakeholders to be involved in the process of quality assurance (Nsamba and Makoe 2017). The authors assert that without their (students) involvement, such feedback will likely be misleading and even false. Actions should also be taken on such feedback with attached timelines and the staff members responsible for them.

Conclusion

There is ample evidence in literature that if managed properly, student support has the potential to alleviate the distance education deficit (Simpson 2012, 2015; Tait 2014, 2015). The overall

idea behind student support services is that they must be receptive to students' changing needs (Shabani and Maboe 2021), which is apparent in the key elements identified by Tait (2015) and to which this chapter has responded. The author has done this by contextualising the elements through suggested indices which she has developed. However, it should be noted that the indices do not cover all the issues that providers need to respond to. Rather, they should serve as a guide to practice. As earlier indicated, it is disturbing to note that many students in the developing context studying in this mode are not accessing support services (as asserted by research) suggesting a possible mismatch between what is needed and what is availed. Because institutions go to a great length to provide these services, one hopes that institutions in the mode will start paying more attention to finding a balance between the student context and the support services they provide.

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Chapter 7:

Driving Innovation and Excellence in Distance Education Practice through Practitioner Enquiry

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Introduction

In the general education landscape, Practitioner Enquiry has been well established as a valuable investigative tool that allows education practitioners or groups of practitioners to gain insight into the efficacy of current individual or group practices while simultaneously developing a deep awareness of areas of possible remediation and their associated developmental targets. Practitioner Enquiry could provide crucial insight into personal and communal distance learning methods through critical reflection within the application of personal practice or as a member of a working group. These insights can then be used to drive initiatives for the promotion of teaching and learning innovation that will in turn enrich the distance education student's experience. In addition, the learnings resulting from Practitioner Enquiry can be used to inform the development of systematic and cyclical professional development programmes that will ensure practitioners remain agile when faced with disruptions in their practice.

Essentially, the ultimate goal of Practitioner Enquiry, as applied within the context of distance education, is to promote growth and renewal in distant learning practices, as well as in the processes and policies that support them, at both the levels of the individual practitioner and the community of practice. As such, this chapter was designed to help the distance education practitioner answer one fundamental question: How can I make learning within the sphere of distance education better for my students, my community of practice, and myself? In other words, how can I positively impact student engagement and learning, promote my own professional development and those of practitioners in my community, and establish initiatives that will influence and sustain progressive ways of thinking about distance learning practice?

In this chapter, we will first investigate the nature and rationale of Professional Enquiry as a

research and investigative strategy within the context of distance education. Then we discuss the criteria and practical procedures for incorporating it into daily personal reflective practices and formal departmental, faculty, and even institutional research projects.

To create a clear distinction between the two main applications of Practitioner Enquiry and to subsequently aid our attempts to circumscribe these two areas of application, we will respectively refer to *Personal Reflective Enquiry* and *Group Practitioner Enquiry* within this chapter.

What is practitioner enquiry and why is it relevant to distance education?

Practitioner Enquiry, also referred to as Practitioner-based Enquiry, gained recognition in the early 1990s as an investigative methodology focusing on the systematic reflection on the process of teaching and learning as facilitated by an individual practitioner or group of practitioners. Murray (1992: 191) describes the initial iteration of Practitioner Enquiry as a process in which educators 'systematically reflect on their own institutional practices, in order to produce assessable reports and artefacts' which were collected for the purposes of achieving credits towards professional qualifications awarded by bodies that regulate education practices in the higher education sector. While the initial aim of Practitioner Enquiry was to promote the formal professional development of educators, it also represented a shift from conventional education research which was conducted in 'predetermined institutional contexts, to a corpus of concerns that confront the educational practitioner in his daily educational life.' The original aim of Practitioner Enquiry, which encapsulated both Personal Reflective Enquiry and Group Practitioner Enquiry from the beginning, was to establish the principle that the professional experience of educators represents in and of itself a valid resource for the evaluation of education practices through the application of structured reflection. Murray (1992) describes the nature of Practitioner Enquiry as a deliberate and systematic reflection—that is, a blend of self-consultation, recapitulation, and self-criticism—on a recurrent instructional practice or challenge. What is further implied by this observation is that Practitioner Enquiry does not refer to a clearly delineated or pre-defined research methodology, but rather a particular research focus and strategy that can be supported by any number of appropriate methodologies utilised in the collecting and analysing of data relating to a particular 'educator experience'. Within the context of our current discussion, for instance, Practitioner Enquiry can be used by the distance educator to systematically reflect on their experiences whilst performing their

multi-faceted duties as distance education practitioners.

While Practitioner Enquiry was first introduced as a structured and systematic approach to in-service training for educators in the United Kingdom during the early 1990s, its contemporary application retains the original intent—that is, the continuous improvement of educational practices through in-service reflection—albeit now vastly expanded and diversified in scope. Saubert and Ziguras (2020: 3) observe that even though contemporary Practitioner Enquiry is applied in research endeavours that range from those focusing on specific educational systems (technologies, applications, platforms, etc.) or aspects thereof, to those focused on generalised educational practices and conditions, there are common elements that characterise these endeavours regardless of context. According to Saubert and Ziguras (2020: 3), research of this nature is:

- 'Applied and transformative'—Enquiries are typically focussed on real-world challenges that, when resolved, will lead to the transformation of an individual practitioner, group of practitioners, or organisation.
- 'Systematic'—The research is often applied to a particular pre-defined problem within a multi-faceted context. To fully probe the problem, and by implication gain the ability to formulate a suitable heterogeneous solution, the researcher must systematically review the relevant literature and contextual aspects of the problem and fully appreciate its complexity.
- 'Engaged'—This refers to the dualistic role of the researcher as both observer and subject, that is, those engaged in a particular practice often also lead the investigation into this practice.
- 'Shared'—The intention is often to produce data that can inform development and improvement initiatives that exceed a single application or transcend the context of the individual practitioner. The findings of these initiatives are often shared among members of a community of practice for purposes of improving an education system or battery of practices.

Wolkenhauer (2017: 4) summarises the above by explaining that in Practioner Enquiry educators perform systematic reflections and 'take action for change by asking questions or "wonderings," gathering data to explore their wonderings, analysing the data, making changes in practice based on knowledge constructed, and sharing learning with others'. Through this process, which aims to superimpose theory on practice and vice versa, teachers are empowered to direct their own professional development and the contributions they make to their communities of practice. Also, seeing that the 'wonderings' of practitioners—a concept akin to a 'hunch' or a 'gut-feeling'—results from their daily engagement with students, the focus of Practitioner Enquiry generally results in

focused and direct enhancement of the student experience and the subsequent performance of students. The rationale here is that the investigation and resulting remediation are based on what the practitioner believes or 'knows' is lacking in their practice, or micro context, and not themes or trends that permeate meso (department or faculty) or macro contexts (national or global). The likelihood, however, is always there that areas for development identified in the micro context of an individual practitioner will hold direct relevance for practitioners on the meso and macro level, and therefore the aspect of sharing remains fundamental to the process of Practioner Enquiry.

Wall (2018) adds that there are two main standpoints in Practitioner Enquiry: first, as 'an epistemological stance'—that is, a way of understanding the world which in turn gives educators an informed voice that supports the improvement of outcomes for students through an enhanced understanding of the 'teaching and learning interplay in their context' by enacting and evaluating change as part of communities of practice; second, as a 'project' or a 'strategic finding out, a shared process of investigation that can be explained or defended'. It is the latter standpoint that legitimises Practitioner Enquiry as a formalised research endeavour with the ability to provide insights into key areas of practice. From the perspective of the project, Wolkenhauer (2017: 2) warns that there are several barriers to the establishment and maintenance of effective enquiry-based investigation across various academic modules in higher education programmes, which include the 'lack of resources, support, and understanding'. Despite these challenges, however, Practitioner Enquiry that is well integrated with the planning and practice of teaching will help, particularly those new to teaching, to transition from a purely subjective experience of teaching (that is, as students 'receiving' education) to a balanced view that allows for movement between a subjective and objective observation of teaching practice.

Even though distance education represents only a minor, albeit rapidly growing, sub-field of general education practice, the role of a practitioner in this field is incredibly diverse and encompasses a vast array of skills and techniques, as well as the mastery of various complex technologies and systems. Therefore, to effectively reflect on such a multi-faceted practice, the utilisation of a singular research methodology would prove ineffectual. It is for this reason that we refer to Practitioner Enquiry as a research strategy or process, rather than a methodology. By broadening the scope of Practitioner Enquiry beyond that of a single and narrow avenue of enquiry, the individual practitioner or research leader is empowered to select the most suitable homogeneous or heterogeneous research methodology to effectively address the area of study and its related study questions. It is the very selection and formulation of these research questions that mark the most observable departure of Practitioner Enquiry from general education research

as the focus is shifted from topics related to theory and policy to those that focus on grass-roots level issues encountered by practitioners as they go about their daily tasks.

In the next section, we'll look at typical question types used in both Personal Reflective Enquiry and Group Practitioner Enquiry.

Getting started with personal reflective enquiry: What do *I* want to know?

The first step for the individual practitioner seeking to improve on personal practice is to determine exactly which part of their practice requires investigation and what kind of knowledge they wish to gain from this endeavour. Simply put, we could start by asking: (1) What do I want to know about the nature and effect of my distance education practice?; and (2) What do I want to know about my teaching techniques, use of technologies, or how I apply pedagogical principles in a distance learning environment? Often, we may approach the formulation of questions or the selection of topics and focus areas with pre-conceived notions or 'hunches' of where there may be areas of our practice that are underperforming and in need of further development. These 'hunches' may not be based on any formal evidence, such as programme or course reviews, assessment data, student engagement records, or even performance appraisals and productivity monitoring. Based on our personal experiences, we may have specific questions in mind (*Does my personal practice effectively promote the integration of technology, pedagogy, and subject knowledge?*), seek to explore broad areas such as effective online course page design, the promotion of student engagement with asynchronous learning resources, or aim to improve a particular area of practice such as assessment design or online tuition support.

While Personal Reflective Enquiry as a means of engaging with the 'work' of distance education could be applied as narrowly or broadly as suits the practitioner's needs, in general, the process primarily entails 'questioning and looking for answers as part of a general professional commitment to keeping up to date with new developments' (Wall 2018: 4). As such, questions are typically formulated to identify shortcomings in relation to current practices, emerging practices, or established best practices. This is particularly true in the context of a field such as distance education practice that is simultaneously destabilised by disruption (technological, socioeconomic, and otherwise) and the resulting practices that respond to it, and stabilised by established educational practices and principles that stood the test of time.

Here follows a list of example questions that could provide initial guidance for distance educators who are new to the process of Personal Reflective Enquiry:

i. What would the purpose of Practitioner enquiry in my space be?
ii. Do I want to improve/change something specific in my practice as a distance educator?
iii. Have my students expressed dissatisfaction about any aspect of my practice?
iv. Have academic quality assurance initiatives identified areas in my practice that could potentially contribute negatively to student performance, experience, and engagement?
v. Are all my students happy?
vi. Are all my student performing as I expect them to?
vii. Do I have a clear view of what full mastery of my practice would look like as a distance educator?
viii. In my own opinion, how do I currently fall short of my ideal picture of full mastery of my practice?
ix. In the view of my superiors and peers, how do I currently fall short of their ideal picture of full mastery of my practice?
x. Can I identify clear areas of development for myself?

It should be emphasised here that while the questions above provide an ideal departure point, practitioners have to be 'flexible in asking questions about their practice' and need to be able to change their teaching according to the changing nature of the students they have in front of them from one teaching cycle to the next

Get going with group practitioner enquiry: What do we want to know?

While the general practice of Practitioner Enquiry accommodates for both Personal Reflective Enquiry and Group Practitioner Enquiry, which are very distinct in nature albeit aimed at reaching the same objectives, it should be noted that the two practices are not mutually exclusive and that the learning from personal practice often influences or initiates group enquiries. This *domino effect* was particularly observable during the early stages of the Covid-19 pandemic lock-down

restrictions which forced many education institutions to rapidly migrate their delivery models into online environments or at least adapt them to the established conventions of distance education. Overnight, institutions had to implement a repositioning of education practices and disciplines which effectively translated into the immediate elevation of distance education methodologies to the position of primary approach regarding the delivery of teaching and learning, while previously it was a secondary or marginalised approach. This means that where distance educators traditionally had to adapt established face-to-face approaches (residential contact models) to their work, within distance education and particularly online learning applications, the reverse was now required as contact lecturers had to learn the 'language' of distance and online education very rapidly. This, of course, posed an enormous challenge to new and established educators during the initial stages of *Emergency Remote Teaching* which simply aimed to apply contact-based education using online conferencing and collaboration technologies, such as MS Teams, Zoom, and Skype. Challenges relating to the adoption of distance education methodologies and the technologies and systems that support them further intensified as institutions migrated into hybrid education models that sought to add and incorporate the functionalities of learning management systems (LMS) when it became clear that engaging students in synchronous sessions for prolonged periods was not conducive to learning, and that asynchronous components facilitating self-guided study were required. This created a situation where those individuals in faculties and departments that had prior experience in distance education practices had to take on the role of a *mage* (a person who has magic powers: here in the sense of someone who unfolds the intricacies of distance education for novices) for educators that did not have this experience. At the time of writing, nearly two years following the onset of the COVID-19 pandemic, institutions are still struggling to facilitate the wholesale adoption of effective distance education practices across all faculties, departments, and individual practitioners. It is in this present scenario where we believe the practice of Group Practitioner Enquiry could make a valuable contribution to the establishment, and continuous improvement and adaptation of professional development initiatives that could rapidly upskill practitioners and promote their continued growth as practitioners in the distance education milieu. It is important, however, to always ensure that enquiry initiatives remain aligned to the professional standards of the institution to ensure wherever the practitioner is in their personal journey of professional development that there is a continued expectation that they will enquire into their practice and therefore positively impact the learning experience of their students.

Wolkenhauer (2017: 1) further expounded on the value of this approach and explained that 'the position teachers and others who work together in inquiry communities take toward knowledge

and its relationships to practice', will in time provide a grounding within changing cultures and institutional reform. Wall (2018: 7), however, warns that if 'practitioner enquiry research is going to become more widespread and be the basis of collaborative professional learning, providing shared language and bringing professional communities together in productive dialogue, we have to develop a better understanding of what this term 'research' encompasses'. If the 'research' of Practitioner Enquiry relates to a 'finding-out or investigation with a rational approach that can be explained and defended' that results in findings that can be shared so it becomes more than reflection, or Personal Reflective Enquiry, then what is it we want to find out as distance educators? What are the questions we want to ask and the knowledge we want to acquire or produce and share?

While there obviously cannot be an exhaustive or generic list of questions that can shape the focus of Group Practitioner Enquiries in communities of practice everywhere, the following may present a departure point for groups of distance education practitioners working within the current context:

i. What would be the purpose of Practitioner enquiry in our group?
ii. Do we want to improve/change something specific in our collective practices as articulated in current practice guidelines, standards, policies, procedures, etc.?
iii. Have students in groups/cohorts/classes assigned to our department, faculty, or institution directly or indirectly expressed dissatisfaction about any aspect of our distance education practices?
iv. Have academic quality assurance initiatives identified areas in our distance education practices that could potentially contribute negatively to student performance, experience, and engagement?
v. Are our students happy?
vi. When we consider the assessment performance, throughput, and engagement as expressed in quality assurance reporting, are we satisfied that students are performing as we expect them to? Is there a specific area (performance, throughput, or engagement) that is underperforming?
vii. Do we have a clear view of what full mastery of distance education practice would look like in the educators who form part of our group?
viii. Is there agreement between members of our group on areas in which we

currently fall short of the ideal picture of full mastery of distance education practice? Is there a consensus on priority areas for development?

ix. In the view of institutional (executive) management, are the collective practices of our group aligned with the strategic vision and mission of the institution?

Below are additional thematic questions that were formulated to address current trends and challenges faced by education institutions:

i. How do we apply the established principles of effective User-experience Design (UX) within the design of distance education systems and platforms, learning materials, courseware, lesson planning, and learning activities to facilitate an ideal Student Experience (SX) that optimises learning and engagement? Are there any areas of our current UX design that may be resulting in sub-optimal student engagement and performance (SX)?

ii. Are our students fluent in the language of distance and online education? Are we able to distinguish between a state where our students can actively engage with online resources and learning activities but derive little meaning from it (letteracy), and a state where students can analyze and evaluate online resources as part of a process of forming deep meaning (literacy)?

The process of personal reflective enquiry

One of the main strategies for the management and promotion of Personal Professional Enquiry, as well as for the integration of its principles in one's daily work, is to be found in journalling. A journal, within the context of our current discussion, is effectively 'an account of the process of problem formulation, derivation of a research methodology or enquiry strategy, and orderly reflection on the practice' (Murray 1992: 193). It should be understood, however, that journalling here does not refer to the description or diarisation of chronological events, but rather to a process through which the 'problematic nature of educational enquiry is rendered intelligible, first to self, and subsequently to significant others' (Murray 1992: 193). In this way the journal becomes both the product and source of enquiry as it provides a means to reflect on a problem, identify a suitable avenue of enquiry or

research methodology, but also becomes an artefact or representation of the problem. To clarify, the process of Professional Enquiry entails the development of strategies for the investigation and analysis of observed phenomena in personal practice, the actual execution of these strategies, and then the recording of findings and the continuous reflection on the entire process. The process is therefore cyclical and requires the practitioner to regularly return to journalling in an attempt to establish and promote an internal dialogue and critical reflection on all the elements of a typical quality assurance cycle:

- Phase 1—Identification of focus area within a battery of practices. This includes the formulation of the research question and the selection of suitable research methodologies.
- Phase 2—Process findings and formulate a response. Once you know what the problem is or you have identified what the developmental area in your practice is, you need to formulate a response (an action or actions) to correct it.
- Phase 3—Execute your strategy for the resolution of the problem and monitor its efficacy.
- Phase 4—Reflect on your observations and share them within your community of practice.

While it aids our understanding of the process to break it up in this manner, these phases should not be looked at as disparate actions with defined starting and stopping points, but rather as shifts in your view as you continuously observe and critically reflect on your own practice in a cyclical manner. The process may be illustrated as follows:

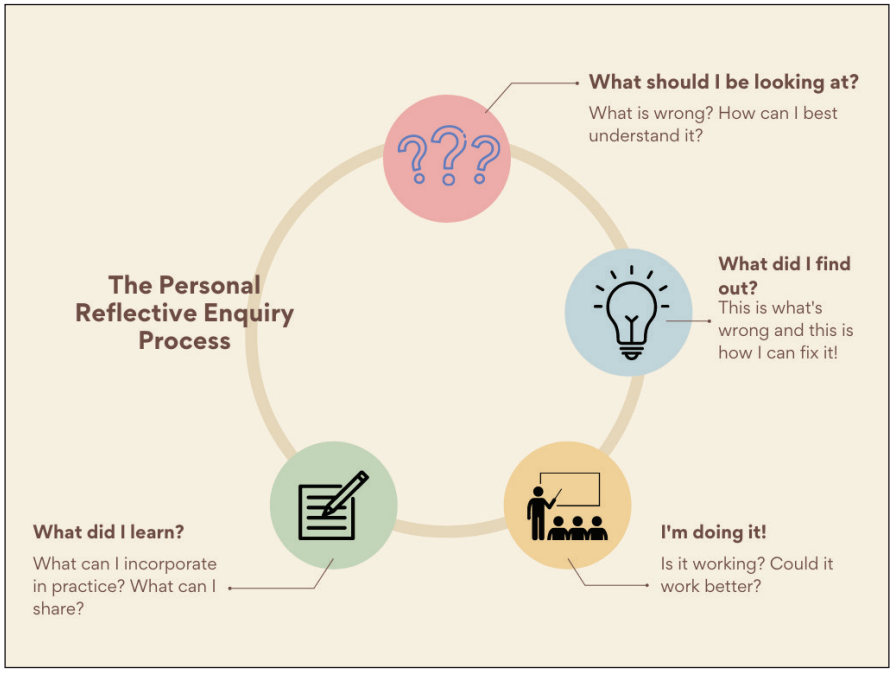

Figure 1: The Personal Reflective Enquiry Process

Mirroring the traditional quality assurance cycle, this cyclical approach to Personal Reflective Enquiry that encompasses both the recording of progress whilst simultaneously driving progress is by no means a new or novel concept or, as stated in St Maurice (1996: 108), 'cyclical ideas of progress are as old as recorded literature, religion or philosophy, and as new as contemporary cosmology'. St Maurice (1996: 108) further supports the value of cyclical reflection in educational action research by stating:

In cyclical ideas of progress, present events are best treated as aids to reflection upon their contexts and contingencies. The main educational implication of such ideas of progress is that critical reflection is not a means to an end but an end in itself, the best possible outcome for human thought or deed.

Here, St Maurice (1996) points out a critical distinction between Personal Reflective Enquiry and Group Practitioner enquiry, as in the former the process of continuous reflection is both the means and the end of practitioner enquiry, while this is not the case in the latter as will be explained in the next section.

A Practical Approach to Group Practitioner Enquiry

Instead of pouring over assessment data or any other data that can be drawn from the institutional quality management system for purposes of identifying potential questions to steer enquiries that would get us started on our journey towards *making learning better* and producing *happy and engaged students*, Baumfield et al. (2012) suggest that we begin by considering the 'stone' in our shoe—that is, the 'things' in the context of our personal practice that persistently bothers us. As discussed earlier, Personal Reflective Enquiry typically leads to Group Practitioner Enquiries when the individual shares reflections that are found to be relevant to the larger group or community of practice, so carefully considering the *stone in one's own shoe* is a valuable first step. Once you have the stone under eye, so to speak, one could use the following statements as partially adapted from Baumfield et al. (2012) as points of departure:

i. I want to make this aspect of my practice better ...
ii. I want to change X, because I believe it will result in Y.
iii. I am worried about X or I don't fully understand Y.
iv. Some students are unhappy about this aspect of their experience ...
v. I want to find out more about X.
vi. I would like to implement X to see what happens.
vii. I'm confident that if I start doing X, it will improve on Y.
viii. X (technology, teaching strategy, etc.) is new in my field of practice; I need to upskill myself in its use.

The following figure, partially adapted from Baumfield et al. (2012), serves to illustrate the process to turn a departure statement into an Enquiry question:

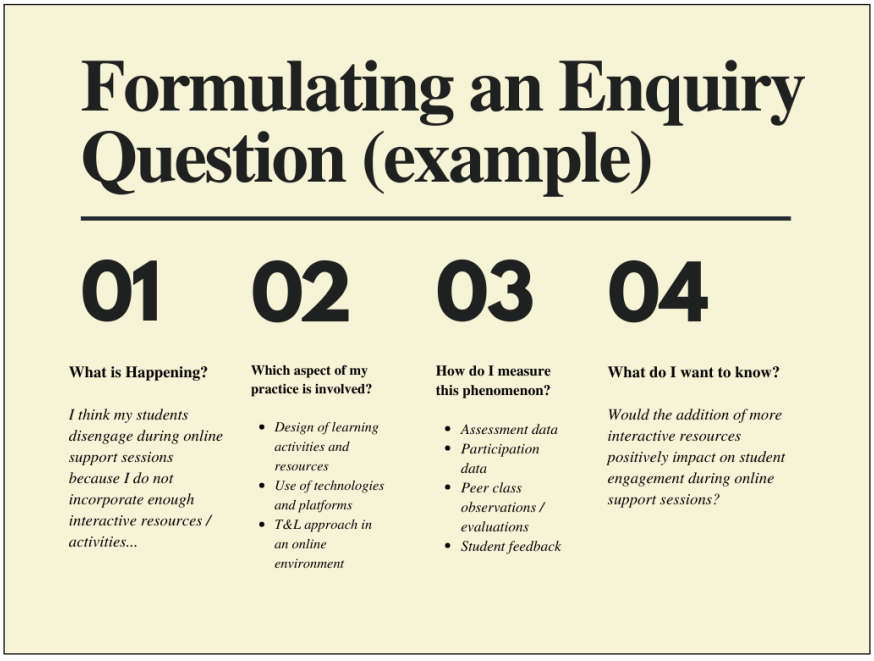

Figure 2: Formulating an Enquiry Question (Example)

When turning these statements into questions, we also need to consider if the questions are in fact answerable and manageable as some questions may best be addressed through, for instance, programme impact studies or large-scale studies on student behavior. During the process of formulating a question, it is also important to conduct a preliminary literary review on the underlying topic to ensure that you develop a core understanding of the related theories and terminologies, and to have discussions with colleagues and peers to gain a better understanding of the broader context and related research initiatives that may already be underway.

Once you've decided on a question or area of enquiry, the next logical step is to recruit members from your group to actively participate in the research and the dissemination of findings to the rest of the group or community. While resourcing and funding restrictions often force study leaders to reduce their criteria for the selection of members to 'those that are willing to participate and not those that are ideally positioned to make a contribution', Saubert and Ziguras (2020) suggest that, where possible, we should actively seek out participants that have knowledge in the area of

study and are well versed in the selected research methodology, proficient in academic writing, recognised in the area of study as an authority or at least a knowledgeable practitioner, and have the capacity to fulfil required duties in the research team. In the process of recruiting participants, you may need to further refine your initial questions as potential participants may not be immediately convinced of their relevance in the context of the current body of practices and related student experiences or may not believe they could facilitate a unique contribution to the current dialogue or body of knowledge.

From here we move on to research design. As stated earlier, Practitioner Enquiry does not represent a defined system of enquiry or a battery of prescribed research methodologies, and therefore a discussion relating to all possible aspects of research design that may be considered for Practitioner Enquiry initiatives is outside the scope of this chapter. We will, however, provide here a series of questions, as adapted from Baumfield et al. (2012), that will aid you in selecting appropriate research methodologies and constructing a research design that will produce the data needed to address your enquiry:

i. What kind of data will most likely provide us with the answers we're looking for? Qualitative Data (recorded focus group discussions, transcribed interviews, open-response questionnaires, etc.) or Quantitative data (number-based data such as assessment statistics, surveys using Likert scale responses, etc.)? Simply put, your decision here is based on whether you want to know the 'what' (objective evidence of a phenomenon and how it develops and changes) or the 'why' (possible explanations for an observed phenomenon provided by students, colleagues, or other respondents). In cases where both the 'what' and 'why' (the observation of the phenomena and possible explanations for it) are required, mixed- or multi-method methodologies may also be utilised.

ii. What kind of evidence will most likely record the phenomena: interviews, questionnaires, and observations (traditional methods); participation records, assessment scores, and behaviour logs (data available to all institutions); samples of student work and observations of students participating in activities (observations of regular online Teaching and Learning activities such as webinars, discussion forums, etc.); and observations of activities purposefully designed to produce specific evidence for research purposes?

iii. Regarding decisions pertaining to research design and strategy, which entail all aspects of the research project, related planning, and timelines, Baumfield et al. (2012) advise that the result of your decisions (data collections tools, period of evaluation, types of respondents, etc.) must always link back to your enquiry question, be constantly rationalised, and enable to the achievement of your research goals. Simply put, what you put in must result in the improvement of the particular aspect of a practice or the student experience you set out to improve as a group of practitioners.

One of the key benefits of applying Practitioner Enquiry to distance education practices is that there is much more data available on the student experience than there is in a contact-education context. The reason for this is that distance education, especially online education, is primarily systems driven and as such could potentially record and track far more aspects of student engagement than would be possible in a traditional face-to-face environment. Where the contact educator only has access to records on what is visible to them and recorded by them (assessment scores, class attendance, behavioural records, etc.), the distance educator potentially has access to a vast array of data sets that capture every nuance of the student's engagement with, for instance, an LMS. For example, most LMS platforms would record how long a student spends on a particular course page, and all the elements contained therein (activities, text-based resources, peer engagement, media, etc.), which would help the educator determine if disengagement is caused by the quality of resources or perhaps by the usability of the platform or the structure of the course page. 'Heatmapping' software could even provide educators with insight on which areas from a layout perspective are more frequented by others and therefore can help course designers to more effectively position important resources. While the data now available to the contemporary distance education practitioner and their communities are vast, readily accessible, customisable, and presented in formats that make for easy analysis, it could create a situation of 'information overload' which may result in a muddled research design. The key here is to fix the study on particular aims and only select data and data-gathering techniques that directly align with those aims. Ironically, while we are now able to get a far better picture of the student experience through the addition of a multitude of data-gathering points in the student life cycle, we need to isolate aspects thereof, and only consult data related to those aspects to be able to make focused and incremental improvements to our practices.

Conclusion

While this chapter did not seek to provide an exhaustive discussion on all matters relating to Practitioner Enquiry and its various iterations, applications, and associated research methodologies, it did aim to provide enough grounding for individuals and groups of distance education practitioners to start looking inward in a structured way as they seek to positively impact the experiences of their students. As such, Practitioner Enquiry could complement, supplement, or even replace formal quality assurance initiatives within education structures that, for instance, aim to determine the impact of a programme, the performance of a group of students, or the professional appraisal of educator performance, as it is focused on the here-and-now and its findings have a direct impact on the short-, medium- and, long-term student experience at the grass-roots level.

Since its formal introduction in the broader schooling system of the United Kingdom in the early 1990s, the value of Practitioner Enquiry among traditional institutional research endeavours and professional educator development initiatives has been well established, but it is in its promotion of reflection on personal practice where its value truly lies. Gilchrist (2018: page number needed) supports this notion by explaining:

> We should view practitioner enquiry as a verb, rather than a noun. It is not another of the many 'things' we are asked, or choose, to do in school. In its purest form, it is a way of being, a disposition, a way of thinking, reflected in a series of actions that are embedded as an approach in our professional practice and identity.

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Theme 3: Praxis in Distance Education Research

This theme includes chapters that focus on research on distance education practice. A variety of perspectives on current and future practice and methodologies provide for interesting reading. This ranges from open education resources to self-directed learning, facilitator support, and Michael Moore's three types of interaction.

Chapter 8:

Learning, Teaching, and Assessment Methodologies in Distance Education Research: A Meaningful Self-Directed Learning Approach

Charlene du Toit-Brits and Jean Henry Blignaut, North-West University

Introduction

Everybody will agree that Covid-19 has had a significant, more often than not devastating, impact on the world as we know it and has affected every aspect of how we do things, including teaching and learning. Although, one could argue that in some regards these challenges in the education sector brought about by Covid-19 have only accelerated the inevitable given that we had already been living in a digital and globalised world for some time, which required almost everyone to do things differently. Therefore, it is critical to examine distance education (DE) in South African colleges more than ever before. We must consider how distance and even content contribute to meaningful learning and how these are contributing to oppressive educational settings devoid of contextual affluence. This chapter is thus intended to shed light on how DE can be oppressive and how in turn facilitators can contribute to anti-oppressive education that is meaningful and enhances students' SDL abilities.

Defining education over a distance is not as apparent as it may seem, as the word distance could comprise various meanings. In simple terms, DE occurs with a distance between the facilitator and student (Witta 2009). However, the term *distance* may relate to the separation between a facilitator and a student in terms of intellect, time, and physical space (Simonson et al. 2015), which might mean that they are in separate rooms or places. Furthermore, this kind of teaching may occur via various media, including printed artefacts for non-verbal communication and media for verbal communication (Simonson et al. 2015). Thus, the working definition of distance learning in this

chapter is when facilitators and students work together to engage with academic material as part of a course and finish a module across a distance using information and communications technology.

That said, the purpose of this chapter is to establish guidelines for the DE facilitator in terms of providing possibilities for critical reflection and interaction rather than fearing a loss of control and, instead, become an anti-oppressive facilitator. This anti-oppressive facilitator must be committed to fundamentally altering learning, teaching, and assessment practices to contribute to meaningful self-directed distance learning.

Self-directed learning in distance education: Teaching, learning, and assessment methodologies for humane and non-oppressive education

In the following paragraphs, the authors will present a short introduction to what self-directed learning (SDL) is about and then shift the focus to the critical constituent that is SDL in DE, considering purposefully selected teaching, learning, and assessment methodologies for humane and non-oppressive education. The purpose of this chapter is thus not to provide a historical overview of SDL; rather, SDL is the lens through which we view teaching, learning, and assessment methodologies in DE. Initial research to comprehend SDL took place 150 years ago in the United States and Great Britain. Two of the most prominent scholars who laid the foundation for such research is Craik in 1840 who researched self-education and Smiles in 1859 who focused his work on 'self-help' and its significance for personal development.

Different terminologies are presented for SDL in research, such as self-education, andragogy, independent study, autonomous learning, self-planned learning, adults' learning projects, and independent study. Nonetheless, each terminology accentuates the individual student's responsibility, accountability, and autonomy in the learning process (Guglielmino 2013; Du Toit-Brits and Blignaut 2019).

Undoubtedly the most used explanation of SDL is that endowed by Micheal Knowles (1975: 18) where he describes SDL as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

Knowles (1975) is acknowledged as the leading mentor in SDL, andragogy, or adult learning. In his research he asserted that as adult students mature they can (a) develop and mature into more SD individuals, (b) comprehend why they want to acquire information, (c) learn experientially, and (d) approach learning as problem-solving. His research focuses on learning contracts, instructor facilitation skills, and student skills and capabilities. In consonance with Knowles (1975), we believe

that as students mature, they shift from a self-dependent individuality toward one of self-direction, autonomy, and independence that constitute both a process and a desired outcome, and our role as facilitators is to facilitate this process.

Other researchers in SDL, such as Brockett and Hiemstra, researched traditional teaching and learning instead of non-traditional teaching and learning (Brockett and Hiemstra 1991). Their findings delivered important teaching and learning materials supporting adult facilitators to comprehend and involve their students in SDL. Then there was Brookfield (1986) who argued that SDL is a transformative teaching and learning activity rather than an instrumental approach as seen in the work of Knowles (1975, 1992), Hiemstra (1991), and Brookfield (1984, 1986) who state further that SDL also referred to internal transformation of perspective where he proclaimed that 'authentic' SDL originates from the inner change of meaning, autonomy, and attentiveness to self-control from the SD individual.

Considering the arguments we made in the preceding paragraph, the authors' outlook is that a critical reflection process is needed for SDL that leads to transformational learning as it is seen as an indispensable constituent of SDL. Therefore, SDL students need to be involved in critical reflection and transformational SDL to encourage emancipatory learning. This is supported by the research of Merriam and Bierema (2013). The latter arguments in this paragraph are supported by Freire (1993) who argues that critical reflection and SDL are essential for students to emancipate themselves and employ constructive social learning actions.

When we look at more recent research on SDL, Baez (2019) and Morris and Rohs (2021) contend that SDL can be seen as a process that supports students in being responsible for the preparation, taking on, and assessing features of their learning process. Du Toit-Brits (2018a, 2020), Huang et al. (2020), and Tadesse and Muluye (2020) concur, stating that students must be inspired and motivated to engage in SDL, and as a result of their engagement achieve high-quality learning outcomes and SDL skills through personally meaningful, thought-provoking and enjoyable experiences, grounded in the sense of control and personal autonomy. Therefore, SDL skills like self-discipline, self-confidence, independence, autonomy, being goal-oriented, persistence, and self-motivation must also be embraced in distance education, where students should take up a central role in their learning.

Given all that we have mentioned so far, another fundamental constituent of SDL is the concept of personal responsibility, where individual students take ownership of their learning (Morris and Rohs 2021). As a result, accepting responsibility for one's learning and comprehension becomes a realistic option for initiating the learning process. We based the latter argument on humanism

(see the section on Humanism), where the individual student is autonomous, self-directed, and responsible for aiming for learning outcomes to achieve self-actualisation. We are thus of the opinion that students cannot be autonomous and in control of their learning process if they are not accountable for their learning. Brockett and Hiemstra (1991) support the above argument, stating that for students to take more control of their learning, the facilitator of adult students should guide them in taking more responsibility for their learning, which is a pivotal aim of adult education. Therefore, we argue that SDL can be viewed as a process in which students take up the primary responsibility for preparing, employing, and assessing their learning process. For students to take up the primary responsibility of their learning, they need the guidance of an SD facilitator who must facilitate their learning process. Thus, students' self-direction will depend on a student's desire to take responsibility for learning.

As seen at the beginning of this section, SDL is a process in which individuals take the initiative for their learning: the notion is that students can regulate their learning requirements and establish suitable ways to attain their learning goals. As can be seen from the SDL body of scholarship, SDL has been recognised as a primary adult education instrument and was initially adopted for adult learning (Tadesse and Muluye 2020). To ascertain a DE environment in which students can discover their SDL capabilities and skills, autonomy and direction in learning are needed in which facilitators can allow students to be self-directed. Now, more than ever, SDL again needs to be recognised as an adult education tool required for DE.

Self-directed learning as a crucial tool in distance education

Everybody participating in the education system has learned how adaptable learning environments can be over the past two years. 'Emergency' remote learning had to be started quickly in schools and higher education institutions (HEIs), and challenges surfaced with its implementation (Lockee 2021). In addition, the escalation of DE and the lockdown requirements have made SDL a formidable—and occasionally an indispensable and crucial—tool and style of learning where students can commit to learning in their own time (Voskampa, Kuiperb, and Volman 2020).

Mounting the tools and instruments to participate in SDL could demonstrate the importance of SDL to students' future success. During this time, it became clear that 'resilience', 'adaptiveness', 'self-direction', and 'self-regulation' are indispensable elements and influences in learning. With the purpose of HEIs being to get students ready for the 21st-century challenges, HEIs and DE per se

need to address SDL skills and abilities such as: (a) managing learning tasks without having them directed by others; (b) self-management; (c) goal-setting; (d) decision-making; (e) adaptability; (f) initiative; (g) responsibility; (h) critical thinking; (i) problem-solving; and (j) collaboration. These purposes acknowledge the importance of students' autonomy and authority in DE institutions' learning process where SDL is seen as a crucial tool (Brookfield 1984; Voskampa, Kuiperb, and Volman 2020).

The purpose of DE (or any education) is to develop students into continuing, 'inner-directed' self-acting students (Huang et al. 2020; Olivier 2020, 2021; Olivier and Wentworth 2021). The authors of this chapter believe that it is crucial in DE to promote a learner-centred approach in which students are seen as progressively independent, autonomous, and self-directed (Lockee 2020; Fahlman 2013). For SDL to flourish in DE, we need to rethink how we view the learning process in DE, focusing on how adult students participate and achieve their learning aims. We also believe that with SDL students need to implement an assortment of learning strategies, and, significantly, that students are equipped for distance learning, as it can permit them to be self-directed in their learning. In addition to implementing an assortment of learning strategies to endorse SDL further in DE, students need interactive learning guides, assistance, and learning environments that can empower them to plan their learning actions at suitable times and establish what to learn. As a crucial tool in DE, we further argue that SDL necessitates students to take responsibility for their learning, although distance facilitators cannot abandon their commitment to support students. We are further of the opinion that the next era of higher education will be dominated and transformed by DE (Waghid 2018) with collaborative technologies that will permit more SDL opportunities for students, open-access textbooks, e-books, learning repositories, social networking technologies, and open education resources (OER) (Huang et al. 2020).

Shifting of teaching and learning assumptions in distance education

To this end, it is proposed that SDL is required and essential in DE and the success of DE lies in SDL. Though higher education's emphasis on the student as a 'proto worker' has enlarged, the capability of transformative SDL to get students ready for the twenty-first century has come under the light. SDL should emancipate students into self-actualised adults living up to their full potential, focusing on thoughts of dedication and interdependency (Guglielmino 2013). With *dedication*, we imply that students need to be invigorated by concentrating and focusing on areas and issues

inside the communal setting, thus avoiding the 'academic ivory tower'. There has been movement in teaching and learning assumptions toward the use of DE as an effective tool for personal change and growth regarding SDL skills and mainly the medium over which societies grow and transform (Brandon 2020). With *interdependency*, we imply that individual learning only is ineffective to transform teaching and learning, which should rather happen through the communal involvement and skills in teaching and learning, guided and facilitated by an SD facilitator. As a result, students and facilitator can realise their power and capability to shift the meaning of teaching and learning towards a student-centric view where everyone contributes as investigators in this educational situation. Freire's (1974, 2003) opinion is that this collaborative partnership between students and facilitator empowers them to investigate challenges and redefine the challenges and their solutions. We believe that this transformative student-centric view of education is not about 'what is' but about 'what could be', stepping away from education's 'banking' view.

Consequently, the above argument indicates a need to understand the importance of the 'teaching event' in DE, which cannot only be in the facilitators' hands: the distance students need to share the learning responsibility and take accountability for the delivery's effectiveness. In addition, this chapter proposes that a shift in teaching and learning assumptions is required by both the distance facilitator and the student. In SDL-focussed DE, students need the facilitator to be present to guide them through their SDL journey. While that may be a slight overemphasis, it validates our opinion that for SDL to be operative, both facilitator and student need to acknowledge that their view of learning must change. In essence, learning ought to focus more on transforming SD students and their ability to use the content and the meaning of learning, rather than only knowing and comprehending learning content, to promote the usefulness of SDL approaches (Brandon 2020).

The usefulness of self-directed learning approaches

Considering what has been mentioned so far, one may argue that formal education, particularly DE, continues to be highly valued in communities. This chapter also suggests that DE and SDL endeavours can meet numerous challenges in keeping up with the continuously evolving knowledge. Due to the aforementioned information, giving back to students the responsibility of learning is more advantageous and valuable than other approaches. Students need to succeed as self-directed individuals and flourish in ways never thought possible when they know how to take responsibility (Du Toit-Brits and Blignaut 2019). Students have to develop self-directed learning skills during their

lives to manage the enormity of information and knowledge available to them (Guglielmino 2013). This 'act' of students taking ownership of their learning can let them become their own masters, as they decide what to do, how to do it, how long to study, or whether to re-study. Moreover, self-directed learners can construct a sense of self-confidence to achieve opportunities in life by taking ownership of their transformation to self-directed individuals with intellectual freedom (Mezirow 2000).

For students to succeed in DE, various SDL skills are required, such as planning their learning pace, monitoring their learning progress, and successfully discovering and implementing various learning resources. Therefore, DE is an ideal environment in which to generate learning opportunities to develop SDL skills (Guglielmino 2013) and empower students by strengthening their SDL skills. That said, the teaching, learning, and assessment opportunities to develop and strengthen SDL skills are foregrounded by specific and carefully selected teaching, learning, and assessment methodologies for DE.

Methodologies regarding teaching, learning, and assessment in distance education

A method, or rather methodologies in the case of this chapter, briefly resembles how teaching, learning, or assessment occurs within the educational space which could happen in many settings. In the case of this chapter, the setting is education that happens over a distance. In other words, where there is a distance between the facilitator and student enrolled for a module where technology is central to bridge the gap (between the facilitator and student) or used as a tool to facilitate learning. This section will therefore discuss teaching, learning, and assessment methodologies related to teaching, learning, and assessment.

Teaching methodologies

A teaching methodology includes the selection of the most appropriate method to achieve a teaching goal (Monclús-Guitart et al. 2009). It is argued that a facilitator usually defines such a goal in a particular module for students to obtain the necessary knowledge and skills they need to master the module as part of a particular curriculum (Monclús-Guitart et al. 2009). Additionally, teaching

methods, or more precisely, various ways thereof, collectively refer to teaching methodologies that operate on a continuum from teacher-directed to student-directed (Jacobs 2016). Some of these teaching methods are regarded as traditional, whereas others are regarded as contemporary or modern.

On the one hand, old-fashioned or outdated teaching methods include telling students what to do, using scaffolding, questions, and answers to engage in discussions and demonstrating something to students (Jacobs 2016) instead of allowing them to take an active role in the learning process. On the other hand, modern teaching methodologies (that are focused on the student), which we see fit for the twenty-first century and the fourth industrial revolution (4IR), include project-based learning, cooperative learning, discussions, role-plays, experiments (Jacobs 2016), case studies, flipped classrooms, gamification (Safapour, Kermanschachi, and Taneja 2019), and problem-based learning (Ali 2019), among others. These modern methods are to be used to teach all functions based on less interactive to more interactive settings. Therefore, DE must select the most appropriate method to convey content or facilitate a particular module's content.

Learning methodologies

Learning methods include learning through teaching, digitally created visual boards discussed online, and brainstorming through mind-mapping, among others. It is important to remember that some of these learning methods (influenced by the teaching and assessment methods) might require a high-tech or low-tech approach. Contextual education, which is not oppressive to or exclusive of anyone, will consider these elements since every distance student needs to be reached.

However, access to technology to facilitate learning and communication online is unequally spread (Pashapa and Rivett 2017), especially in South Africa. Therefore, not all distance students in South Africa have access to high-speed internet, advanced devices, and stable connectivity. These aspects should be a key consideration in devising strategies for learners or students to engage with learning content. Awareness of the digital divide among students is therefore essential (Lembani et al. 2020) as it may highlight students' circumstances, technological access, and digital literacy levels for a facilitator. Knowing and understanding these contexts in which students find themselves could promote a more humane approach to education while contributing to meaningful learning for distance students. A facilitator should also be mindful of providing learning opportunities to students in real life and some that they can do on their own to promote SDL. For example, from

personal experience, students who could not log onto a life session were more productive and engaged in response to guiding PowerPoints with voice-overs where scaffolding was built into the guiding and progression occurred gradually, making learning more accessible. The key here is to have options available for students to choose how and when to engage with learning content.

Assessment methodologies

Assessment methodologies can be direct or indirect. The difference between these two is that a direct method establishes how students have demonstrated what they know, what new behaviours they acquired or rather how their behaviour changed due to the learning that took place and how they think or how their mental processes have changed due to the learning that took place (Fredonia 2021). Direct assessment methods are twofold, as the evidence collected to assess can either be done through observation or documents to arrive at a conclusion or award a mark for the work delivered. Observations as a direct method of assessment can occur through debates, discussions in groups, student presentations, and performances (Fredonia 2021). Evidence through documents include projects such as art sculptures or portraits, research projects, tests, essays and exams, to name a few (Fredonia 2021). Direct methods of assessments, in our opinion, are linked to assessment for and of learning. It comprises both the opportunity to assess the learning process that occurred or that occurs through engagement with the content and to judge achievement after completing a module.

Indirect assessment methods include the methods employed to see how students reflect on the knowledge they acquired, the new behaviours they learned or the way they think about the content (Fredonia 2021). These can be in the form of rubrics, surveys, reflection activities, to name a few. For example, students could be given rubrics to rate themselves before and after learning a particular skill. Moreover, surveys could include Likert scales in which students indicate their confidence in using the skill after having learnt it or their likelihood to use the skill again in the future. Lastly, reflection activities could include what they have learned, what they still need to learn, and what they believe they have mastered so far. Thus, indirect assessment methods, in our opinion, are related to assessment, as learning focusses on the student, their experiences, the learning processes and their metacognition (thinking about thinking) to improve learning and focus on weaknesses, to name a few.

The connectedness of teaching, learning, and assessment methodologies

Recognising that teaching, learning, and assessment methods are interconnected is pivotal. That said, the argument that methods used to assess are also the methods to teach (Dewald et al. 2000) is already two decades old but still valid because they cannot be treated separately. Thus, teaching, learning, and assessment methodologies must link with, or instead align and focus on, the student and how best to support the distance student. By highlighting teaching, learning, and assessment methodologies, we are first trying to establish the importance of knowing about the various options available and second that the most appropriate methodologies that are chosen for distance education should be those that will promote meaningful learning experiences. Facilitators, therefore, should not select assessment methods after teaching and learning occurred but these should be selected in accordance with the teaching and learning methods. Students cannot escape assessment methods chosen randomly according to the facilitator's work. They can, however, escape substandard facilitation not promoting learning, but this leaves them stuck having to participate in poorly planned assessments. Therefore, integration of teaching, learning, and assessment cannot be overemphasised. We believe that this can be achieved by being aware of the contexts of students and not following a one-sise-fits-all teaching approach. Instead, an inclusive approach should be followed for DE teaching, learning, and assessment. The idea of the separation influences our stance regarding inclusivity and context between facilitators and students, which is not supported by video conferencing during facilitation. This challenge necessitates that facilitators offer students individualised learning experiences, which can be done through humane education that is free from exclusion and oppression.

Humane education free from exclusion and oppression: promoting emancipation

In this sub-section, we discuss humanism in education, that is, education that does not oppress anyone and how such education can contribute to action and reflection on teaching and learning to increase emancipation through education and ultimately provide more contextual learning in distance education.

Humanism

Humanism is complex and has a rich history that stretches as far back as 1589 (Copson 2015). Without going into much detail about humanism, it is defined in the bylaws, according to Humanists International (2021) as:

> ...a democratic and ethical life stance that affirms that human beings have the right and responsibility to give meaning and shape to their own lives. It stands for the building of a more humane society through an ethic based on human and other natural values in a spirit of reason and free inquiry through human capabilities. It is not theistic, and it does not accept supernatural views of reality.

This basic definition is sufficient to get a glimpse of what humanism is but can never illustrate humanism in its broadest sense. Nevertheless, it is vital to understand what humanism in its basic form refers to, since this section deals with humanism from a DE perspective. The humanistic theory is often used in education as an approach to teaching and learning and describes how learning occurs.

Advocates of this theory argue that it is concerned with what children need in terms of their holistic development, which includes how they develop in terms of their emotions, mental processes, and their ability to interact with others on a social basis (Duchesne and McMaugh 2016). It is also argued that the focus of this theory from an educational psychology stance is orientated on a person's personal best interest and helping them progress to this point in their development (Crain 2015). Lastly, education based on humanism highlights the learner's inner world and emotions, with how they feel and think at the centre of their overall growth (Khatib, Sarem, and Hamidi 2013). Thus, DE (in the case of this chapter) which is founded on humanism emphasises the human being and elevates the individual above all else, or, in other words, humanising people. (cf. Firdaus and Mariyat 2017). That said, optimum learning is epitomised by understanding the self, self-actualisation, and self-realisation (Firdaus and Mariyat 2017), all important for SDL. After all, the type of DE founded on humanism is one that liberates the individual, thereby having a better quality of life or making a quality life for themselves. This notion corresponds with Freire's notion of what education should be reflected in his book on *Pedagogy of the Oppressed*—that is, education that does not oppress, education that is critical of systems of oppression, and education that gives students a voice (Freire 1993). Therefore, as mentioned in the previous sentence, humanistic

education is connected to education that is free of oppression, which is discussed in the following sub-section.

Anti-oppressive education

Anti-oppressive education in this section refers to education that is not oppressive to anyone and non-exclusive to anyone. Such education is mindful of people who may have been excluded and aims at education about those enrolled for a module or a course at a DE institution. In our opinion, such education is epitomised by the phrase, 'nothing for us without us'. We have used Kumashiro's (2000) notion of anti-oppressive education for this chapter. His notion is broken up into four fundamental tenets, namely: (1) education should be for individuals who are 'othered' concerning what is considered or recognised as normal; (2) education should be about those who are typically 'othered'; (3) education should criticise hostility and privilege; and (4) education should reform both the individual student and the community.

When it comes to 'education for the other', it is all about facilitators making the lives of those who are marginalised better. Miller (1995) contends that facilitators' behaviour toward learners or students may be influenced by types of bias, especially towards race and ethnicity. That being said, an educational institution's physical or virtual setting might be disconnected from the reality of the distance student. The implementation of curriculum as a guide to integrate and welcome all types of diversity can therefore help facilitators enhance the learning experiences of distance students.

Education's focus on individuals who are 'othered' requires educating all students about the other, which includes every student, as all people suffer some form of 'othering' or marginalisation. Lack of inclusiveness suggests that some students have important but concealed information in the hidden curriculum, which implies that all students should be included in teaching and learning to refrain from education that oppresses some while privileging others (Kumashiro 2002). A pedagogy that fits well here is one that is socially just. Such a pedagogy can aid in creating an awareness among students and the facilitator of each other's backgrounds, what they know and do not know, as well as their mother tongue to have an appreciation of diversity and to be able to know what diversity is (Kumashiro 2000). Providing students with contextualised education is essential to promote inclusivity of the other and each individual so that they may see themselves in the education they receive (Gay 2018).

Offering education that criticises alienation and privilege allows students to become aware of

how they are all part of a social system where they are alienated in particular ways and benefited in particular ways. Self-reflection becomes vital in this endeavour, as students have to reflect on their own lives to realise how the benefits they enjoy may oppress their peers or fellow students, including the way they argue and the reference points they use to form arguments. Another way to challenge student knowledge is by comparing it to information gained in their modules. Doing so will help students see how what they think they know affects other people's lives, but it will also help them realise that learning and unlearning together is critical to reducing privilege and alienation among themselves (Blignaut 2021).

Reforming the individual and society through education entails educating students on issues their fellow citisens experience (Kumashiro 2000). Such education may result in instances where individuals (students and facilitators) feel exposed regarding their prior assumptions or ideas. Although they may feel vulnerable, they could also experience a profound enlightenment and learning curve in understanding the assumptions their knowledge comprises, enabling the facilitator and fellow students to have an in-depth understanding of each other. Consequently, such education, in our opinion, leads to self-discovery through self-reflection (an essential part of curriculum as praxis, discussed in the following section) in terms of thinking about the self and about others. This can promote SDL and how one deals with people of diverse backgrounds. Moreover, education in this sense liberates the student from an education system that is perhaps against them based on who they are. Finally, such education facilitates action and reflection (Grundy 1987) on what occurs in reality and how one responds to it, emphasising curriculum relevance as praxis in distance education.

Curriculum as praxis: education based on emancipation to contribute to meaningful distance learning

Other approaches to curriculum design as well as teaching, learning, and assessment exist, such as curriculum as product and curriculum as practice, but we will concentrate on curriculum as praxis (Grundy 1987). The curriculum as praxis focusses on emancipating the individual through education with its critical inclination (Grundy 1987). Education in this sense is connected to Freire's literacy programme, which is guided by three key ideas (Grundy 1987). These ideas include that (a) education should be relevant to students, (b) with a critical foundation, while (c) promoting active participation in the learning process (Grundy 1987). Relevant education, in our opinion,

comprises meaningful learning. That said, making students part of the learning process through action and reflection gives meaning to the education they receive. Meaningfulness, in this case, can be established at the beginning of a module/course through a bargaining process between facilitator and students to contribute to education that emancipates students (Grundy 1987).

The bargaining process of giving and taking, and acting and reflecting, is not absent of dialogue and purposefully discussing education in students' interest (cf. Freire 1993). Dialogue is thus central to this endeavour whereby a facilitator gets to know their students. At this point, contexts and backgrounds of students are established, which is essential information to be used in planning teaching, learning, and assessment. Thus, to encourage SDL via distance education that allows for action and reflection, their reactions are analysed to help develop an appropriate learning environment and enable a facilitator to gather information to assist them with goal setting (Blignaut and Du Toit-Brits 2021). Most importantly, engaging with students on this level also helps a facilitator gather information to identify suitable platforms to search for sources and select suitable sources they can use in the learning process (Blignaut and Du Toit-Brits 2021). Lastly, with such information generated, the facilitator can identify suitable strategies for learning and make informed decisions on assessment methods that will work with the group of students to illustrate what learning occurred (Blignaut and Du Toit-Brits 2021).

In conclusion to this section, a student made free through socially just education can promote SDL in the sense that, by recognising such education, facilitators can motivate students to engage in learning and work in a goal-oriented manner in the learning process and encourage students to take primary responsibility of their learning, which are aspects that enable a person to be self-directed in their learning.

Proposed solutions for humane and non-oppressive distance education

This section comprises a brief discussion regarding the facilitator as a role-player responsible for promoting SDL in their modules by offering humane and non-oppressive education.

The distance education facilitator becoming an anti-oppressive, self-directed facilitator

For distance facilitators to reform themselves and their practices to reflect the practices of an anti-oppressive facilitator, we propose that the distance student should be placed at the centre of all teaching, learning, and assessment aspects. Nothing in terms of education can occur for them without them. Such education demands a flexible facilitator who is cognisant of their students' varied intelligences and the diverse settings from which they emerge. Moreover, we argue that such a facilitator would be open to non-normative viewpoints and understandings, which will require them to approach education from multiple realities rather than one reality they initially accepted as the truth.

Each individual (even the facilitator) meets each other with backgrounds that privilege them somehow and disadvantage them in some other way, making it vital to acknowledge the other and each other in this endeavour. Facilitating these students happens in the form of a give-and-take relationship that always requires reflection and action upon what was reflected on to contribute to meaningful learning. Simultaneous unlearning and re-learning are highly valuable in this type of DE. Being present when students are expected to engage with content, interacting and engaging with them while asking for their opinions and how they want to learn and engage with content go a long way. In collaboration with SDL, reflection and dialogue must be central to anti-oppressive instruction in DE institutions to better understand the authority dynamics embedded in education and the community to democratise the process of knowledge and skill creation within the learning environment. In conclusion to this section, we provide some recommendations as a way forward to start thinking about how DE can be more humane and non-oppressive to promote SDL.

Recommendations and conclusion

Our recommendations are guidelines for the DE facilitator on how they can offer their students a module that is humane and non-oppressive to contribute to the self-directedness of their students. Our guidelines include the provision of more learning openings for critical reflection and engagement and instead of being afraid of losing control, becoming an anti-oppressive facilitator with a deep commitment to change learning, teaching, and assessment methodologies that contribute to meaningful SDL. Distance environments need to support individual student needs and promote the distinctiveness of each student where creativity and intellectual freedom are encouraged. In these distance education environments, the facilitator needs to listen to students as they would to their peers, show appreciation for their life experience, and allow for SDL to take place. The distance facilitator needs to 'co-create' the learning environment with students grounded on students' needs to support students in grasping their possibility for success and accomplishment in their field. Finally, learning environments in distance education need to confront adult students at their different intellectual capability levels. DE also needs to promote active participation in learning where facilitators and students cooperate similarly in learning responsibilities, where a learning atmosphere is created in which students are willing to learn.

In conclusion, this chapter discussed SDL concerning promoting education and how it can be better achieved through education that is focussed on the human being and non-oppression. These elements can be seen as pivotal for education to free students from their backgrounds and how they think. Such education can promote higher-order thinking, questioning what they learn and ultimately contributing to understanding from multiple perspectives by unlearning and re-learning together from within a contextually rich education while promoting SDL.

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Chapter 9:

Learner Support in The University of Rwanda's Distance Training Programme: Current Practices and Future Perspectives[1]

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Introduction and background

In his keynote address at the 2013 DETA[2] conference, Bob Moon indicated that if Universal Primary Education (UPE) is to be achieved by 2015, there is a need for 1.7 million new teachers worldwide, and one million of these are needed in Africa. Referring to this challenge, Mays (2014) reports that many countries are unlikely to have met the goals set for Education for All (EFA) by 2015 and they are unlikely to do so even beyond this date using the traditional mode of full-time attendance at courses in a pre-service teacher education institution. This is one of the reasons why distance education, a relatively new mode of education, is increasingly used in many parts of the world for both pre- and in-service teacher education (Kwapong 2007; Abedi and Badragheh 2011; Papagianni and Eteokleous 2021), since it provides study opportunities for those who are not able to attend classes (Holmber, 1995). Similarly, distance education is cost-effective (Abedi and Badragheh 2011; Idrissi et al. 2021) and enables teacher-trainees to continue to meet professional and social commitments (Sharma 2000; Aydin and Erol 2021) and thus can 'reach large groups of teachers and

1 This paper is part of a wider study that culminated in a Ph.D. Dissertation presented by Irénée Ndayambaje to the Graduate School of Kenyatta University on 05th October 2016. The study was supervised by Prof. John Akulo Orodho and Dr. Norbert Ogeta, whereas Prof. Wenceslas Nzabalirwa, Prof. Jean Pierre Dusingizemungu, and Prof. Evode Mukama played the role of academic mentors. The fulfilment of this study was also possible because of the financial and administrative support of the Ministry of Education and the University of Rwanda College of Education, Rwanda.

2 Distance Education for Teacher Education in Africa.

have an impact on the development of national education systems' (Kwapong 2007: 224; Kamble et al. 2021). In 2001 the University of Rwanda's College of Education (UR-CE) introduced a distance education programme (DTP) as an alternative to the on-campus mode to offer in-service teacher education to under-qualified high school teachers[3]. In fact, the number of under-qualified teachers in Rwanda was too high (Rwanda Ministry of Education 1999) for them to be taken out of schools to be offered on-campus as there were no other teachers to replace them (Mukamusoni 2006).

The rationale for this study

Distance Education (DE) has been defined as a method of education in which the teacher and the learner are separated in time and/or space for some or all the time of study (Robinson and Latchem 2003; Abedi and Badragheh 2011; Süğümlü 2021). Because of this separation, Robinson and Latchem (2003: i) indicate that 'the learning materials take over some of the traditional role of the teacher', with printed material continuing to be the most used in many countries. However, as Kiymaz (2023) and Mensah et al. (2022) note, the support offered by the text is not sufficient, because written feedback may not be clear and engaging, and in case students find it difficult to understand, they have no one to go to for clarification. Therefore, as Rowntree (1992) argues, few learners can survive on materials alone. In addition, some DE scholars (for example, Roberts 2004; Gil-Jaurena 2014) argue that effective learner support is likely to lower the dropout rate and increase the pass rate, which are two challenges that DE programmes are faced with.

A few studies have been conducted on the distance education programme of the University of Rwanda's College of Education. These include a 'descriptive qualitative case study' (Mukamusoni 2006) and a multi-country assessment of the use of DE and ICTs in education with a focus on Rwanda, by the Joint International Council of Distance Education (ICDE) and the World Bank (Rumble 2003), whose report allocates three out of 117 pages to the programme. There has also been a mid-term review of the first intake of the University of Rwanda's Distance Training Programme (Pennells and Coldevin 2003) and a short review of the programme by the South African Institute for Distance Education (SAIDE) in 2006, which was reported on a single page (Mays 2006). A journal article was also published focusing on the mode of operation of the DTP (Ndayambaje, Bimenyimana, and Ndahayo 2013). A more extensive study is the PhD research by Sibomana (2014), which analysed

3 These teachers are those whose qualification does not go beyond high school certificates.

the materials used by the DTP programme to train high school English teachers. Two journal articles have been published from this study focusing on pedagogy for teaching writing through the distance education programme (Niyibizi, Sibomana and Perumal 2019) and pedagogy for designing learning activities for distance education programmes (Sibomana 2020). These studies evaluated and focused on different aspects of the programme but we still observe a paucity of studies which investigated the kind of learner support that is available for the teacher-trainees in this DTP programme, and yet learner support constitutes a very important element of distance education (Roberts 2004; Gil-Jaurena 2014).

Therefore, it is important to investigate the kind of learner support that is available for the University of Rwanda's DTP programme, mainly because (i) the drop-out rate was revealed to be high in this programme (Ndayambaje 2016). In this regard, more than half of the students who enrolled in the DTP intakes of 2009, 2011, 2013, and 2014 dropped out before completion of the programme (Ndayambaje 2016). In addition, Mbonyinshuti's (2012) study revealed that (ii) the teacher-trainees complained about insufficient or ineffective support from their tutors. Sibomana (2014) pointed to (iii) organisational problems in the programme as one of the challenges to their learning, while all the studies conducted on this programme identified (iv) some limitations in the aspects of the programme which they focused on (Pennells and Coldevin 2003; Rumble 2003; Mukamusoni 2006; Mays 2006; Sibomana 2014). It is believed that the findings from all these research studies inform and inspire education policy makers in Rwanda and in other developing countries in Africa and elsewhere, which are still lagging behind in DE development and offer opportunities to compare Africa with the developed world (Moyo 2003; Leary and Berge 2007). Furthermore, Biao (2012) pointed to the lack of personnel with knowledge and experience in the philosophy, principles, and methods of distance education.

It is against this background that this chapter explores the learner support model which is established for the University of Rwanda's DTP teacher-trainees, to monitor and strengthen their effectiveness. Indeed, this study focused on the particular nature of connected learner support with internal efficiency, implying the measure of educational output and outcome (UNESCO 2014; Gil 2014; Cornali 2012). Internal efficiency is described as a diagnostic tool of education because it informs about strengths, weaknesses, leakages, and levels of attainment of the objectives based on the input-output relationship (Akinsolu 2012; Itaaga et al. 2014; Adeyemi and Adu 2012; Yunas 2014). In the context of this study, internal efficiency was restricted to educational outputs as expressed by the quantitative transition and flow rates of the learners (Hussain and Saeed 2012; Republic of South Africa 2013). The three indicators of internal efficiency that were considered in this chapter

are promotion, repetition, and dropout rates (UNESCO 2014 and Naravane 2012).
Hence, this chapter strives to analyse and give insights on the following research questions:

- What does distance education look like in Rwandan education, particularly the University of Rwanda's Distance Training Programme (DTP)?
- What kind of learner support promotes learning effectiveness and a high completion rate among the consecutive cohorts of the programme?
- To what extent have DE and DTP contributed to education and development in Rwanda?

Methodological perspectives

The study adopted the explanatory sequential mixed methods design which is a sub-type of a mixed methods research design (Creswell and Clark 2011; Creswell 2012). According to Creswell (2012), the explanatory sequential mixed methods design is a type of correlation design that first associates variables and thereafter correlates them to determine the extent to which changes in one variable are reflected in the other. From a target population of 1 346, purposive and stratified random sampling techniques enabled the researchers to reach a sample of 315 subjects including students and staff, as summarised in the table below:

Table 1: Population and sample sise

SN	Category	Total Population	Sample Size	% of the sample vis-à-vis the target population
1	Level II DTP students	1 090	251	23.03
2	Management of SODeL	2	2	100
3	SODeL administrative staff	9	2	22.22
4	UR-CE academic staff	181	42	23.20

5	Management of UR-CE	1	1	100
6	DTP regional coordinators	4	4	100
7	Heads of provincial DTP study centres	6	1	16.66
8	DTP tutors	53	12	22.64
	Total	**1 346**	**315**	**23.40**

Source: Ndayambaje (2016)

The following data collection instruments were used in this study: learner support questionnaires, an observation checklist, an interview guide, and document analysis. Content validity was established by experts' appraisal (Amin 2005). Cronbach's Alpha reliability tests produced 0.856 and 0.924 respectively for the learner support questionnaire for staff and DTP students. Quantitative data were analysed and presented in the form of tables. Analysis was based on descriptive statistics (Mean Scores) and regression outputs (Beta and P-values) (Orodho et al. 2016; Christensen and Stoup 1991). Qualitative data analysis used thematic analysis, tally method, and quick impressive summary and reporting in narrative form (Orodho et al. 2016).

Distance education in Rwanda and DTP at the University of Rwanda

Distance education has been identified as an important mode of teaching and learning in the Rwandan education system (Rwanda Ministry of Education 2003), and this has resulted in the establishment of the Department of ICT in Education and Open Distance and e-Learning in the Rwanda Education Board (REB)[4], as well as the School of Open and Distance Learning within the University of Rwanda's College of Education. This school aims to respond to the college's mission by making its scholarship accessible to the wider community, providing high quality, flexible, part-time education tailored for adults to complement the college's core mission[5].

4 Retrieved from http://www.mineduc.gov.rw/spip.php?article10, accessed on 22 October 2014

5 Retrieved from http://www.ce.ur.ac.rw/?academic/schools/school-of-open-and-distance-learning.php, accessed on 07 October 2014.

Learner and learning support in UR-CE's distance training programme

Learner support was developed as a technical term to mean all potential activities that facilitate learning and learners' well-being (Tait 2003; Thorpe 2002). It also ensures that distance learners overcome barriers throughout the learning process (Keegan 2002; Erradu 2012). According to Keegan (2002: page number), 'the term "student support services" is used for those parts of a distance or electronic learning course which are additional to the provision of course content'. These student support services can be either 'learner support' or 'learning support' (Welch and Reed, 2005). Brindley, Walti, and Zawacki-Richter (2004) indicate that learner support involves interactive activities and services meant to support and facilitate the learning process. This includes 'tutoring and teaching, counselling and advising and related services, and administrative activities in service to learners such as admission and registration' (reference needed).

The learner support in the Rwandan context, particularly at the University of Rwanda, includes the following:

- **Learner support 1:** Learners' accessibility to the course modules: the first support is to enable the distance training programme teacher trainees to access the course content, which is presented in the form of modules, in printed form and online, on the University of Rwanda's e-Learning platform.
- **Learner support 2:** Peer support (if this is organised): this is a form of learning encouraged to take place. Learners are advised to learn in pairs as per their convenience (e.g., proximity). This learning strategy helps avoid the feeling of isolation, boosts performance, and reduces dropouts.
- **Learner support 3:** Phone/sms/calls and charts with lecturers/facilitators: With the advancement in terms of access to mobile and mobile applications especially on smart phones, individuals/groups of DPT learners are now connected with each other and respective module facilitators. Consequently, instead of waiting to raise their academic or administrative concerns during weekend tutorials or face-to-face sessions, where the need arises these students call/sms/text the facilitator who is also expected to provide relatively quick feedback. Live synchronous sessions using applications such as Zoom, Google Meet, and MS Teams are also encouraged.
- **Learner support 4*:*** Weekend tutorial: these are activities organised as part of the continued learning support. They are organised towards the end of the week (weekend). They are also

used to administer continuous assessment tests, supervise group activities, and provide feedback to students.

- **Learner support 5:** Face-to-face sessions: whereas learning under the Distance Training Programme is primarily delivered through self-study modules, learners are given the opportunity to meet facilitators/module writers to be assisted in building meaning around the explored concepts and theories, engage in peer-to-peer discussions, alleviate misconceptions, and help them practise their acquisition where applicable (e.g., practical laboratory demonstration for science related subjects). Considering the availability of the target group (in-service teachers) and the required length of this activity, face-to-face sessions take place during school holidays. Usually, face-to-face sessions precede end-of-module examinations.

The practices described above confirm what has been pointed out previously, that DE learners are separated from their teachers during most of their learning time and therefore rely on DE materials for learning. This separation leaves a learning gap which learning materials alone cannot fill. Therefore, learner support is intended to bridge this gap (Brindley et al. 2008) and help learners achieve the outcomes of the programme (Welch 2003) by making learning at a distance a more meaningful experience (Gil-Jaurena 2014) so that it matches the facilities which a face-to-face system provides for the success of its students (Keegan 2002). This suggests that learner support is an indispensable element in DE systems if these are to provide the same quality education as face-to-face ones. In other words, without (effective) learner support DE programmes may be rendering lip service to and/or deceiving their learners. For the Rwandan DTP students, particularly at the University of Rwanda, the level of quality support is described in the next sections.

The quality of learner support in UR-CE's DTP

As has been pointed out previously, various learner and learning support types are provided by the UR-CE DTP of which the effectiveness is explored below.

Access to modules and other instructional resources

Table 2: Availability, access, and adequacy of DTP modules and other instructional resources as perceived by staff

SN	Statement	N Valid	SA	%	A	%	U	%	D	%	SD	%	Mean	Std. Dev.
1	Use of experts in module writing	51	29	56.86	19	37.3	3	5.882	0	0	0	0	4.51	0.61
2	Peer review of modules	51	18	35.29	24	47.1	7	13.73	2	3.92	0	0	4.14	0.8
3	Content coverage	51	16	31.37	27	52.9	6	11.76	2	3.92	0	0	4.12	0.77
4	Continuous revision of modules	51	7	13.73	22	43.1	7	13.73	12	23.53	3	5.88	3.35	1.16
5	Supplementary teaching-learning resources	51	3	5.882	14	27.5	10	19.61	18	35.29	6	11.76	2.8	1.15

Source: Ndayambaje (2016)

The data in Table 2 show that DTP module production goes through a quality assurance process to ensure that the study materials address the needs of the beneficiaries. This was supported by staff who agreed that DTP modules are written by experts in the subject content (Mean = 4.51, Std. Dev. = 0.61); undergo a peer review process (Mean = 4.14, Std. Dev.= 0.80) and cover the necessary content (Mean = 4.12, Std. Dev. = 0.77). Nonetheless, the respondents were undecided about regular revision of DTP modules (Mean = 3.35, Std. Dev. = 1.16) and the adequacy of the required teaching-learning resources in study centres (Mean = 2.80, Std. Dev. = 1.15). Thus, the relevance of these modules over time can be called into question.

To explore instructional resources more, 251 Level II DTP students attempted eighteen questions on the availability, access, and adequacy of DTP instructional resources to supplement the responses from the staff members. Table 3 summarises their answers in terms of frequencies, percentages, mean scores, and standard deviation (Std. Dev.) per statement. The statements were ranked in descending order based on the magnitude of their mean scores.

Table 3: Availability, access, and adequacy of DTP instructional resources as perceived by DTP students

SN	Statement	N Valid	SA	%	A	%	U	%	D	%	SD	%	Mean	Std. Dev.
1	Review questions	249	102	40.96	119	47.8	12	4.82	13	5.22	3	1.2	4.22	0.85
2	Availability of learning strategies in the modules	250	94	37.6	125	50	19	7.6	10	4	2	0.8	4.2	0.81
3	Learning objectives	248	88	35.48	117	47.2	16	6.45	22	8.87	5	2.02	4.05	0.98
4	Quality module layout	251	58	23.11	129	51.4	29	11.55	27	10.76	8	3.19	3.8	1.01
5	Resources for learning	251	63	25.1	124	49.4	25	9.96	26	10.36	13	5.18	3.79	1.09
6	Simple language	251	53	21.12	135	53.8	23	9.16	29	11.55	11	4.38	3.76	1.05
7	Illustrations	250	61	24.4	113	45.2	31	12.4	27	10.8	18	7.2	3.69	1.16
8	Modules are not heavy	251	52	20.72	97	38.7	36	14.34	45	17.93	21	8.37	3.45	1.24
9	Detailed content	249	30	12.05	101	40.6	37	14.86	62	24.9	19	7.63	3.24	1.18
10	Getting required number of modules	250	55	22	83	33.2	21	8.4	42	16.8	49	19.6	3.21	1.46
11	Opportunity for feedback on the content of modules	251	39	15.54	78	31.1	22	8.76	47	18.73	65	25.9	2.92	1.47
12	Training on how to use the Internet	251	13	5.18	72	28.7	23	9.16	52	20.72	91	36.25	2.46	1.37
13	Access to E-resources	247	8	3.24	47	19	45	18.22	73	29.55	74	29.96	2.36	1.19
14	Provision for additional resources for learning	249	13	5.22	24	9.64	65	26.1	67	26.91	80	32.13	2.29	1.17
15	Access to the computer lab	250	16	6.4	26	10.4	20	8	70	28	118	47.2	2.01	1.25
16	Timely distribution of modules	250	5	2	35	14	20	8	70	28	120	48	1.94	1.14
17	Access to the library	245	10	4.08	24	9.8	25	10.2	57	23.27	129	52.65	1.89	1.18
18	Practice in science laboratories	247	8	3.24	20	8.1	34	13.77	59	23.89	126	51.01	1.89	1.12

Source: Ndayambaje (2016)

Table 3 describes the perceptions of 251 Level II DTP students on their experiences in relation to instructional resources under DTP. The analysis of the data in Table 3 displayed three major emphases.

Emphasis 1: The quality assurance process employed in the DTP module production

DTP students agreed that the modules undergo review processes (Mean = 4.22, Std. Dev. = 0.85), introduce effective learning strategies to students (Mean = 4.20, Std. Dev. = 0.81), and present clear learning objectives (Mean = 4.05, Std. Dev. = 0.98). The confirmation of the quality of DTP modules by the students might be connected with the proven working experience of the module writers who are experienced academic staff from the University of Rwanda's College of Education.

To triangulate this information with DTP students, the learner support interview enabled the research team to gather qualitative data. On the prevalence of the use of printed modules as instructional resources under DTP, the interviewee coded R5LSI (2016), indicated that:

> *the print modules have actually remained the only learning tool that can guarantee that our students have received basic learning resources.*

However, it was reported that the DTP modules were not revised on a regular basis, and one of the justifications was highlighted by an academic staff member as follows:

> *the module production process is not only assiduous but also costly to the institution... Therefore, the annual revision is almost not possible. It takes about 2 to 3 years to come up with a new version of the module - if the revision is really required. In the meantime, whenever need be to supplement the distributed modules from the printing house, UR-CE lecturers supply separate hard copy texts that are photocopied and distributed to the students.* (R5LSI 2016)

The statement in the interview extract above demonstrates that, although modules have remained the dominant teaching-learning resource under DTP, their production requires a lot of resources on the institutional side.

Emphasis 2: Learning conditions for DTP students

Further analysis explored the learning conditions of DTP students. In this regard, as highlighted in Table 2 above, the student respondents disagreed with the statements that DTP students receive modules in time (Mean = 1.94, Std. Dev. = 1.14), get easy access to the library (Mean = 1.89, Std. Dev. = 1.18), and are given opportunity to practise their acquisitions in science laboratories (Mean = 1.18, Std. Dev. = 1.12). Also, the student respondents expressed the challenge in accessing the computer lab (Mean = 2.01, Std. Dev. = 1.25), acquiring additional materials to the printed modules whenever required (Mean = 2.29, Std. Dev. = 1.17), getting exposure to the electronic resources (Mean = 2.36, Std. Dev. = 1.19), and being trained to use internet as a resource for learning (Mean = 2.46, Std. Dev. = 1.37). These findings suggest that the learning conditions of UR-CE DTP students are not adequate.

Emphasis 3: DTP students' completion rates over three consecutive cohorts

In Tables 2 and 3 above, a linear regression analysis was used to answer the first research objective and the first research question to this study, which was to determine the influence of instructional resources on internal efficiency of the distance training programme for in-service secondary school teachers in Rwanda. Table 4 below illustrates the coefficients of the influence of instructional resources on internal efficiency, particularly on three aspects or models: the promotion rate, the repetition rate, and the drop-out rate amongst the three consecutive cohorts.

Table 4: Statistical measurements of the influence of instructional resources on promotion rate, the repetition rate, and the drop-out rate among DTP students

Dependant variable: internal efficiency				
		Model 1: Promotion rate	**Model 2: Repetition rate**	**Model 3: Dropout rate**
Predictor: instructional resources	**R**	0.232	0.055	0.611
	R^2	0.054	0.003	0.373
	p	0.405	0.846	0.016
	β	-5.403	-1.290	6.693
	Constant	83.515	30.426	-13.941

Significance level (p) < 0.05
Source: Ndayambaje (2016)

As highlighted in Table 4 above, the three models summarise the influence of instructional resources on three key components of internal efficiency (promotion, repetition, and dropout rate), which are combined to analyse the situation in DTP at the University of Rwanda. Details of each model is discussed in the following paragraphs:

Model 1: Influence of instructional resources (predictor) on promotion rate among UR-DTP students

The Pearson's r = 0.232 indicated that there was a weak positive linear relationship between instructional resources and the promotion rate of the DTP, whereas the computed R^2= 0.054 suggested that instructional resources explained only 5.4 per cent of the variations in the promotion rate of DTP. As model 1 shows, the P-Value was higher than the significance level, i.e., p = 0.405>0.05. It can, however, be predicted that one unit of change in instructional resources is expected to cause 5.403 decrease in the promotion rate of the DTP (Constant = 83.515, β = -5.403). Therefore, the interpretation of this finding in line with the objective of the study is that while Distance Education learners are independent in terms of learning pace and time, instructional resources are a key

determinant in their learning success as suggested by the low promotion rate. Thus, any successful Distance Education delivery should ensure that instructional resources are availed on time, are of high quality, and in various formats.

Model 2: Influence of instructional resources on repetition rate among UR-DTP students

The Pearson's r = 0.055 signified that there was a very weak positive correlation between instructional resources and repetition rate of DTP, while $R^2 = 0.003$ entailed that instructional resources explained only 0.3 per cent of the variations in repetition rate under DTP. The data of Model 2 informed that the computed P-value was greater than the significance level, i.e., $p = 0.846 > 0.05$. As per the same model, for every unit change in instructional resources, a 1.290 decrease in repetition rate of DTP is expected (Constant = 30.426, β = -1.290). Based on these results, it appears that instructional resources contribute to adequate and quality learning and counteract the occurrence of high repetition rate cases.

Model 3: Influence of instructional resources (predictor) on dropout rate among UR-DTP students

The Pearson's r = 0.611 suggested that there was a moderate positive correlation between instructional resources and dropout rate among UR-DTP students. The $R^2 = 0.373$ indicated that instructional resources accounted for 37.3 per cent of the variations in dropout rate under DTP. As that model indicates, there was a statistically significant influence of instructional resources on dropout rate of DTP because the computed P-Value was less than 0.05 significance level, i.e., $p = 0.016 < 0.05$. Also, for one unit change in instructional resources, a 6.693-unit increase in dropout rate is predicted and the total absence of instructional resources would have a 13.941 negative effect on dropout rate of DTP (Constant = -13.941, β = 6.693). Hence, in the context of the present study, by substituting the values provided by Model 3, the regression equation = $\alpha + \beta x_1 + e_t$ becomes = -13.941 + 6.693 Instructional resources + e_t. According to these results, dropout rates in distance education can be curbed through availability, accessibility, adequacy, and effective use of instructional resources.

In this chapter, the influence of instructional resources on promotion, repetition, and dropout

rate was analysed over four consecutive cohorts: 2009–2010, 2011–2012, 2013–2014, and 2014–2015. A clear picture from these four cohorts is presented as follows:

Table5: Internal Efficiency of DTP across the academic Years 2009-2010, 2011-2012, 2013-2014 and 2014-2105

	2009–2010	2011–2012	2013–2014	2014–2015
Promotion rate	65.79%	78.50%	65.90%	58.38%
Repetition rate	21.09%	11.90%	32.63%	26.27%
Dropout rate	13.12%	9.60%	1.47%	15.36%

Source: Ndayambaje (2016)

The data in Table 5 indicate internal efficiency of the DTP across combinations for the academic years 2009–2010, 2011–2012, 2013–2014, and 2014–2015. These data indicate that considering the four academic years, the highest promotion rate was registered in the academic year 2011–2012 (78.50 per cent). The highest number of repeaters was recorded in the academic year 2013–2014 when the repetition rate was 32.63 per cent. In terms of dropout rate, the highest dropout rate was registered in the academic year 2014–2015 (15.36 per cent). Based on the findings from the four cohorts, it is evident that UR-CE DTP still has areas for improvement expressed in terms of repetition and dropout rates, calling for a reboot of learner support strategies including the instructional resources.

UR-DTP students and DTP managers' perception about the influence of instructional resources on internal efficiency of DTP at UR-CE.

In addition to the quantitative analysis, the qualitative data that was obtained from open-ended questions in learner support questionnaires, the learner support observation checklist, and the learner support interview guide revealed more about the influence of instructional resources on internal efficiency of the DTP at UR-CE. In this regard, the major intervention that respondents

expect from the Ministry of Education in Rwanda (MINEDUC) is the availability of libraries in study centres. This idea was supported by DTP students (n=14, 5.58 per cent), DTP tutors (n=2, 16.76 per cent), as well as UR-CE academic staff (n=5, 13.51 per cent). Also, DTP students requested MINEDUC to increase their financial support so that they could afford the cost of modules (n=22, 8.76 per cent). Further, the students requested individual laptops for DTP students (n=1, 0.4 per cent), as well as setting up highly equipped science laboratories (n=1, 0.4 per cent). DTP tutors emphasised the need for the availability of internet connectivity in computer laboratories at the DTP study centres (n=3, 25 per cent).

As for the situation in the distance training centres of the University of Rwanda-College of Education (UR-CE), the respondents strongly raised the issue of setting up libraries with relevant textbooks. This idea was supported by DTP students (n=21, 8.36 per cent), UR-CE academic staff (n=3, 8.11 per cent), as well as DTP tutors (n=2, 16.66 per cent). The DTP students emphasised that UR-CE should ensure the distribution of modules in time (n=91, 36.25 per cent), reduce the cost of modules (n = 21, 8.37 per cent), facilitate DTP students to access the learning resources (n = 4, 1.59 per cent), and connect computer laboratories to the internet (n=3, 1.2 per cent). On behalf of the School of Open, Distance and e-Learning (SODeL), administrative staff expressed the need for adequate training of module writers (n=1, 50 per cent), whereas UR-CE academic staff (n=8, 21.62 per cent) recommended that module writing should be remunerated as a part-time activity for academic staff. DTP managers also emphasised the shift to the digital mode of delivery (n=3, 8.11 per cent).

To emphasise motivation for academic lecturers who contribute to module writing, the extract below from the R3LSI interviewee expressed it as follows:

> *With the former KIE, module writers used to be paid... Now, with UR, they are saying that everything is part of the workload. ...this will not only affect the quality of these modules but also the smooth running of DTP activities... As a current and typical example, this semester, in order not to delay the students' progress again, DTP activities went ahead yet some modules were not yet available...* (R3LSI 2016).

Similarly, DTP students complained about the non-distribution of modules in time. Participant R2LSI who belonged to the 2015 cohort presented her complaint as follows:

> *These issues of non-timely distribution of modules have arisen with the University of Rwanda (UR)... Can you imagine that the whole academic year of 2015, there was no learning taking place under DTP because modules could not be availed because of UR tender processes...* (R2LSI 2016).

The reported direct quotes from the interviewees R2LSI and R3LSI about the reasons behind the delay of module distribution indicate two managerial problems that may impact on internal efficiency. The first is bureaucracy and the second is remuneration of the module writers.

Furthermore, the issue of dominance of printed, hard copy modules was reiterated by UR-DTP managers. However, they indicated that the intention was to go for digital content to meet the current trends in distance education delivery. In an interview with R8LSI, from the 2016 cohort, it was indicated that:

> *Everything needs a plan and resources... As we speak, we have full hope to go digital... One, there is a task force working on a national policy on Open and Distance Learning (ODL) at national level. Two, the University of Rwanda was commissioned to ensure more access and cost-effectiveness whereby 50% of the students should be under ODL soon. Three, our school, SODeL, is being empowered in terms of funds and human resources... So, there is a full hope to modernise DTP, which looks not meeting the current ICT developments...* (R8LSI 2016).

The picture drawn from R8LSI's (2016) quote shows that there have been some factors that have hindered the embracing of modern ICT trends in DTP. Among them is a lack of an appropriate policy framework, low managerial eagerness, and limited institutional capacity to embark on digitisation of content and teaching, as well as learning and assessment processes. The following section builds on the current practices to shape the future perspectives.

Current trends within UR-CE DTP

The current trend based on a comprehensive analysis of both quantitative and qualitative data emphasised two key facts. The first one concentrated on DTP modules that were used as basic instructional resources under UR-CE DTP. In this regard, respondents demonstrated a positive perception around the quality assurance in the DTP module production process. Such quality of

DTP modules as basic instructional resources would not only support effective learning as argued by Brindley, Walti, and Zawacki-Richter (2004) and Suhaida, Nurfaizah, and Moshinin (2021), but also preserve internal efficiency. However, the trend revealed a higher level of dropout among DTP students, whereby the assertion tended to converge with the arguments of Park and Choi (2009) and Huo, Messenger, and Miller (2022), that student dropouts are closely linked to a lack of relevance, poor appreciation, and less satisfaction with regard to the content of study materials.

In addition, the current trend in UR-DTP relies heavily on printed DTP modules as the main instructional resources. Such a reliance tended to have a negative influence on the internal efficiency of the DTP, simply because DTP modules were not distributed in time. This resonates with the warning from multiple sources, such as Kibuuka (2010), Willis (1993), Krishnan (2012), and Abou-Khalil et al. (2021) that the non-availability of learning resources constituted an enormous hindering factor for the students' learning process. Also, DTP modules were not revised on a regular basis and module writers were coerced rather than motivated to write these modules. The implication of this is that the quality of DTP modules may be compromised in the long run, causing a turndown of user satisfaction. This tends to align with Tallman (1994), Park and Choi (2009), and Amare and Simonova (2021) who established a high correlation between timely access to quality learning resources and dropout rates.

Furthermore, the current trend in the UR-DTP programme pointed to insufficient auxiliary resources for teaching and learning across UR-Study Centres, which are distributed across the country. This tends to be in congruence with the observations by Guloba and colleagues (2010) and Jacob, Jegede, and Musa (2021) that inadequacy of learning resources affects the quality of educational provision. Indeed, the scrutiny of the findings in this chapter portrayed the inadequacy of supplementary learning resources as a hindering factor to internal efficiency of the DTP, as supported by the arguments of Donkor (2010) and Konovalenko et al. (2021) that the absence of adequate learning resources obstructs the fulfilment of practical-oriented and plenary learning needs.

Future perspectives on the Distance Training Programme in Rwanda and in Africa

UR-CE DTP heavily relies on printed material, and it has been more or less successful. However, this is not sustainable in the long run, with the increasing role of ICT in education. Thus, the future

perspectives of distance education aspire to rely on digital content. DTP managers expressed the willingness to modernise the DTP with the addition of online learning. With this new perspective, it is globally believed that the introduction of digital learning patterns would reduce the complaints around costs and delays associated with printed material and would modernise the teaching-learning conditions supported by Mji and Makgato (2006) and Hafeez (2021). Such a new perspective will increase the level of internal efficiency of the DTP in Rwanda and other forms of distance education in different countries of Africa and other continents.

Indeed, the future trend of distance education embraces online learning/teaching, with digital content. Such a new trend was embraced by the University of Rwanda College of Education since 2013, and from 2017 it was reinforced and strengthened. With the eruption of the COVID-19 pandemic in different corners of Africa and the world, online learning is increasingly becoming imperative as the best alternative to ensure the continuity of learning and teaching.

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Chapter 10:

Facilitator Support Services in Distance Education: Benefits, Developments and Disparities

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Definition of facilitator support and its importance in the distance learning environment

According to IGI Global (2021), faculty support can be described as the strategies an institution employs to provide faculty members with resources, skills, knowledge, and needed infrastructure to facilitate viable learning outcomes for students enrolled in a distance learning program. Further, facilitator support can be described as resources provided to faculty to facilitate instruction and learning for students enrolled in given programmes. Several factors contribute to the significance of facilitator support in an institution offering distance learning as a mode of study. According to Sümer and Yüner (2021), faculty support is essential in an institution with distance learning since it enables the institution to seamlessly realise the envisaged learning outcomes for each course in the online learning environment.

Further, faculty support plays a pragmatic role in implementing distance learning education policies. Policy implementation of distance learning becomes a reality, and reducing policy gaps can then be realised. This way, institutions can improve policies regarding distance learning to improve the quality of distance learning (Amirault 2012; Maguire 2009). Besides, faculty support in the distance learning environment promotes the development of high-quality content for learners. With compensation for instructional content developed, faculty members will have intrinsic motivation to develop high-quality content since the institution is cognisant of their intellectual property.

It is worth noting that continuous faculty support through training equips faculty members with the highly sought skills for course facilitation in the online learning environment. Specifically,

these pieces of training should be done online, and institutions should support faculty members to enrol in diverse courses from globally recognised institutions. Suppose a facilitator is contracted to enlighten university online faculty on skills needed: in this case the facilitator should be an online learning expert from a renowned university besides the ones needing the training. This way, the faculty members in an institution of distance learning have the unique opportunity of benchmarking with best practices globally. The result is an immense improvement in the quality of course facilitation in distance learning that meets global standards (University of Louisiana 2022; Roberts 2022).

Consequently, faculty support plays a pragmatic role in selecting the key competent additional staff needed to facilitate online courses in an institution effectively. The faculty in distance learning are well-placed to define the roles and responsibilities of additional staff in the distance learning centre while avoiding role ambiguity and replication of the roles by the various officers (Roberts 2022; Hasanoglu and Zeynilli 2022). Faculty members in distance learning will appreciate the roles of the instructional designer, content developer, and learner support officers. This way, operations in the distance learning environment will be seamless with fewer hitches. Customer satisfaction will then be a priority of the institution offering distance learning. Other roles of faculty support in a distance learning institution include testing the viability of new pedagogical approaches in the realm of online and distance learning, propelling high-quality scholarly discussions with learners during the facilitation of courses by deepening the learner involvement in online courses, and promoting social interactions within the learning platform with themselves and the learners (Rienties 2022).

Current trends of providing facilitator support in the online learning environment

Currently, many institutions have attempted to provide faculty members with the required resources to make distance learning run seamlessly. One of the most common ways that institutions have done this is by training their faculty for distance learning courses before official engagement in facilitating online courses. Some of the key areas that faculty members for distance learning are being trained in include the creation of courses, registration of learners for the courses, preparation of examination schedules, utilisation of open e-learning resources, continuous assessment tests, and management of interactions between learners and their course facilitators on the online learning platform (Bozkurt and Sharma 2020; Higher Education Council of Turkey 2021). Other areas that

faculty members in distance learning are being trained in include the execution of formative and summative assessments on the online learning platform, since these assessments differ from the traditional face-to-face assessments, management of the welfare of the learners, and management of announcements in the distance learning environment.

Management of integrity in the distance learning environment has gone a notch higher. The course facilitators carry out the noble responsibility of reminding their learners to follow the academic code of contact and the importance of carrying out assigned tasks within the required timelines. If the learners do not follow the requirements, the faculty members can hold students accountable for their conduct within the learning environment. Institutions should also include this control in the specific contracts for students and online facilitators, with every tenet spelled out clearly. Additionally, academic integrity has been added to the top of the Blackboard or Moodle switchboard (Higher Education Council of Turkey 2021; Maatuk et al. 2021). This keeps the learners informed on what is expected from them by the course facilitators. This approach has helped facilitators maintain a cordial working relationship with their learners in distance learning environments. Timelines are clearly defined; thus, online learners plan their time accordingly and execute tasks as expected without friction between them and their lecturers. Examinations in the distance learning environment are handled with deep integrity. For instance, the Lockdown app and the use of personal laptops with cameras have made examiners handle the distance learning examinations with integrity. The Lockdown app is an android software that locks devices and pages remotely. Several institutions of higher learning have used this app to promote integrity in their examinations.

Currently, faculty support has been improved to incorporate administrative and technical support, as well as social support that faculty members may desire. Although experienced faculty members in distance learning do not have much difficulty creating course content, some faculty members face slight difficulties in the assessment areas. Hence, these faculty members need academic support. Additionally, faculty members need technical support in creating live broadcasts and how to properly manage their time during the execution of the courses, since online courses remain strictly time-bound and strict adherence to approved course schedules is expected. Another area where faculty members are currently being supported is the creation of highly interactive course materials that promote critical and creative thinking among their learners (Ouma and Nkuyubwatsi 2019). To sum it up, faculty members receive continuous support from the administrative and technical staff in the online learning centres of their respective institutions. This way, quality has been prioritised in distance learning centres in institutions.

Another way faculty support is being executed currently is through engaging adequate and relevant staff members within the distance learning centres of institutions. Currently, most distance learning institutions have instructional designers, content development officers, learner support officers, technical support officers, and even system administrators for effective management of the e-learning platforms like Moodle and Blackboard. With adequate staffing of these relevant staff members in distance learning environments, quality distance learning can occur in the institutions (Higher Education Council of Turkey 2020; IGI Global 2021). This approach toward faculty support has played a crucial role in eradicating the fallacy of online learning.

Consequently, online pedagogy has been able to continuously evolve regarding technological upgrades. One of the ways is encouraging active learner participation through maintaining an instructional tone that is informative, relaxed, and engaging. Besides, the online pedagogue can ensure that they use appropriate humour and avoid ridicule so that each learner feels accommodated. On the other hand, the online pedagogue should ensure that they possess enough questions for the learners and avoid using the facilitator-centred method at all times (Butola 2021). The questions are meant to encourage the learner to engage in interactive sessions and explore more regarding the subject in question. In this regard, the course facilitator should use active questioning (Barros et al. 2021). This shows that the course facilitators have mastery of their learners regarding their interests, preferred activities, and motivators. This way, the facilitator is more objective about how best to guide the online instructional sessions by creating more personalised online learning materials for the students. Nevertheless, the facilitator must create a good online learning environment by maximising available resources as provided by their institution while ensuring that the needs of the learners are met optimally.

Noteworthy in current times, is that online course facilitators have embraced more collaborative teaching and learning methods. This means that the facilitator engages the learners more in group tasks and encourages peer reviews of completed tasks to ensure that the students share their viewpoints and demonstrate the mastered skills. Online pedagogues need to ensure that the students are divided into small, manageable groups to maximise the benefits of collaborative learning. Additionally, the information provided by the online pedagogue should ensure that instructional information is released to the students in small manageable chunks. Thus, the learners will process the information given gradually and sequentially in an elaborate manner before proceeding to the next chunk of information. Further, the online pedagogue uses quizzes, question polls, and gated content to ensure that the students have understood one educational chunk of information before proceeding to the next (Todd et al. 2021; Geange et al. 2021). From these reviewed studies, it is

evident that online faculty need training on collaborative training so that the intended benefits of the same can be realised.

There should be a link between e-learning content and real-life situations. This way, the students can appreciate and relate what they have learned to real-life experiences. Moreover, they can appreciate that their knowledge is useful. This way, they take their courses more seriously since what they learn is extremely pragmatic to their real-life situations. Another current-day strategy used by online pedagogues is clarity of rules in the online class to the learners from the onset—for example, the etiquette expected of them in the online classroom environment. Learners know the expected outcomes and work to ensure that the classroom demeanour aligns with their expected behaviour while undertaking the course. This aligns the overall learning experience with the expected outcomes of the course. It is of great importance to also ensure that the facilitator keeps engaging the learners in questions through discussion forums, question polls, and peer reviews (Galacio 2021; Saiyad et al. 2021). This approach aids the learning process to become engaging and the learners to develop content mastery at every level.

For effective online sessions, the Subject Matter Experts (SMEs) work collaboratively with the instructional designers and the e-content developers to ensure that the course materials have clear instructions, and the course materials have formative activities that are clear and elaborate enough to capture the content of the course. The formative activities should provide clear feedback to learners so that the feedback serves as a supplementary guide and aligns with the learning outcomes (Chatterjee and Correia 2020). Another modern method of provision of facilitator support is the provision of reflection on the previous courses, which in a nutshell is clarity in terms of stating the welcoming instructions, review of clear feedback to evaluate the presence of any pressure points from the learners, any hitches in terms of their access to instructions, as well as an assessment as to whether the sources of information provided in the course were helpful to the learners enrolled in the course. The navigation links and especially the URL functionality (Uniform Resource Locator) need to be checked before the commencement of the course (Martin et al. 2020). Finally, the facilitator needs to get feedback on whether the learners felt welcome to their course as they pursued it.

Previously, there was a misconception that online learning courses did not need any preparation before facilitation. One of the misconceptions of online learning in the past included the use of materials from any sources to facilitate learning regardless of the source as long as they were discussing the relevant topic. Another misconception about the facilitation of online courses was that learners enrolled in the online courses do not need any support even as they continue to

pursue their courses. Further, most people assumed that learning in the online environment did not need supervision or a definition of quality (Hauer et al. 2021). However, the trend is different for trained distance learning facilitators since online courses require very thorough preparations before facilitating the course. Thus, online course facilitators should always have a communication plan showing them when and how to do certain guiding activities expected of them during the facilitation of the course (Blaschke and Bedenlier 2020). An example of a communication plan is depicted below.

Table 1

Activity	Details
Pre-prepared introductory video	It is done at the very beginning of the module by the facilitator. It is usually a short video done at the beginning of the course to explain to the learners in brief about the course and the expected learning outcomes.
Pre-prepared welcome message from the facilitator	This is done after the introductory video and is usually the official introduction forum of the facilitator to the enrolled learners. Usually, the facilitator leads the class in making the first post and welcomes individual students to the class as they post.
Commencement of the course	This activity infers that the course facilitator provides an overview of the course and guides them on the different resources used during the course and the location of the same resources in the online learning platform. Besides, the facilitator guides the learners on how to seek help if they are stuck.
Follow-up activities	This is done during and at the end of every online session. The facilitator may provide additional course materials to the learners and pose discussion questions to ensure that the enrolled learners are on track.
Monitoring learner engagement	This is done every day. This activity ensures learners are constantly engaged at every point of the course, and knowledge retention is achieved. Some ways that the lecturer can assess learner engagement are by starting discussion logs and allowing learners to respond by posting their views. The facilitator only starts the discussion logs but allows the learners' voices to prevail.
Summing up discussion threads	All content posted by the facilitator seeking learners' responses in the form of discussion posts should be tallied up by the facilitator when all members have responded. Also, the facilitator should always advise the learners on standard etiquette and participate in modelling good behaviour. This activity is done frequently by the facilitator.
Constant weekly reminders to learners	The course facilitator should always remind the learners about the tasks, deadlines, readings, quizzes, activities, check logs, and even remind students via their emails if not engaged.

Source: Blaschke and Bedenlier 2020

Current-day, online course facilitators adopt a given model to guide them in the activities expected even as the course develops. An example of such a model that can guide facilitators on the activities is the Scaffolding Model espoused by Gilly Salmon. This model guides the facilitators in knowing and implementing what they should be doing as the course progresses over time (Acquaro 2020; Doo Bonk and Heo 2020). Considering this model, the online course facilitator finds out that the learners become intrinsically motivated and group work, including peer reviews, is ongoing. The learners are actively engaged in tasks the online course facilitators give them.

Distance learning facilitators have employed icebreakers in the past. However, it is worth mentioning that icebreakers should be items that can capture the learners' attention and arouse their interest in the subject (Aniuranti 2021; Wooten, Geerling, and Thomas 200). The main aim of integrating icebreakers into the course is to promote the fun element in class. Sometimes, the facilitator can have icebreakers of activities unrelated to the course, like favourite food, colours, and even holiday destinations (Martin, Wang, and Sadaf 2020; Kirby 2020). The responses by the students will trigger their active thinking, hence, their participation in the online classroom will be optimum.

Currently, the following is a checklist of the must-do activities by the facilitator before, during, and after completing the online classroom. Before the online class, the facilitator must ensure that he is familiar with the Learner Management System. The facilitator uses the Learner Management System for course delivery (Evans et al. 2020). The online course facilitators also need to ensure that they have already developed an online plan of activities that guide their online content delivery, ensure that all available resources and links work, and that their contact details are up-to-date so that the students can reach out to them in case of any emergencies they may encounter. Lastly, the facilitator should provide a welcome video for the learners to officially invite them to the course (Rehman and Fatma 2021). This will serve as a perfect orientation for learners in their new course; thus, learners feel accommodated in the course, enhancing customer satisfaction.

At the beginning of the course, the facilitator should ensure that all learners have successfully logged in, spell out the learning outcomes, and orient the learners on the expected etiquette during online classes. The facilitator should emphasise the importance of the interactions and sharing of experiences within the classroom to build a resilient online community of learners. It is worth noting that the facilitator should be a positive role model for the students. Additionally, the course should provide guidance and ensure continuous communication between the learners as the course progresses (Blum-Smith et al. 2021).

Facilitators are also expected to encourage the learners and continually seek feedback from

them. Monitoring learners' progress along with the provision of follow-up sessions and ensuring that all tasks are completed as expected is another way of providing facilitator support during the online sessions (Lohr et al. 2021). Upon completion of the online course, the online facilitator should ensure that the online learners are appreciated for their participation during the course, finish reviewing the learners' feedback, and provide recommendations on areas of improvement. Finally, the facilitator should self-reflect and self-evaluate (Erickson et al. 2021).

Existing gaps in distance learning education: facilitator support services

Despite the integration of technology into twenty-first century learning, it is worth noting that there are still existing gaps concerning facilitator support. One of the major gaps in facilitator support exists in terms of the professional development levels of the course facilitator (Harun and Bynum 2018). In their findings, the authors observed that there is no clear framework guiding facilitators in online learning to support their learners. There is an evident gap between the ideal situation of what is expected of the facilitators and actual happenings in many distance learning institutions. For instance, it is expected that the facilitator should be able to use discussion forums, question polls, and question and answer sessions to promote interaction in the online learning environment. However, this has not always been the case due to some resource and human resource constraints. Infrastructural challenges have forced the facilitators to improvise other means of interacting with the students. Some facilitators use non-instructional platforms like the Zoom and WhatsApp platforms to offer academic guidance to students (Turgut and Aslan 2021). This indicates an existent gap since there is still a lack of clear alternative means of offering facilitator support if an institution faces limitations in terms of the infrastructural setup for distance learning.

On the other hand, there seems to be an existent gap in the professional skills of online course facilitators. As observed, most online course facilitators in distance learning institutions in Africa lack the pre-requisite skills to facilitate online learning. They tend to use methods suitable for the traditional face-to-face method to facilitate sessions for online courses. The result is that many facilitators do not maintain an interactive edge with their students because they simply upload the course material and desert the students enrolled in these courses. Such facilitators only turn up at the end of the semester to administer exams at the distance learning centres and platforms for courses they have not taught (Backfish et al. 2021).

Further, there are varied approaches of how many facilitators conduct their online learning lessons. In this regard, most learning institutions seem to have no clearly outlined policies to guide the facilitators effectively. On the flip side, if the policies do exist, there is a huge gap in how the policy guidelines are implemented and what facilitators practice (Turgut and Aslan 2021). Of concern is that some subject matter experts leave the designing process to instructional designers in the institution instead of adopting a collaborative approach towards developing the e-learning content for their courses (Ngubane-Mokiwa and Khoza 2021). As a result, the course content is designed without the expertise input, leaving the online learners in a disadvantaged position since the content is designed using basic strategies for instructional design and content development instead of a well-thought-out process (Yilman 2021). The foreseen gap is that disciplined expert guidelines are not utilised to the optimal level in the online learning environment.

In addition, most institutions still use the same traditional learning facilitators in the facilitation of online learning; yet the faculty members have not been trained in online course facilitation (Kamble et al. 2021). Consequently, the facilitators tend to be resistant and do not comply with the specific requirements for facilitating online courses. This creates a huge gap, which is a disadvantage to how online courses are being facilitated. Besides, some facilitators in dual-mode institutions are overwhelmed by the workload facilitated through the traditional teaching method. The overwhelmed facilitators tend to over-focus on the students enrolled in the traditional face-to-face mode of learning and instead abandon the ones enrolled in distance learning (Nikolopoulou et al. 2021). Thus, customer satisfaction for online learners is compromised, and sometimes the learners get a raw deal in knowledge acquisition in the courses they enrolled in.

Consequently, some faculty members in higher education allocated to facilitating online learning sessions have demonstrated their lack of readiness for adopting the modern technological methods of facilitating online courses. They tend to redirect learners to methods convenient to them as opposed to the best facilitator methods for online learning (Al-Moroof and Salloum 2021). As a result, the learners who are left with no option tend to comply with completing the course and scoring their grades. In contrast, the pedagogical techniques and requirements for online classroom management have been compromised. This means that students in distance learning feel their academic needs are ignored. In some cases, the lecturers are not held accountable for their actions.

Most facilitators do not use constructivist and observational methods during the instructional processes involving online learners (Fahmalatif, Purwanto, Siswanto, and Ardiyanto 2021). The intended purpose of incorporating the methods mentioned above is to promote increased

interaction between learners and their facilitators in the distance learning environment (Mbati and Minnar 2015). In their findings Mbati and Minnar (2015) observe that the use of the methods mentioned earlier was hindered by the large number of students enrolled in online learning classes. This infers that many students hindered the effective implementation of the constructivist and observational learning methods. The evident gap in this scenario is compromised quality of learning and a lack of clarity regarding the recommended facilitator-to-student ratio in the distance learning environment. Therefore, there is a need to make the recommendations for class size in distance learning known to course facilitators, as well as to the administrators of institutions offering distance learning. This helps to ensure that the facilitator is not overstretched regarding the number of learners they need to attend to at a given time in the distance learning realm.

Moreover, the current existing scenario is that there is a lack of individual mentorship sessions to guide students on how best to use technology for learning purposes. The course facilitators do not guide the individual students on how best to utilise the technology (Poland and Kumar 2021). This is prompted by the fact that the facilitators believe that most of the induction is to be done by the learner support officers in distance learning centres (Top et al. 2021). However, the extent to which the course facilitators should go with regards to mentorship and guidance of the students on using the platform for their academic issues is usually not specified. This has resulted in a huge gap in the type of mentorship the online students should get from their facilitators during orientation on the course.

On the issue of interaction: some facilitators do not give feedback to online learners regarding assessment. Feedback in this case refers to the facilitator's additional detailed comments and observation or sessions over the platform after reviewing an academic task. Most facilitators tend only to grade the students and stop at that level (Wu and Nia 2021). This leaves the online learners in a state of limbo since they cannot attest to whether they are progressing well or not during the general course progression. The course professor in the online learning environment must create sessions with students enrolled in their course to discuss the general course progression. Also, there is a need to develop well-stipulated guidelines on how to offer academic guidance to students enrolled in online courses. This will assist facilitators to ensure that they schedule time for such guidance and adhere to set guidelines in distance learning.

Noteworthy is the need to encourage course facilitators in distance learning to use current technology. Course facilitators can achieve this by training the course facilitators (educators) on how to use the recommended technology. In so doing, the course facilitators will optimally utilise the technological tools to achieve student satisfaction in the online learning environment. Thus, the

course facilitators will utilise the tools and even encourage student activities that can be done using the tools (Mbati and Minaar 2018). However, in most distance learning institutions the instructional designers and content developers have the technical prowess to use the tools.

Furthermore, some course facilitators have not even endeavoured to master the operation of their institution's technological tools available in the learner management systems (Mbati and Minaar 2018). This makes the subject matter expert overly dependent on the instructional designer to guide the instructional process. This depicts that there is a huge gap in terms of facilitator competency in institutions where distance learning is a mode of study.

With the emergence of numerous technological platforms which help facilitate online learning, there has been a huge deficit regarding how best to assist learners in distance learning to achieve the learning outcomes (Vlachopoulos and Makri 2021). Course facilitators need to note that the achievement of learning outcomes cannot only be measured by the grades attained by the students. Learning outcomes need to be also measured in terms of the learner's capability to carry out specific tasks set by their online pedagogues: tasks such as essay posting in discussion forums, students enrolled in the courses reviewing their colleagues' work in adherence to positive criticism rules, random assessments, and even giving students assignments that test for creativity (Kosmos 2021). This should promote deep knowledge, understanding, and internalisation of the concepts taught. In this regard, online education, whether for science or art-oriented courses, should be geared towards the adept promotion of learning content and concepts in a specific discipline (Kosmos 2021). Regarding this, therefore, there is a gap in the pedagogical approaches used in facilitating online learning for different disciplines.

There is also an evident gap in terms of the role of an online course facilitator in distance learning. Despite there being numerous subject matter experts on different disciplines, there is still a lack of clarity in terms of the fundamental role of an online facilitator since many facilitators utilise traditional face-to-face methods to facilitate learning in the online learning environment (Harper et al. 2018). For instance, the following are the ideal qualities to be possessed by an online course trainer: an excellent grasp of the expected learning outcomes for the respective courses, pay specific attention to the specific classroom activities and classroom assessments, maintain clarity in terms of inventory of tools that are needed for excellent facilitation of the course, provision of a clear work schedule for the course to be facilitated, and maintain a collaborative approach towards the facilitation of the course with the instructional designers, learner support officers, and even content developers (Sümer and Yüner 2021). This collaborative approach indicates that the facilitator maintains a clear picture of the envisaged presentation of the course (Bretag 2018; Ramírez-Montoya et al. 2021).

However, there is a gap between the ideal preparation routine mentioned and the actual practice in online course facilitation which needs to be urgently addressed. Besides, there has been an over-dependency on using wikis, blogs, discussion forums, and question and answer polls as strategies for creating interaction between course facilitators and their students in distance learning. This is an evident gap in the facilitation realm of online courses.

Suggested solutions in addressing the gaps as mentioned above in faculty support in institutions of distance learning

In current times, evidenced by continuous innovation in technology and continuous reception of digital learning technology, various methods have been proposed as viable ways of increasing student interaction in online learning environments (Breteg et al. 2018). Among these strategies are the incorporation of social discussions in the course. Facilitators need to note that social discussions can be best described as the initial sessions where the student and the facilitator get to understand and know each other before the actual presentation of the course content (Blocher 2005). For instance, a facilitator would request the students to introduce themselves in a paragraph and then proceed in the next paragraph to discuss their motivation for pursuing the chosen course. This approach breaks the common tension between the learners and their course facilitators at the onset of the course. The resultant effect is increased student participation. Other ways of incorporating social discussions between the learners and their facilitators include greetings at the start of sessions and crafting effective announcements to students (Doyumgaç, Tanhan, and Kiymaz 2021). This approach ensures that the facilitator's personality shines through and encourages students to participate in the learning process.

Another strategy for increasing student participation in an online course is the use of the check-and-reflect strategy of interaction in online learning. This specific strategy provides students with the opportunity to write introspectively about their experience, perception, and envisaged outcomes as they continue pursuing the online course. A good example of this strategy by the course facilitator is the incorporation of the bio-page. In the bio-page the course facilitator includes information he would comfortably share with his students regarding the course they are enrolled in and the common areas of application of the knowledge acquired from the course in real life (Muthugamage and Galhena 2021). The course lecturer can ask the students general questions about the course. One of the questions the facilitator could ask to prompt learners to give more

rapid responses is whether students think pursuing the course is going to be beneficial to them or not (University of Waterloo 2021; Ali et al. 2021), and the learners would post their responses.

Additionally, the course facilitator can go a notch higher by requesting the students to review each other's responses in a constructive way. This approach will promote student interaction in an online classroom and break the tension between the course facilitators and the learners.

Student interaction sessions are another modern way of promoting interactions in online classes. This type of interactive mode ensures that the students can mention additional details besides their names and other general details of interactions. This approach prompts the students to be creative and share more details about the same (University of Waterloo 2021; Ali et al. 2021). There are various ways the course facilitator can achieve this strategy. For instance, in a poetry class the facilitator can prompt the students to mention their favourite English poem and say more about it. This way, the students will give more details regarding their chosen poem. In a geography class the students may post a picture of the earth or even a unique geographical space and say what they love about the picture. This activity gives students the opportunity to give varied reasons for what they love in the picture (Blaschke and Bedenlier 2020).

Finally, in biology the course lecturer may prompt the students through a question testing the biological process—or example, 'Which of the digestive processes do you find interesting and why?' (Ali et al. 202). After that, the online course instructor will encourage the students to review each other's posts while considering positive criticism in their responses through the employment of discussion forums.

Incorporating social icebreakers in the online classroom is another way of ensuring that the online classroom is interactive among the learners and the course facilitator. Moreover, another strategy would be the use of the case study approach. In this approach, the instructor posts a case study that requires students to give open responses to it following the specific case study. After that, the students can be allowed to critique each other's responses positively. This prompts the students to interact and learn diverse responses to the situation posed in the case study (Ali et al. 2021; Garcia and Cabanas 2021). The use of this approach promotes social inclusion in the online learning environment.

The facilitator can also use content-based discussions to promote learning in the online environment. Such discussions have proved effective, especially when the course facilitator poses the discussions as intensive seminar questions, and the students use their critical analysis skills to promote responses to these questions. These discussions have served effectively during the instrumentally social phase of the online course. Such discussions often help students learn from

each other since they have novel ideas, insights, and perceptions of the subject matter they share (Danchikov et al. 2021). This approach makes online learning appreciative of the novelty in each student in terms of their creative ideas, insights, and viewpoints about the subject content posted before them. Thus, the strategy generally promotes active learning within the online learning environment.

Facilitator-generated and student-generated discussion questions can also be used to create interaction in the online learning environment. Facilitator-generated questions play a significant role in the sense that they direct students to be practical and share relevant information in the course and help in the modelling of critical thinking and analytical skills in the students. These questions effectively guide students' private studies (Erickson et al. 2021). However, it is important to note that the facilitator-generated questions have one limitation, especially if they are close-ended questions: they do not provide an opportunity for variety in terms of the responses required from the students (Barber, William, and Adams 2021).

On the other hand, the student-generated questions have the advantage of making students consider a variety of ways to critique a question posed. Besides, this strategy helps students focus on the interesting elements in the course. The disadvantage of this method is that some students may not have the prerequisite skills to participate in such discussions. This strategy requires a lot of time investment on the part of the learners for it to be effective (Cross, Robinson, and Todd 2021). Thus, an online facilitator may choose to amalgamate these methods, using each as appropriate to promote learning in the classroom environment for online learners.

Nevertheless, other strategies can be considered supplementary in the online learning environment to enrich interaction in the online learning environment. Such methods include the basic online debate where the facilitator may pose a question that will trigger an instructional debate among the learners, where discussion with students leads where students guide the discussions, and grading is done for all the discussions. Furthermore, student-initiated discussions where students have rotating roles and grading is done for these discussions. It is important to note that a discussion rubric should guide the discussion strategies to optimise effectiveness. Other strategies involve the giving of group assignments and peer assignments (Cavalcanti et al. 2021.; Butola 2021). The resultant effect of incorporating these suggested strategies is that it promotes optimal interaction and learner satisfaction in the online learning environment.

Suggested areas recommended for further research exploration

After this exploration, the following are the suggested areas for further research exploration:

1. Effect of faculty participation in policy formulation, analysis, and Implementation in the distance learning environment
2. An exploration of the role of contingent faculty in the development, implementation, and review of policies in distance learning
3. An exploration of the new challenges for distance learning faculty in the twenty-first century
4. Student-faculty interactions in distance learning in the twenty-first century

Conclusion

From the literature exploration done in this contribution, it is evident that the gaps, as mentioned earlier in the provision of facilitator support, are currently being experienced in most distance learning institutions. However, it is important to note that the solutions to the gaps in facilitator support are elaborated in the current trends in the provision of facilitator support. Therefore, online pedagogues must ensure that they embrace current methods of providing facilitator support as appropriate to learners to ensure that learning in the online environment occurs seamlessly. Well-documented support systems and continuous professional development programs must be designed to assist facilitators in the ever-changing and evolving environment of distance education.

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Chapter 11:

Student-Student Online Discussions: Testing Anderson's Interaction Equivalency Theorem (Equiv) in an Open Distance Learning University

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Introduction

There have been significant changes in the delivery of distance education in the past ten years. These changes include the use of interactive digital technologies that have created new learning environments such as virtual collaborative learning. Equally significant are the theoretical developments that are intended to describe and guide teaching and learning in these new learning environments. A 2009 literature review (Zawacki-Richter et al. 2009) revealed gaps related to the theoretical basis of instructional and interaction models in distance education. The study found that as few as 3.5 per cent of the 695 articles published in prominent distance education journals between 2000 and 2008 had conducted research on theories and models. To reiterate Garrison (2000), theory development is central to the development of the distance education field and to its credibility and recognition. Also noteworthy is that theory cannot exist without being tested from time to time to provide empirical support for its use, especially in evolving fields such as distance education. One of the theories to receive such research attention is the interaction theory.

The concept of interaction can be traced to John Dewey, Lev Vygotsky, Albert Bandura, and Jerome Bruner's conceptions of social learning, depicting how community members influence one another's learning. As early as the 1970s Vygotsky noted that students' learning is the responsibility of community members, such as teachers, adults, as well as 'older' and 'experienced' children. Similarly, Bandura (1977: 22) argued that 'learning would be exceedingly laborious if people had to rely solely on the effects of their own actions to inform them of what to do'. A contemporary extension of these early theories that has received considerable attention in distance education is Michael Moore's theory of interaction. Moore (1989, 1990) identified three types of interaction in distance

education—namely student-content, student-instructor, and student-student. Moore (1989, 1993) suggested that a combination of these three is essential as none can function independently. A decade later a divergent extension of student-teacher, student-student, and student-content interactions was hypothesised by Terry Anderson (2003). Anderson's (2003) Interaction Equivalency (EQuiv) theory purports that students can benefit from deep and meaningful distance and online education with only one of the three interactions if it is at a high level. The theory is formulated into the following thesis statements:

> **Thesis 1:** Deep and meaningful learning is supported if one of the three forms of interaction is at a high level. The other two may be offered at minimal levels or even be eliminated without degrading the educational experience.
>
> **Thesis 2:** High levels of more than one of these three modes are likely to provide a more satisfying educational experience, although these experiences may not be as cost- or time-effective as less interactive learning sequences.

According to Miyasoe and Anderson (2011), the strength of EQuiv lies in its ability to provide educators with the means to analyse and evaluate which methods will produce the most effective and efficient design in each online or distance learning environment—without unilaterally prejudicing one type of interaction over another. Bernard et al.'s (2009) research found that one form of interaction can enhance high quality learning if instructional designs that foster high quality interactions such as cooperative learning are implemented. This supported an earlier observation (Johnson and Johnson 1990) that when students' endeavours are 'structured cooperatively' they strive hard to perform well. Cooperative learning in distance and online learning environments has been addressed by authors such as Blocher (2005), Kupczynski et al. (2012), and Jacobs and Ivone (2020).

Ideally, offering these three forms of interactions on an equal basis would be of benefit to students with diverse characteristics and preferences in mega open distance learning (ODL) institutions such as the University of South Africa (UNISA). However, as Anderson (2003) has alluded, offering all three interactions would mean high costs, especially for large student enrolments such as UNISA's. UNISA enrols approximately 400 000 students annually (Unisa 2016). The question therefore is which interaction mix (Anderson 2012) design would be appropriate to address the needs of the students at UNISA and other ODL universities.

The aim of this study was twofold: (1) To test thesis one of the EQui by analysing student-student online discussions to understand the quality of these interactions. This is in line with Shearer (2009) who contends that the premise of theories and their underlying constructs should be continuously tested to ensure that they remain valid as the field of distance education evolves. (2) Another purpose was to develop a theoretical basis upon which the validity of thesis one of EQuiv can be assessed. For this study, the student-student interactions on the Discussion Forum tool of UNISA's Learning Management System (LMS) were analysed. This LMS is a platform where students interact to discuss their modules, assignments, examinations, and general issues related to their learning. They post messages to the discussion threads and receive written feedback from other students. This way they share information, discuss their learning problems and even form learning communities. However, it is unclear whether these interactions enhance deep and meaningful learning. To understand the quality of these interactions, the following questions were posed:

- To what extent do student-student online discussions enhance deep and meaningful learning?
- To what extent do student-student discussions adhere to dialogic principles?
- Do student-student online interactions show support for thesis one of the EQuiv?

Literature on EQuiv

Attempts to validate different aspects of the EQuiv were carried out by Rhodes (2009), Miyazoe (2009), Bernard (2009), Miyazoe and Anderson (2010), Cabral (2012), Rodriguez and Armellini (2014, 2015). Most of these studies analysed online interactions, and their participants rated instructor-student interaction and content interaction as more important than student-student interactions. Student-student interactions were ranked the least preferred form of interaction. This was corroborated by Kelsey and D'Souza's (2004) study on the importance of interactions on the efficacy of distance learning, which indicated that student-student interactions were the least important form of interactions and were not considered critical to learning. Another study with similar findings was Rhode's (2009). The study used interviews to test the preferences of students about the various interactions they engage in during self-paced online courses. Rhode (2009) found that student-student discussions were not the preferred type of interactions but quality content and instructor interactions. Similarly, Miyazoe (2009) tested the priority value of the three interactions: student-student, student-teacher, and student-content. The results of the study showed that most

students valued student-content interaction for online interactions.

Another attempt at examining the EQuiv was a study by Bernard et al. (2009) that looked at the interaction interventions designed into DE courses to facilitate the three interactions. Of six research questions, one had asked which combination of student-student, student-teacher, and student-content interactions affected achievement. Data indicated that only student-content interactions affected high levels of achievement. Furthermore, in a study that examined whether EQuiv could be applied to online learning, Rodriguez and Armellini (2014) concluded that the three forms of interactions are more beneficial to students' learning than offering only one. In their subsequent study, Rodriguez and Armellini (2015 noted that offering only one type of interaction can lead to students' disengagement and confusion. This observation is consistent with Moore's (1989) transactional distance theory, which argues that low levels of interaction in DE can culminate in communication and pedagogical gaps that can lead to high failure rates and non-completion of studies. Contrary to this, Miyazoe and Anderson (2010) found that a student can achieve a quality learning experience through intense student-student interaction and without the instructor's assistance or appropriate course content. This corroborates the findings of Swan (2002), Kolloff (2011), and Roblyer and Ekhaml (2000) that high levels of student-student interaction have some impact on students' achievement and satisfaction.

Theoretical foundations

To establish a theoretical basis for understanding and analysing the quality of student-student interaction with the view of testing thesis one, the concepts dialogism, deep learning, and meaningful learning were reviewed and considered.

Dialogism

Dialogue is described as interaction or a series of interactions that have qualities that other interactions might not have (Moore 1993: 24). Another perspective suggested by Burbules and Bruce (2001: 15) is that a dialogue 'is not an engagement of two or more abstract persons, but of people with characteristics, styles, values and assumptions that shape the particular ways in which they engage in discourse'.

Dialogism theory is based on the theoretical work of Mikhail Bakhtin, a Russian philosopher. Two assumptions of this theory significant for this paper are: first, human communication entails the interaction of diverse perspectives; second, it is important to examine the consequences of communication. Moreover, Stonten's (2010: 16) view is that the meaning of dialogic varies from being an alternative word for learning via students' active, collaborative discussion, to appropriating social discourses and establishing communities of inquiry. In addition, for learning conversations to be considered dialogic, they should consist of the following five principles: collective, reciprocal, supportive (no wrong answers), cumulative, and purposeful (Alexander 2006:19). Alexander's (2006) framework of dialogic interactions is presented in the table below.

Table 1: Dialogic Interactions (Alexander,2006)

Dialogic characteristics	Explanation
Collective	Learning tasks are addressed together.
Reciprocal	Participants listen to one another's ideas, share ideas, and consider alternative viewpoints.
Supportive	Ideas are expressed freely without fear of embarrassment over answers. Participants help one another.
Purposeful	Specific goals for learning are set.
Cumulative	Participants build on answers and other contributions to construct coherent lines of thinking and understanding.

The implications of the dialogic theory to distance education are varied. First, the theory implies that dialogic interactions should reflect the values, characteristics, and assumptions of the people involved in distance learning and their learning environment. Second, the aim of dialogic interactions should be to build strong learning communities (not mere collaborations) which will be support structures for distance education students. Third, interactions in distance education should be purposeful and should support learning. The interaction space like an LMS should allow students to discuss issues relating to their subjects. There are no restrictions as to how questions should be asked. Under this space students are allowed to discuss matters related to their modules (courses) and to their learning. More importantly the dialogic interactions should focus on the purpose of learning.

Furthermore, Stonten (2010) points out that the theory of dialogism can help universities understand how students enter a dialogue when trying to generate meaning and understanding for themselves. Knowing this will help universities reconsider the ways in which students work with language and texts, and the ways in which students, texts, and teachers interact (Stonten 2010).

Additionally, Moore (1990) and Shearer (2010) point to the significance of dialogue in distance education (DE). Dialogue is one of the three important variables in DE namely: 'dialogue', 'the structure', and 'learner autonomy'. Moore (1990) emphasises that these three variables are necessary to address the cognitive and communicative gap or 'space' called transactional distance. The transactional distance, which is both physical and psychological (Moore 1990) is said to affect learning and teaching if students and teachers are separated by space or time. This learning gap mostly affects DE students because DE is characterised by lower dialogue, greater structure, and 'thus greater transactional distance' (Moore 1990: 12). If transactional distance is not minimised to acceptable levels, it can contribute to students' feelings of isolation which can lead to reduced levels of motivation and engagement and consequently, attrition (Moore 1989). Shearer (2010) takes the point further by stating that dialogue is a key variable because dialogue alone can determine transactional distance—the lower the dialogue, the greater the transactional distance.

Drawing from the above, two assumptions of the dialogic theory significant for this paper are: first, human communication entails the interaction of diverse perspectives; second, it is important to examine the consequences of such communication.

Deep learning

Deep learning is an approach to leaning whereby a student uses high-order cognitive skills like analysis, synthesis, and problem solving (Hermida 2009). 'Deep learners' are said to be autonomous, collaborative, and characterised by high meta-cognitive abilities, such as the ability to teach themselves (Hermida 2011). Majeski and Stover (2007) further explain that deep learning can foster the development and mastery of learning goals which emphasise the importance of growth and learning as a process. Moreover, it involves critical analysis of new ideas linking them to already known concepts and principles 'so that this understanding can be used for problem solving in unfamiliar contexts' (Hermida 2009:11). Table 2 presents the characteristics of deep learning.

Table 2: Characteristics of Deep Learning

Characteristic	Explanation
Knowledge is constructed	Students approach learning with the intention to understand and seek meaning and interpret knowledge in light of previous knowledge structures and experiences.
Knowledge is integrated	Students learn by integrating new knowledge to the existing knowledge.
Creation of meanings	Meaning is not imposed but rather created by the students' learning activities.
Intrinsic Motivation	Students feel the need to learn.
Discovery learning	Genuine learning: challenging questions are asked and opportunities to explore them are discussed.

Meaningful Learning

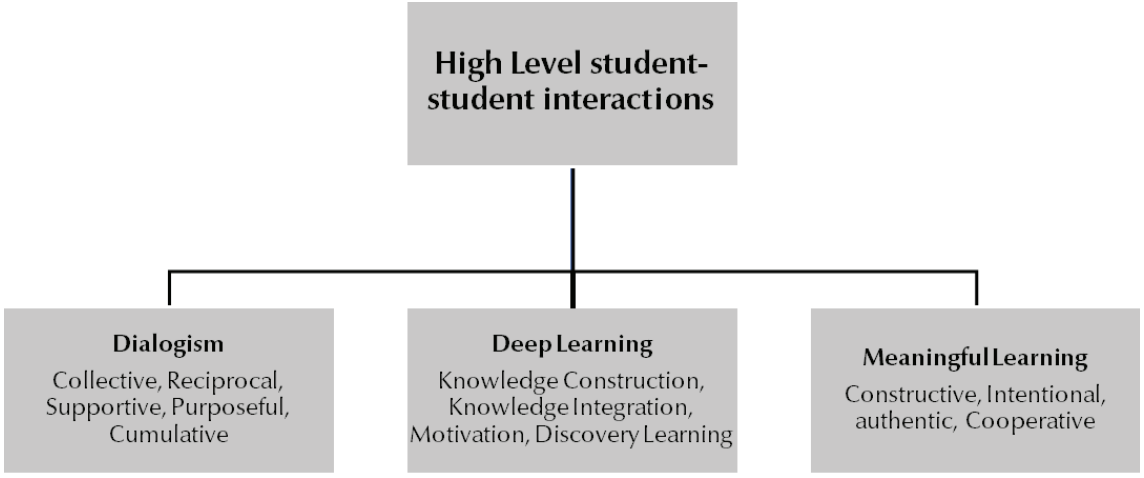
Berry (2012) describes meaningful learning as learning with a purpose which allows those who engage in it to attach meaning to the world around them. Jonassen (2007) gives the following characteristics of meaningful learning: active, constructive, intentional, cooperative, and authentic. Among these, cooperative learning has been heralded as key in online learning environments. Types of cooperative learning—namely, formal, informal, and cooperative based groups—have been identified by researchers such as Johnson and Johnson (1990). Table 3 provides some characteristics of meaningful learning.

Table 3: Characteristics of Meaningful Learning (Jonassen 2007)

Characteristic	Explanation
Constructive	When students reflect on their learning activities in order to assign meaning to them
Intentional	When students can identify the learning goals and are aware of their progress toward actively achieving the goals
Authentic	When context-based, complex, and relative to real-life
Cooperative	When learning occurs through working with others and participating in a learning community (Grabe and Grabe 2007)

All the three concepts of EQUiv are represented in the conceptual framework below (Figure 1). The framework indicates that high levels of student-student interactions consist of dialogism, deep learning, and meaningful learning. Using this conceptual framework in analysing the data for this study, we determined that a high-level student-student interaction should comprise dialogism, deep learning, and meaningful learning.

Figure 1: Conceptual Framework



Methods

This study considered interpretive methodology because it is regarded as a useful and reasonable way of categorising qualitative research to make meaning (Taylor et al. 2006). The suitability of this methodology for this research lies in its ability to analyse spoken utterances (dialogue) to determine their communicative significance.

Data Collection

I obtained permission to analyse *myUnisa* online discussions from the officials responsible for the site and from the Heads of Department for the modules. Considerations had been made to guarantee the anonymity of the participants and the modules. Data collection and analysis were done in two phases. Interactions covering a six-month period were collected in the first phase between 9 June 2011 to 8 December 2011. In the second phase, student-student interactions were observed between December 2014 to May 2018. Data were collected by recording the utterances by each participant on the LMS.

Data Analysis

The researcher used a combination of inductive and deductive data-driven approach to analyse students' interactions. A predefined framework, which drew from this study's conceptual framework and was guided by Ritchie and Lewis's (2003) framework analysis approach was utilised. This framework was developed out of the need to help the researcher interpret and understand the quality of high-level online student-student interactions. A Word matrix with rows and columns was generated for the framework to manage the data and categorise them into dialogism, meaningful learning, and deep learning.

Systematic procedures of data transcription, reading and rereading the transcripts, categorisation, and theme identification were done manually, line by line. Data were coded inductively and formed into categories. Then the researcher developed a rule to explain the patterns occurring from the data. Using deductive reasoning, the utterances occurring from the students' interactions were categorised against dialogism, meaningful learning, and deep learning concepts which appeared in the matrix.

Findings and Discussion:

The data yielded useful insights which helped us answer the following research questions:

1. To what extent do student-student online discussions enhance deep and meaningful learning?
2. To what extent do student-student discussions adhere to dialogic principles?
3. Do students' interaction learning levels provide support for the equivalency interaction theorem?

It was found that the bulk of the 2011 discussions were on assignments and the examination while a few posts were on technical and affective issues. The researcher noticed that one student would initiate a topic for discussion and others would join in the discussion. The findings are based on the following three elements: Dialogism, deep learning, and meaningful learning.

Dialogism

Generally, the study found that the dialogic discussions were about the examinations, requests for past papers, assignments, and marks. According to dialogic theory, the aim of dialogic interactions should be to form strong communities. The data show that strong learning communities were built, not mere collaborations. This was evident during both phases of the data collection. The majority of the students were requesting to be added to WhatsApp and BBM study groups which seem to have gained traction as support structures for this group of students and students in online environments generally. Those who did not have phones indicated their desire to form their study groups at their study centres.

Another strong element of dialogism in the data was that interactions were purposeful and supported learning. Several students asked about the examination and one student's answer was:

> *'If you read this Tutorial letter, they tell you there is multiple choice ..... I suggest you go through assignment 1 questions and answers, just in case. If they tell you what is in the exams, then that is in the exams.'*
> *'Make sure you understand all the content. The Lecturer said that the students should not*

study textbook, just understand the content. Also go through exercises in your study material and past papers.'

The discussions were found to be collective and very supportive. Students executed the element of supportiveness very well because they accommodated one another's questions and answers. Nobody was rebuked as not being correct or having asked a useless question. However, the cumulative and reciprocal elements of dialogism were not well executed. The students did not build on one another's answers to construct consistent lines of thinking and understanding. Similarly, for the reciprocal principle, there was no sharing of ideas, suggesting different viewpoints, or indulging in discussions. For example, one student would ask a question, '*What is in the exam?'* or '*To which paper are you referring?'* In many cases, the majority of students would not even attempt to formulate their own responses, and there were no follow-up discussions to share ideas and questions.

What was interesting about this finding was that one student would play the role of a lecturer ('the more knowledgeable other' (Vygotsky 1978) by interpreting the tutorial matter such as reminding one another about where to read for examination and the examination duration times. This is corroborated by Rodriguez and Armellini's (2015) finding that during student-teacher interactions, some students took the role of the teacher and responded to the others where there was no teacher support. I found that this type of interaction can have advantages and disadvantages. It is advantageous because it is supportive. However, it does not involve others in discussions that address issues at greater depth. Another problem is that the viewpoint of the dominant students might be accepted uncritically. For example, one student would ask, '*What is in the exam?'* or *'From which page can we find what you are saying?'* There were no follow up discussions even when the leader called out, '*Does anyone have a problem with something specific*?' This finding is consistent with Rodriguez and Armellini (2015) who uncovered that some students would just agree with one another or respond in a 'shallow' manner. Nsamba and Makoe (2017) also found that peer support was valued by other students, with the full knowledge that such support was given by people who were not conversant in the subject.

Deep learning and meaningful learning

Phase 1

Throughout the interactions there was evidence that supported students' knowledge construction, knowledge integration, creation of meaning, and discovery learning. Most of the discussions were heavily related to problems about downloading handouts for the modules, past-paper requests, examination duration, explaining the structure of the examinations, and tutorial letters. However, knowledge which needed critical thinking was not discussed. Neither were challenging questions asked, nor opportunities to explore them. Learning was not approached with the intention to construct, interpret, integrate knowledge, or create meaning. This was evidenced by the fact that there was some form of 'contentment' when an explanation was given by one student—the more knowledgeable other. Furthermore, the students did not attempt to probe one another on the 'nitty-gritty' of the content of their studies. They seemed happy with the questions they asked and the answers they received. We concluded that the reason for this was that the discussions did not follow the 'deep learning' principles and lacked depth. Although the administrative part of the module was helpful, attempts could have been made by more knowledgeable people to assist so that deep learning could happen. In this context the more knowledgeable people would be lecturers and tutors. Cho and Cho (2016) observed that the failure of tutors' or lecturers' use of scaffolding leads to low quality online interactions. Hence the importance of providing support at the earlier stages of online interactions followed by the implementation of scaffolding strategies to promote learner autonomy.

One of the visible characteristics of deep learning was students' motivation of one another towards the examinations and assignments. While some students lamented about low assignment marks, others became a shoulder to cry on. Interestingly, the topic of marks, assignments, and examination were shared by all twenty students, and the tone in their interactivity indicated seriousness, authenticity, and cooperation.

The last concept to be examined under Phase 1 was meaningful learning. One of the characteristics of this concept is when students can identify their learning goals and are aware of their progress towards actively achieving them. Like deep learning, this characteristic was not very visible in the data. The only evidence for meaningful and constructive learning was found in students' reflections on their examinations. Eleven of the twenty students reflected on the hard and easy parts of their examination, as well as the time given. Some even went further to request past papers from others which was a sign of intentional learning.

Phase 2

Data collected during this phase showed that the students had evolved into a different form of interaction that involved forming WhatsApp groups outside their LMS, and the bulk of the discussion happened on that platform. The students seemed less interested in discussing either the administrative elements of the module or the academic part as before. This finding corroborates Van Wyngaard et al. (2016) and Nsamba and Makoe (2017) who found that WhatsApp was a more preferred learning platform at the university. Could this be the first sign that the students 'may be losing motivation' (Simpson 2013: 13) and are less inclined to visit their university's LMS?

One of the most amazing revelations from the data was the strong sense of motivation to learn. It was clear that the student-student interactions were a source of motivational support. This finds support in Simpson (2013), who emphasised that it is imperative for DE teachers to enhance students' learning motivation. Lubbock (1894, cited in Simpson 2013:13) expressed this issue succinctly: 'Every child should be given the wish to learn'. Indeed, Phase 2 findings showed minimal characteristics of deep and meaningful learning except the desire to join a study group and responding to such calls. Deep learning characteristics such as knowledge construction, integration, and discovery learning were not visible in the discussions.

Conclusions and recommendations

The three interactions are very essential in providing learning support in distance education institutions. Student support has been found effective in minimising the transactional gap (Moore 1993), enhancing student development (Shaheen et al. 2020), and retaining students (Simpson 2013). As early psychologists observed, student support such as social interactions can lead to cognitive development, improvement of language skills, and the enhancement of learning in general.

This study focused on student-student interactions to determine their quality and effectiveness in enhancing deep and meaningful learning. While this method is essential in minimising isolation and elements of demotivation among DE students, it was found that student-student interactions were not the most effective method of enhancing deep and meaningful learning. The findings of this study therefore do not support Anderson's Thesis 1. As revealed by the data, deep and meaningful learning is not possible without lecturer support. As noted by Rodriguez and Armellini (2015), offering only one type of interaction can lead to students' disengagement and confusion. InDE, student-student and student-teacher interactions are inherently low, therefore, withdrawing

one of these two important support services will increase the DE transactional gap. It is therefore recommended that all three types of interactions should be provided at high levels to achieve deep and meaningful learning, as well as the fulfilment of students' experiences.

Given the importance of student-student interactions in building online learning communities, developing problem-solving and critical skills, supporting productive and satisfying learning (Kolloff 2011), and enhancing motivation, constant evaluation of the number of interactions, their combinations, and the correct characteristics of those interactions is required. Therefore, a framework for analysing interactions to determine the quality in all learning environments has been suggested. Furthermore, as the aim of this study was to test the equivalency theory, more research is needed to understand the right combination of interactions in DE universities, especially when using different technologies.

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Chapter 12:

Approaches to Continuing Professional Development for Open Education Practices in Africa

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Introduction

The COVID-19 pandemic, which started in 2019, has brought the importance of professional development on effective teaching and learning for university academics into sharp relief. As has been reported in numerous publications during 2020 and 2021, universities found themselves having to close their campuses and were unable to teach their students face-to-face. Universities in Africa resorted to various strategies to do this, from complete closure of their institution, with no teaching taking place, through emergency remote teaching (ERT) with some form of online teaching, to fully implemented e-learning (Koninckx, Fatondji, and Burgos 2021). Whatever form the teaching has taken, academics have found that traditional lecturing has not been effective when implementing ERT or online teaching. Those who are experienced in adult pedagogies have been expressing the inadequacies of the lecture mode for many years (for example, Jones 2007; Khan 1997), and the realities of the new forms of teaching required have brought such shortcomings to the fore. Several recent opinion pieces have expressed the need for the professional development of academic staff (here we refer to it as continuing professional development [CPD]), especially with respect to their teaching competence. Mihai (2021) and Harle (2021) stress that CPD needs to be a central strategy within higher educational institutions (HEIs) around the world, supporting academics with digital teaching and communities of practice. Even before the pandemic struck, Haras (2018) was lamenting the low status of CPD in HEIs and proposing that it should be more

1 Several colleagues have worked on the research we conducted and contributed to this chapter in various ways. They include Ephraim Mhlanga, Andrew Moore, Maryla Bialobrzeska, Sheila Drew, Mohini Baijnath, and Jabulani Sithole.

prominent, as it is crucial to the continuing improvement of the institutions and their staff.

This chapter opens with a review of successful and innovative CPD models and approaches used in HEIs around the world. It goes on to examine recent CPD activities created by OER Africa and describes their development, piloting, and deployment, together with the implications the pilot findings have for ODL institutions and research in the field. OER Africa is an initiative of *Saide*, and collaborates with higher education institutions in Africa in the development and use of Open Educational Resources (OER) to enhance teaching and learning.

Review of global CPD initiatives

Darling-Hammond, Hyler, and Gardner (2017: 2), in the context of schooling, defined CPD as 'a structured professional learning that results in changes to teacher knowledge and practices, and improvements in student learning outcomes' (p. 2). In our opinion, this definition is too narrow and in this chapter we extend the definition to include unstructured and ad-hoc CPD, aligned with the ideas put forward in the following paragraphs.

In our experience, CPD in distance education and face-to-face HEIs is severely under-researched. A 2019 report by the European Union (EU) on CPD was informed by a literature review and a series of case studies which identify innovations that can form exemplars for CPD (Inamorato dos Santos et al. 2019b). The report suggests that there are three drivers for the increasing necessity for CPD in higher education—namely, the massification and marketisation of HE, the digitalisation of HE, and the value of professional success for individual academics (Inamorato dos Santos et al. 2019a). However, the same report notes that, despite these drivers, academics rarely participate in CPD practices due to numerous barriers, including the following:

- academics' reluctance to renounce teaching practices with which they are familiar
- the absence of formal requirements or inducements for teaching development in HEIs
- a lack of time for CPD among academics
- HEIs' lack of pedagogical expertise and institutional capacity to develop effective CPD schemes

One study suggests that a lack of time is the key factor (King 2004). It is likely that the barriers are interrelated and stem from the imbalance between teaching and research in institutions with a bias towards the latter. Traditional CPD has tended to focus on lecture-style inputs and is regarded

in the EU report as ineffective because there is often little relationship between the training and academics' classrooms and students. The report therefore focuses on innovative CPD practices that can reduce the barriers listed above. Rather than define the term innovation, the report identifies examples of practices that (the authors maintain) are innovative. These include the following:

- collaboration, and participating in informal and ad-hoc practices where academics can learn from each other rather than during formal presentations
- conferences and events which showcase teaching skills that improve student learning
- staff mobility within and between institutions so that academics can learn from each other

Such ideas are combined with institutional systems and procedures that reinforce the CPD, including formal proof of teaching competency, provision of self-study materials to allow flexible learning, and intra- and interinstitutional partnerships to enable formal and informal networks and collaborations.

The overall recommendations of the EU report were that HEIs should:

- maintain a unit, endorsed by university management, dedicated to the professional development (for teaching and learning) of their academic staff;
- provide a range of CPD opportunities, as well as personalised support for academic staff;
- find methods of rewarding successful teaching practices;
- ensure that all CPD offered is evaluated to determine its efficacy and provide a better research base for the discipline (Inamorato dos Santos et al. 2019a).

An earlier publication focuses on the approach to CPD of eight world-class universities and includes a review of trends, challenges, and opportunities across five continents (James Jacob, Xiong, and Ye 2015). The authors admit that the term world-class is contentious and a matter of debate: we would suggest that such a term will exclude institutions from most of the developing world. The authors accepted that there is considerable diversity of context across the African continent. They nevertheless highlighted issues such as the inadequacy of qualified academic staff, the aging and exodus of such staff, the effects of the HIV/AIDS epidemic, and a lack of scrutiny in implementing information and communication technology (ICT) for teaching and learning. Their conclusion was that 'African HEIs must make professional development a priority' (James Jacob, Xiong, and Ye 2015: 3) and came up with the following recommendations globally, similar to those of the EU report.

These include the need for support from senior management to enable professional development centres to be set up in institutions, and provide multiple offerings such as self-study materials, podcasts, seminars, courses, and workshops. Such centres need to be led in a consultative and collaborative way, as effective CPD requires relationships to be built and maintained, resulting in meeting the needs of individual academics. The centres also need to be linked to other key services such as the library and ICT. Other recommendations include:

- The development of small communities of practice which allow optimal CPD, based on data-driven decision-making, to be rolled out.
- Technology should be used to support pedagogical ends and contextualised according to the needs of staff and students.
- Rewards structures need to be established to provide incentives for the best academic and professional staff to invest in CPD (James Jacob, Xiong, and Ye 2015).

While not all the recommendations of the two reports will be relevant to developing countries, they provide useful principles to consider when developing CPD offerings for the contexts of African HEIs. The following section describes how the OER Africa initiative conceptualised and developed CPD activities to promote and enable open education practices relevant for sub-Saharan Africa. The activities form one strand of a more innovative approach to CPD, namely self-study materials which allow flexibility in their use, like those described in the recommendations above.

The process of CPD learning pathways development

In 2019–2020, OER Africa developed a series of innovative professional development learning pathways (LPs) for academic staff and librarians in HEIs in Africa. The standalone online LPs consist of short tutorials that engage participants in authentic learning tasks that can be done individually, collaboratively, or in a workshop environment. Academics can engage with the LPs using various devices such as computers, tablets, and smartphones, but require an internet connection. The rationale behind the LPs is that they can be worked on independently based on one's needs and available time; they are intended to be user-friendly and easy to navigate. The LPs are aimed at enabling academics to improve their teaching and learning capacities, using OER, to provide a better-quality learning experience for their students. So far, six LPs have been developed and

published,[2] each of which focuses on relevant, contextualised practical skills and knowledge development concerned with teaching and learning, and to a lesser extent research at higher education level. The development of the LPs was an action research exercise from which the OER Africa team drew lessons of experience for improvement.

The design and development process

The designer of each LP first produced an outline and wrote a storyboard, which was subjected to team review to help streamline the LP and make it small and focused enough for participants to complete within a relatively short time. The predominant methodology that was used for each of the LPs was the 'think, do, reflect' philosophy[3] and Saide learning design[4]. The LPs aimed to:

- work as standalones and provide automated feedback to help participants check their answers to questions in the activities
- be intuitive enough for one to complete them independently without any form of facilitation
- be highly accessible, with minimal barriers to entry (no registration or password required)
- incorporate and adapt existing OER where possible, only creating new resources when necessary
- be modular, encouraging reuse in different contexts and for different purposes, to accommodate varied needs of potential users
- form building blocks for multiple professional development strategies
- be multimedia rich to encourage academic engagement
- be based on design criteria, including ease of navigation, appealing layout, plain language, activity-based pedagogy, and consideration of users' context

Participant engagement with activities was a key design consideration for all the LPs. The activity-based approach was used in developing each one to avoid participants reading text and watching the video clips in the LPs passively. The choice of software to use was also important. Initially the

2 See https://www.oerafrica.org/book/learning-pathways-open-education-online-tutorials

3 See https://www.oerafrica.org/content/open-pedagogy

4 See https://open.saide.ngo/designguide.php

developers started with H5P software[5] but it required quite a high level of technical expertise and experience. Rise software (part of Articulate 360[6]) was used instead and proved to be attractive and very user friendly, and the team thought this was more in keeping with the aim of the project initiative to find a CPD model that could be replicated in African HE intuitions. It is, however, important to note that Rise 360 is not open-source software, and we plan to make open versions available for adaptation.

Developmental testing and critical review

To ensure rigour in design and development, each completed draft LP was subjected to review in two ways. Developmental testing involved identifying typical users who went through LPs to provide feedback that was used to improve the design. Individuals were chosen pragmatically, based on their willingness to participate, their availability to go through LPs of their choice, and provide feedback within stipulated timelines. This was followed by critical review in which individuals with expertise in learning design were asked to review one learning pathway in its entirety. They were particularly asked for their opinions on specific aspects like structure, content, concepts, skills, gaps, and pedagogy used in the LPs.

Piloting of the CPD learning pathways

Like the development process, the piloting of learning pathways was intended as an action research exercise from which we systematically drew lessons from experience for CPD development and for the field. To ensure project success and distilling of learnings, a formative evaluation process was built into the LP project implementation process. The evaluation methodology is underpinned by improvement science, which includes the plan, do, study, and act (PDSA) cycle (Health Foundation 2011). The PDSA cycle assists in clarifying the aim and the envisaged outcomes or changes that have been effected through the implementation of the LP approach to CPD in African universities.

Since the project intervention is a professional development initiative, the evaluation framework was also informed by Guskey's levels of CPD impact evaluation (Porritt 2012). These are: participants'

5 See https://h5p.org

6 See https://articulate.com/360

reactions, participants' learning, organisational support and change, participants' use of new knowledge and skills, and student learning outcomes. In developing the evaluation framework, we chose to limit ourselves to the first four levels due to the limited project implementation time frame. A longer period would be needed to evaluate whether the LPs resulted in improved performance by students taught by academics who participated in the pilot.

Identification of pilot institutions and participants

Seventy-eight academic librarians and university academics from eight universities were identified through the African Library and Information Associations and Institutions (AfLIA) and the Association of African Universities (AAU). Academics are potential users of the learning pathways and were identified as participants in CPD when the project was conceptualised. Academic librarians are another key group for CPD: they need to be able to explain OER and Open Access (OA) to all users of libraries, mainly academic staff and students. In three of the universities, pilot participants were recruited from distance education units within the institutions. Some pilot institutions only focused on one LP while others worked through more than one. However, data collected in the endline[7] survey was limited, suggesting that not all those who planned to complete more than one pathway, actually did so.

Administration of the pilots

The following three LPs were piloted:

1. finding open content
2. adapting open content
3. publish open access

7 We use the terms baseline and endline for the pre- and post-pilot surveys respectively

Table 1: Total academic staff who participated in the pilots*

Institutions	Finding Open Content	Adapting Open Content	Publish Open Access
Universities in Botswana, Eswatini, Ghana, Namibia, Nigeria, and Uganda	52	51	42

*Although we received participant lists from the universities, it is not clear that all participants actually completed all the learning pathways listed here. See Table 2.

Before participants engaged with the LP, they were introduced to the resource through a video-conferencing meeting (using Zoom). The developer explained the purpose of the pilot and the process involved, demonstrated navigation, and asked participants to complete the baseline survey before engaging with the LP. The baseline survey gathered information on the participants' levels of pre-existing knowledge, skills, and competencies related to the particular LP. After the initial Zoom meeting and completing the baseline survey, participants were given at least one week to go through the LP individually. The participants then completed a user-experience survey and joined a Zoom feedback meeting.

Given that not all participants managed to complete the LP(s) within a week, they were allowed to engage with them for 2–3 months. After this extended period they completed an endline survey, which had similar items as the baseline but with the sequence shuffled. The purpose of this survey was to facilitate collection of data on what participants had learnt over the extended period and the extent to which Guskey's levels 1 to 4 had been achieved. The respondent data is shown in Table 2. Space constraints do not allow us to report on all the items in the survey or the qualitative comments made by participants in free choice sections or the Zoom feedback sessions. [Note for editor: a link to the full report will be provided in the final version of this chapter]

Table 2: Respondent data

Learning Pathway	Baseline	Endline	Paired t-test	Statistically significant
Finding open content	51	18	n = 14 T = 2.96 p = 0.011 D = 0.79	Yes
Adapting open content	39	16	n = 11 T = 0.69 p = 0.504 d = 0.21	No
Publish open access	35	13	n = 10 T = 3.54 p = 0.006 d = 1.12	Yes
Total	125	47		

Limitations

Given the variation in the number of baseline respondents compared with the number of participants that completed the pilot and the endline survey, group percentage analysis was done to ensure that the analysis of the data was comparable. This was clearly a shortcoming, so we also conducted paired t-tests for the same individuals who completed both surveys. A paired t-test is an inferential test used to determine the difference between two variables for the same individual, in this case the baseline and endline surveys and shows whether the findings are statistically significant.

Participation in the pilot was voluntary, which resulted in institutions opting to do different LPs. As highlighted above, some chose to do all three whilst others chose to do only one. Also, not

everyone who completed the baseline survey for a particular LP completed the endline survey for the same LP.

The other limitation of the study is that the piloting group was a mixture of academics and librarians working in universities. We did not separate these two groups in our analysis of the results as we were informed that most librarians were academics in their own right with broadly similar kinds of qualifications.

Findings

Finding open content

The aim of the Finding Open Content Learning Pathway is to equip academic staff with necessary skills to search for open content, familiarise themselves with the various Creative Commons licenses, and to be able to evaluate the usefulness of OER for their purposes. Fifty-one respondents completed the baseline and eighteen completed the endline survey. Sections of the surveys covered awareness and understanding of Creative Commons licenses, searching for OER, evaluating OER, and participants' prior engagement with and proficiency in using OER. Here we provide findings for three of the sections: awareness of, searching for, and evaluating OER.

Table 3: OER awareness

Respondents who:	Baseline n=49	Endline N=18
	%	%
Have not heard of OER	18	0
Are aware of OER	79	94
Have searched for OER	65	89
Have evaluated OER	44	83

Searching for OER

Participants were introduced to the use of various search engines like Google Advanced Search, YouTube Creative Commons filter, and Creative Commons Search to provide them with enhanced capacity to undertake OER searches. In the survey, participants were asked to identify the main advantage of using filter search tools within a platform like YouTube. Only 54.2 per cent were able to identify the correct advantage in the baseline survey, while nearly 90 per cent did so in the endline survey, demonstrating a significant gain in knowledge and underscoring the potential for academic staff to carry out more effective OER searches in the future. In a related question, academic staff were required to indicate which of the advanced search tools they had used before and after the pilot. Table 4 shows comparative results.

Table 4: Tools used to search for open content

	Baseline n=51	**Endline n=18**
	%	**%**
Google Advanced Search	78	94
YouTube	26	72
CC Search	18	61
Google Scholar	94	83
Other	16	11

The results in Table 4 show a significant increase in the use of YouTube, Creative Commons search tools, and Google Advanced Search in the endline survey. In the baseline survey, 26.5 per cent of respondents reported that they had a favourite educational content repository they preferred their students to use. In the endline survey, this figure had increased to 33 per cent.

Evaluating the suitability of content found online

One of the most important skills needed in using OER is the ability to evaluate content to ensure that it is fit for purpose and that it will enhance learning. The academic staff were asked to provide information on how they evaluate the suitability of educational content that they find online. Results of the baseline and endline surveys are reported in Table 5.

Table 5: Evaluating content found online

Evaluation method	Baseline n=49	Endline N=18
	%	%
Own discretion	82	59
Consult friend	43	53
Use specific criteria	37	53
Other	6	0

Table 5 shows an increased use of defined criteria and reduced use of one's own discretion for evaluation of OER suitability in the endline data. This suggests that academic staff adopted a more objective approach of applying the OER evaluation criteria discussed in the LP. This is further evidenced by responses given in the endline survey, which highlighted the use of criteria for evaluating OER that were provided in the LP.

The t-test results indicate that the average between the baseline and endline tests is statistically significant with a large effect size, suggesting that the LP had a positive effect on participant learning.

Adapting open content

The aim of the Adapting Open Content learning pathway is to equip academic staff with the knowledge and skills that are necessary for adapting OER to suit particular contexts. Sections of the surveys covered understanding adaptation and the licenses that permit adaptation and repurposing, attribution, considerations involving revising and remixing, understanding the 5Rs, and understanding what changing a resource entails. Here we provide findings for two of the sections: understanding attribution and understanding the 5Rs.

Participants were asked questions that required them to show their understanding of what adapting OER involved. The survey also required them to show whether they understood why it is necessary for them to adapt OER. Table 6 shows survey results of these two questions in the baseline and the endline survey.

Table 6: Understanding adaptation of OER

Questions	Baseline %	Endline %
Able to identify a process that does not involve adapting an OER (4 options provided)	54	75
Provide correct response to: Why is it necessary to be able to adapt a resource?	85	94

Table 6 shows that the academic staff started out with a good understanding of what OER adaptation entails and why it is important, but that there was an increased understanding of the rationale for adapting OER after completing the LP, as evidenced in the endline responses.

Understanding the 5Rs (Remix, Retain, Redistribute, Revise, and Reuse)

Respondents were asked to match each of the terms with the correct description given in a matrix (Table 7):

Table 7: Comparison of correct understandings of 5Rs

	Baseline %	Endline %
Remix	87	100
Retain	90	88
Redistribute	67	81
Revise	74	69
Reuse	23	81

Results in Table 7 show increased understandings of what Remix, Redistribute, and Reuse mean in the endline compared to the baseline survey. It is not clear why understandings of Retain and Revise show lower percentages in the end line compared to the baseline data.

The t-test results indicate that the average between the baseline and endline tests is not statistically significant and has a small effect size, providing no evidence that the LP had a positive effect on participant learning. However, open-ended questions in the endline survey suggest that at least some of the participants not only learnt, but also applied their learning.

Publish open access

The main purpose of this LP is to impart information and knowledge on open access publishing, the practice of making research outputs and data freely and widely accessible to as many people as possible, and without various licensing restrictions. Thirty-five participants responded to the baseline compared with thirteen who responded to the endline survey. Sections of the surveys covered open access licensing conditions, types of open access, how to identify reputable journals for publishing (including avoiding predatory journals), and the advantages and disadvantages of OA. Here we provide findings for the understanding of open access licensing conditions and the ability to identify reputable journals.

Basic understanding of Open Access Publishing licensing conditions

Table 8 shows that, at the baseline, most respondents could identify the open access publishing symbol and understood that there was no payment involved in using open access articles. However, only just over 50 per cent in the endline survey were able to distinguish between traditional and open access publishing in respect of rights related to content adaptation. The results of the endline survey do, however, reflect an improvement in the respondents' understanding of the licensing conditions.

Table 8: Basic understanding of Open Access Publishing licensing conditions

Questions	Baseline %	Endline %
Do end users pay to access Open Access articles?	97	100
Identification of the symbol that indicates open access	93	100
Ability to distinguish between traditional and open access publishing in respect of rights related to content adaptation	32	54

Identifying reputable open access journals and publishers

The baseline survey indicated that most participants were able to identify factors that are important to consider when choosing a reputable open access journal or publisher. However, the endline results reflect a positive increase in the respondent's ability to identify key factors to take into consideration (Table 9).

Questions	Baseline %	Endline %
Ability to identify factors to select a reputable open access journal	83	100
Ability to identify factors to select a reputable open access publisher	74	92

Table 9: Ability to identify reputable open access journals and publishers

The increased knowledge of how to identify reputable open access articles and publishers highlighted in the endline results is important in ensuring that they do not work with disreputable publishers. Respondents were asked to give reasons why they would not publish in predatory journals. Responses to both the baseline and endline survey mirror each other quite closely.

The t-test results indicate that the average between the baseline and endline tests is statistically significant with a large effect size, suggesting that the LP had a positive effect on participant learning.

User experience survey

A user experience survey was administered at the end of the pilot. Data from this survey and data collected at the post-pilot feedback workshop focused on aspects such as user friendliness and whether the participants found it easy to navigate through LPs. In total, 91 pilot participants responded to the user experience survey. Of this group, the majority were academic librarians. Findings in relation to the following three questions are presented below.

Is the design of the LPs coherent and does it allow easy navigation by staff with minimum technological skills?

Approximately 90 per cent of respondents stated that design of the LPs was good, user friendly, and easy to navigate. Participants found the language easy to understand and indicated that they did not encounter any technical challenges in going through the LP. A few respondents reported experiencing some challenges in navigating through the LPs. These included complexity (no details provided), music licensing (a minor point in the context of the LPs), and navigation ('the software does not save your position once it is closed').

How do participants react to the LP in terms of their usefulness and relevance for their needs?

Most academic staff (over 90 per cent) reported that they found all three LPs useful. In the Find Open Content LP, information on the different types of licenses, the filtering search tools, examples of universities that have open content repositories, as well as information on OER content databases, were all reported to be of great value to the academic staff. For Adapt Open Content, respondents indicated that they found the short video clips very informative and helpful to understand the concepts. The also indicated that there are enough hints to guide the learner, and that the language

choice and examples are user-friendly. Respondents who had engaged with the Publish Open Access LP reported feeling more confident about publishing in OA journals because this was underpinned by the new knowledge acquired regarding the benefits of doing so.

What are the potential barriers to implementing this approach to professional development on a large scale?

While the overall response to the LPs was very positive, respondents did raise challenges regarding implementation of an online, flexible, individual approach to CPD. The following issues were highlighted as likely to be potential barriers to implementing online LP tutorials as a professional development strategy. These include:

- poor connectivity in some universities
- high data costs—respondents commented on the fact that the videos in the LPs required the use of a lot of data
- lack of suitable personal digital devices is a barrier for some academic staff
- lack of dedicated time to engage with the LPs due to other commitments in the university
- lack of incentives to motivate academic staff to engage with this form of CPD where staff use their own time and do the LPs of their own accord

Discussion

The results of the baseline and endline surveys reflect that pilot participants' engagement with the three OER LPs mostly resulted in positive learning experiences. The results demonstrate increased knowledge and skills in most items listed. Two of the LPs—Finding Open Content and Publish Open Access—showed statistically significant change between the baseline and endline tests, which suggests that learning did indeed occur. Conversely, the t-test for Adapting Open Content did not show such a result, and, although there were positive changes in many of the items, we cannot state that this was the result of the participants completing the LP.

The findings from the user experience survey and feedback from the post-pilot Zoom discussion sessions regarding the efficacy of the design and ease of using the LPs and the relevance of the

content reflect very high levels of user satisfaction and very positive results related to the relevance. The surveys and discussion also provide evidence of change in the academic staff's practice, which is part of Guskey's level 2 (learning) and even level 4 (use of new knowledge and skills) (Porritt 2012). Many academic staff reported on ways in which they were able to implement their new knowledge and skills related to finding and using OER both for teaching and for research, thus underscoring the positive value of the LPs in building the capacity of academic staff to strengthen the quality of their teaching.

Responses highlighted some barriers to using the LPs. Key amongst these being issues of connectivity, access to digital devices, and the high cost of data. This highlights the digital divide in sub-Saharan Africa even among university lecturers. Given the issues related to connectivity and data costs, it may be an option to design an application that would allow the participants to download the LP content and work offline. While this option may initially be more expensive to implement, it may promote greater access and thus be more cost effective in the long run. Another issue raised as a potential barrier by academic staff was the lack of dedicated time in which to engage with continuing professional development. The subtext of the responses seemed to suggest that it was somehow easier to take time out to attend a face-to-face professional development workshop, than it was to engage in an individual, independent online professional development course. The comments by respondents imply that there was no recognition nor acknowledgement of this sort of CPD as it occurred in a personal space (and was therefore 'unseen') as opposed to the workshop context, which could easily be seen and one's participation in CPD witnessed 'by the powers that be'. This is an area which needs researching, as it clearly remains a barrier for university academics and librarians to access CPD willingly.

To mitigate this barrier, an enabling institutional policy environment needs to be created. Academic staff prefer to have continuing professional development linked to institutional human resource policy. Currently, there is recognition of publication output but not necessarily continuous professional development of staff, especially when done privately. This practice tends to encourage staff to do research and publish at the expense of other important undertakings, like CPD. The AfLIA group stressed the need to have independent CPD linked to promotion and remuneration policies of the university. This, coupled with management support, are likely to be positive factors in making the approach exemplified in the OER LP tutorial method successful.

In line with Guskey's (2000) framework highlighted in the evaluation framework above, the results of the piloting show that participants reacted positively to all three LPs. They found the LPs appealing in terms of their design, relevance, and appropriateness as CPD resources. New techniques and

skills that participants learnt by going through the LPs include appropriate identification of types of licenses under which various resources are published, how the resources should be used, searching for resources relevant for their disciplines, and how to adapt and integrate OER meaningfully in their courses. Those who engaged with the Publish Open Access LP seemed to have gained greater appreciation of the value of publishing using open access. At the same time, they gained good understanding of the disadvantages of using predatory publishers. Respondents highlighted that, in a predatory journal, the lack of peer-reviews impacted negatively on the value and credibility of the research. Further issues raised included concerns regarding professional reputational damage and the possibility of compromising promotional opportunities. Participants showed nuanced understanding of deceptive publishing in the endline survey which may result from engaging with the LP. It is also worth noting that two respondents to the baseline survey explicitly stated that they did not know what predatory publishing was all about.

In their post-pilot feedback, some indicated that they had started thinking of how they would use the LPs and the knowledge they gained therein. Some mentioned improving their courses on the basis of knowledge gained about searching for and integrating OER. Others mentioned using the knowledge gained to select the most suitable OA journals for the library. Knowledge gained by going through Publish Open Access was going to be used to enhance the respondent's Information Literacy course. This suggests that Guskey's level 4 was achieved by at least some participants.

Guskey's impact level 3 refers to changes that occur in the organisation to support CPD initiatives. Although the piloting period was too short and the participating groups too small to influence such organisational changes, participants were already identifying enabling conditions that should prevail in their institutions for the piloted approach to take root. These changes mainly relate to human resource policies and align with the recommendations of recent research (Inamorato dos Santos et al. 2019a; James Jacob, Xiong, and Ye 2015).

It is important to reflect on what implications the findings of the research might have for both ODL institutions and research in the field of ODL. First, future CPD cannot be 'business as usual' in HEIs; there is a need for quality innovative professional development for staff in ways that they can access. One of the findings from the literature was that there are several barriers to academic staff engaging in CPD, including a lack of time, the absence of inducements, and reluctance to depart from existing practices (Inamorato dos Santos et al. 2019b). We identified the former two barriers in our survey and discussions, and staff in ODL institutions are likely to suffer from the same barriers as in face-to-face universities. Part of the rationale for creating the LPs was to provide short, easily completed online CPD activities which participants could learn from. Our findings suggest

that we were at least partly successful in doing so. However, it is clear that institutions need to take teaching development seriously and provide both time for staff to engage in it, as well as possible extrinsic motivation to do so. In the longer term, intrinsic factors would be as, or more, important, and institutions and the field need to create conditions for effective CPD to thrive. Institutions also need to consider clear strategies for their CPD which take into account the barriers their staff face and how new models of CPD can be implemented.

It is clear from the literature review conducted that the field of professional development is substantially under-researched. Studies have focused mostly on traditional face-to-face institutions, but the gap between them and ODL institutions continues to lessen, highlighting an increasing need for research into the effectiveness of CPD in higher education across the board. A number of potential studies for the African continent emanate from the research: an analysis of motivating factors for staff involvement in CPD, a survey of CPD practices, a multi-institution study to determine the effectiveness of innovative CPD practices, and a study of the impact of CPD on academics' career development and institutional culture. To make a difference to teaching and learning across the continent, we recommend that institutions adopt CPD models that can address large numbers of staff at a time. Short, flexible, online engagements such as the OER Africa learning pathways are one way to achieve this but incorporated into a more substantial CPD model or strategy. To enable Guskey's impact levels 4 and even 5 (student learning outcomes), substantially greater efforts need to be taken to improve teaching and learning in all HEIs: face-to-face, distance, and hybrid.

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Chapter 13:

Measuring Implementation of UNESCO's OER Recommendation: A Possible Framework

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Introduction

Open educational resources (OER) have gained traction over the last decade and are increasingly being touted as one of the most significant educational innovations in the twenty-first century to date. The 2021 EDUCAUSE *Horizon Report: Teaching and Learning Edition*, cites OER as a key technology for the second year in a row. The term OER refers to teaching, learning, and research materials that are either (i) in the public domain or (ii) licensed in a manner that provides everyone with free and perpetual permission to engage in one or more of the 5R activities—retaining, remixing, revising, reusing, and redistributing the resources (Creative Commons n.d.).

These resources have been shown to enhance education delivery by improving access to relevant learning materials, reducing the cost of access (Annand and Jensen 2017), and improving student performance (Colvard, Watson, and Park 2018; Hilton 2020). Some have argued that OER have the potential to be an equaliser for education systems by spurring 'social inclusion in a pluralistic, multicultural, and imperfect world' (Olcott 2012). Ngugi and Butcher (2011), as cited by Baijnath (2017), go even further in explaining the potential of OER to revitalise higher education standards, improve the relevance of curricula, and promote collaboration and knowledge sharing between institutions, all with the ultimate benefit of serving students more effectively—much of which has been shown to be accurate in subsequent research (Hoosen and Butcher 2019; ISKME 2021; EMARGE Ed. Consultants Inc. 2017).

OER have become increasingly entrenched within the context of distance education provision because of their alignment with principles of open and distance learning. There are significant

resonances between OER and distance education as de Hart, Chetty, and Archer (2015: 21) explain;

> Contextualizing OER within a distance education environment, it can be argued that OER initiatives' aspiration to open access resonates strongly with the fundamental principle underpinning distance education. This principal [sic] is that spatial, geographical, economic and demographic boundaries must be reduced to facilitate and increase access to higher education.

At the global level, the Recommendation on Open Educational Resources (OER)[1] (40 C/32) was adopted at the 40th UNESCO General Conference in Paris on 25 November 2019 as the culmination of a long process of UNESCO's sustained engagement with the concept of OER. The Recommendation has five areas of action:

- building capacity of stakeholders to create, access, re-use, adapt, and redistribute OER
- developing supportive policy
- encouraging effective, inclusive, and equitable access to quality OER
- nurturing the creation of sustainability models for OER
- promoting and reinforcing international cooperation (UNESCO 2019)

The OER Recommendation draws significant inspiration from UNESCO's 2012 Paris OER Declaration, which was adopted at the 2012 World Open Educational Resources Congress. This document calls on governments around the world to adopt policies and support capacity development to promote the use of OER. Because of this exciting progress in formalising the use of OER, it has become critical to develop reliable tools to measure the impact of the Recommendation and in so doing, the influence of OER more broadly. Drawing on a comprehensive literature review of best practice in OER measurement, as well as experience of working with UNESCO to support implementation of the Recommendation, this chapter presents an initial framework for the measurement of the effectiveness of the OER Recommendation and proposes indicators that regions, countries, and/or institutions could adopt or adapt to rigorously measure both how OER is used and its effectiveness for improving learning. Putting in place shared understandings of what counts as effectiveness for OER is critical to inform ongoing developments and improvements in the field. Such measures can also provide an evidence base that can be used for advocacy work around the importance of OER for quality open and distance learning.

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1 See http://portal.unesco.org/en/ev.php-URL_ID=49556&URL_DO=DO_TOPIC&URL_SECTION=201.html

Challenges in measuring OER

Not unlike the multiple pedagogies that fall within the ambit of distance education, there are several types of educational resources that can be classified as OER. This is beneficial when considering variation in pedagogical approaches, educational contexts, and learner needs. However, this diversity can also prove to be an obstacle when seeking to measure OER, as there are equally diverse implementation issues, results, metrics, and costs. Despite this, much research groups highly disparate educational resources under the term 'OER', which presents a challenge in extracting meaningful findings about the value of various sub-categories of OER (Shear, Means, and Lundh 2015: 12). A related challenge for OER research in distance education and beyond is the lack of consensus among researchers, practitioners, policymakers, and other stakeholders on how to define OER. Some do not know what OER are, while even those who are familiar with the term have inconsistent understandings of what falls under its umbrella. Adding to the ambiguity is the fact that many types of material including anything from individual learning objects to whole courses can bear a Creative Commons licence (Shear, Means, and Lundh 2015: 5). This drives home the importance of having any OER measurement tool contain clear definitions of what constitutes an OER.

Developing a measurement tool that is valid and reliable always presents a unique set of considerations and challenges. However, it is important because accurate measurement forms the foundation of robust research, which in turn contributes to the legitimacy and development of a research field and augments future implementation within that field. Although it is growing, OER-related research is relatively nascent in many countries and there is a dearth of empirical research that follows sound methodological approaches—not to mention that there is a paucity of literature on OER in general and OER use in distance education environments in particular. Where literature does exist: 'Researchers on OER have yet to adopt rigour in conduct of empirical studies, as in other fields of education. It could be due to its emerging nature or being rooted within Educational Technology, Information Communication Technology (ICT) and e-learning rather than as an independent field.' (Mishra et al. 2016: 57)

Compounding this issue is that several of the key attributes of OER make it a complex subject of traditional research designs. For example, efficacy studies depend on controlled conditions. However, the nature of OER, which permits users to remix and adapt content under certain licences, makes it difficult to draw comparisons between similar and strictly defined conditions. Despite this, studying the efficacy of OER implementation is incredibly valuable and necessary from a research

perspective: 'While it is always important to study efficacy in the context of implementation, with OER this is doubly true, as adaptation and implementation can change not only the effectiveness of the product but the product itself. This in turn adds complexity to the research task.' (Shear, Means, and Lundh 2015: 4)

Researching OER within the context of distance education is particularly nuanced. Although distance education may have previously been perceived by some as a peripheral mode of education, the COVID-19 pandemic, advances in technology, and fundamental reconfiguration of society through, for example, the fourth industrial revolution, have brought this delivery mode to the fore as a viable and practical form of education. This is not least because of its promise in widening access to education. Despite these resonances, surprisingly little has been written either inside academia or outside about how to measure the use and effectiveness of OER within distance education environments. This is surprising, particularly with OER being a developing trend, because an empirical evidence base on the use and effectiveness of OER could substantially aid their formal implementation.

There are frequently stated convictions about what OER can, should, or will achieve. This includes improving learning outcomes and teaching practice, supporting active and individual learning, reducing educational costs, promoting content localization, and improving access to knowledge (Hoosen and Butcher 2019). As a result, OER projects have traditionally focused more 'on developing and releasing OER content rather than researching its impact, and so reliable data is often absent' (Weller et al. 2015). As OER initiatives and activities gain traction around the world, there is an increasing need for reliable evidence on the impact and effectiveness of OER (Hoosen and Butcher 2019).

A further notable challenge involves the difficulties around tracking OER usage. This includes the fact that many OER users are not registered members of a platform, meaning that their activity cannot be tracked in detail, and that some or all of the OER lifecycle extends beyond repositories in which the resource may have been initially found (Orr, Rimini, and Van Damme 2015). Related to this is the question of how effective aggregation is in measuring OER impact. Simply aggregating findings for diverse types of OER is not especially useful if one is looking for a specific category of OER that may have impact and implementation issues which vary rather significantly (Shear, Means, and Lundh 2015: 12). These challenges present important considerations for developing a measurement tool as they beg the question of what can be accurately measured and how.

Best practice in OER measurement

Having examined the key challenges in measuring OER, the chapter will now turn its attention to best practice in OER measurement to draw from established methodologies and lessons. As noted above, relatively little literature is currently available on OER measurement. Nonetheless, there are several useful resources from which important lessons can be gleaned.

Awareness of the context is one of the key determinants of successful OER implementation. Blaschke (2016) emphasises the importance of understanding the context within which OER measurement is occurring, as well as the different approaches to adoption. The author adds (Blaschke 2016: 181):

> From the case studies and literature also emerged factors that contributed to OER success, such as executive management leadership and support; alignment of OER strategy with institutional mission and strategy; support and promotion of OER awareness and champions at all institutional levels; establishment of policies for OER management and measurement; incentives and motivational measures, e.g., by incorporating OER development into the tenure process and giving faculty control of intellectual property.

Although Blaschke (2016) is writing from an institutional perspective, there are valuable lessons for measuring national implementation—namely, that for measuring OER effectively, one should remain cognizant of the underlying contextual variations. There are also lessons from related UNESCO Recommendations that can inform measurement in the space of the OER Recommendation.

For example, against the backdrop of UNESCO's Recommendation on Science and Scientific Researchers (RSSR), the Responsible Research and Innovation Networked Globally (RRING) project[2] developed measures that can be used at different levels in member states' scientific systems to measure progress regarding implementation of the RSSR. RRING developed five levels of indicators,

2 The RRING project has been funded by the European Commission to develop an empirically informed global perspective on responsible research and innovation. It contributes to the development of a global framework for socially responsible research, including directly engaging with the monitoring process for the UNESCO Recommendation on Science and Scientific Researchers, with the production of an indicator's framework and specific survey instruments and items. See https://zenodo.org/record/4912589#.ZD09tS8RppQ

which includes 'top-down' (government and funders) and 'bottom-up' (research staff, research performing organisations, and general public) levels. RRING also identified ten priority areas for monitoring as the initial focus of RSSR implementation (Jensen and Lorenz 2021). By implementing the indicators across the five levels, RRING could follow progress in the implementation of the recommendations from national policy down to individual researchers (Jensen 2020). This approach is particularly useful because it adopts a holistic approach and places equal emphasis on all levels of implementation and stakeholders. It also embraces a systematic approach to impact measurement that allows a user to cross reference impact at different levels.

UNESCO and the Commonwealth of Learning (COL) recently published guidelines for policymakers and other stakeholders for reviewing, evaluating, developing, implementing, and measuring a context-relevant OER policy. They divide indicators into two types: quantitative and normative. The former results in a numeric value (such as a percentage of learners), while the latter determines whether specific norms have changed through modifying regulations or instructions. Normative indicators tend to be dichotomic (that is, successfully implemented or not) (UNESCO and COL 2019). This dual approach allows one to extract different metrics for different purposes and ensures that the limitations of one type of indicator are balanced by the benefits of the other, the ultimate result being that measurement supports different kinds of knowledge building.

Building on the idea of reflecting the complexities of OER measurement in a tool, the OER Global Monitoring Initiative is being undertaken by UNESCO to promote transparency about countries' OER activities and to facilitate benchmarking and learning between countries. The aim is to encourage heightened participation in OER to achieve progress towards the Sustainable Development Goals (SDGs)—particularly SDG 4 and 5 (quality education and gender equality) (UNESCO and COL 2019). In a presentation on Mainstreaming OER Towards Education 2030, Miao (2018) explains how to leverage OER for achieving SDG 4 targets, emphasising that several actors should share this responsibility. Within the framework, there are three conceptual domains and ten indicators. These are outlined in the table below.

Table 1: The OER Global Monitoring Initiative Framework

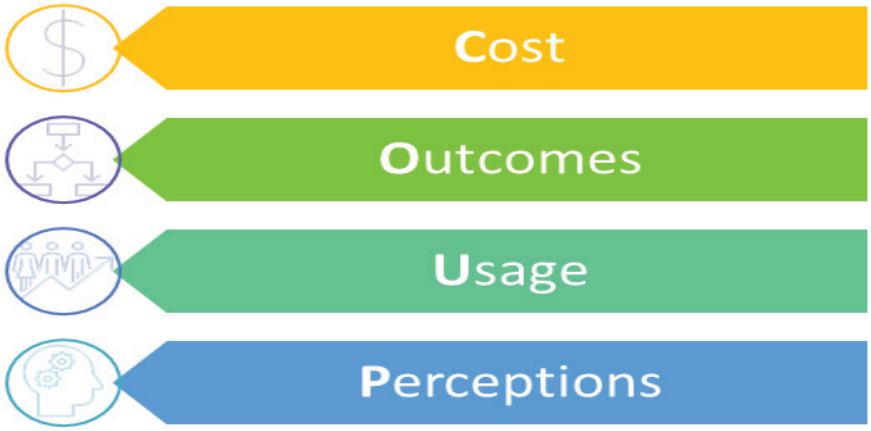
Conceptual domains	Benchmarks	Indicators
Government commitment	Governments in member countries have deliberate policies, strategies or programmes in place to create the enabling conditions for OER use across their national or provincial education system and in support of formal, informal, and non-formal learning.	Presence of a national or provincial OER policy, strategy, or program
		Proportion of education contexts covered by existing national or provincial policies, strategies, or programs for OER in education
Institutional adoption	Institutions in member countries have deliberate policies, strategies or programmes in place to create the enabling conditions for OER use across their campuses	Presence of local/institutional OER policy, strategy, or program
		Proportion of educators (for ISCED levels 1-8) using OER in their teaching by major subjects
		Proportion of learners (for ISCED levels 1-8) who have used student-facing OER as part of coursework by major subjects
		Proportion of educators who have created new OER
		Proportion of educators who have redistributed/shared existing OER
Teaching and Learning	Governments in member countries perceive progress with respect to the availability, quality, and affordability of education and learning materials; the quality of teaching and learning in institutions where OER has been adopted; and the use and sharing of OER by educators.	Proportion of institutions reporting that OER has contributed to improved teaching and learning
		Proportion of institutions reporting that OER has contributed to an increase in personalised instruction to meet the distinct learning needs of individual students
		Proportion of institutions reporting that OER has contributed to increased collaboration

Source: Miao (2018)

Each of the indicators above provide useful insight into OER measurement, with a particular focus on policy. Another key takeaway from the framework is the value of using benchmarks as a means of comparison.

In the domain of teaching and learning, the Open Education Group developed the COUP Framework to evaluate the impact of OER and open pedagogy in secondary and post-secondary education (Open Education Group n.d.). Figure 1 summarises what the acronym COUP represents.

Figure 1: The COUP Framework breakdown



Source: Open Education Group (n.d.)

The COUP framework aims to provide empirical evidence on a series of metrics concerning the extent of the financial impacts of OER adoption (cost); the learning effects of OER adoption (outcomes); how faculty and students use OER and the extent to which the effects on learning outcomes covary with these uses (usage); and empirical evidence for a series of questions about faculty, students, and other stakeholders' understandings of OER (perceptions) (Open Education Group n.d.). These are presented below in more detail.

Table 2: The COUP Framework: Metrics

Cost	Outcomes	Usage	Perceptions
1. Costs of textbooks previously assigned 2. OER support fee models 3. Changes in campus bookstore revenue 4. Changes in tuition revenue due to changes in drop rates 5. Changes in tuition revenue due to changes in enrolment intensity 6. Changes in tuition revenue due to changes in persistence 7. Changes in access to performance-based funding due to changes in drop, enrolment intensity, and persistence	Changes in the percentage of students receiving a C or better Changes in rates of completion Changes in drop rates Changes in enrolment intensity Changes in persistence Changes in attainment of progress milestones (e.g., first 15 credits) Changes in graduation rates	Deleting material from the OER Inserting other open material inside the OER Moving material around within the OER Editing material in the OER	What do faculty and students think about, and feel toward, Open Educational Resources? How do they judge their effectiveness relative to traditional textbooks? Their rigor and coverage? Do they find the formats, structures, and other design features easy to use? Frustrating? What about other stakeholders, like parents or policy makers – what are their thoughts and feelings toward OER?

Source: Open Education Group (n.d.)

Although it is focused at the institutional, not global level, the COUP framework is relevant for informing a measurement tool on the effectiveness and use of OER because it outlines useful metrics to inform empirical research, as well as demonstrating how valuable frameworks can be for linking overall measurement objectives for OER with tangible metrics.

Measurement should also account for the complexity of OER. Shear, Means, and Lundh (2015: 12) suggest several dimensions across which OER and its uses differ, together with a group of alternative characteristics for each dimension. This provides a useful guide to the kind of gradation

a measurement tool might possess—one which accounts for the nuances within OER. These dimensions are presented in the table below.

Table 3: Dimensions of OER

Level of openness	1. Free to use but not modify 2. Free to use, copy, distribute, modify and incorporate into derivative non-commercial works 3. Free to use, copy, distribute, modify and incorporate into derivative, including commercial works*
Grain size	Programme/ course sequence, whole course, unit of study, learning object, learning platform, assessment
Implementation modality	Wholly online; blended with reduction in face-to-face (FTF) time; blended with no reduction in FTF time
Education context	Early childhood; K-12 school; higher education institution; informal out-of-school
Learner choice	Learner selected; recommended to learner; required of learner
Subject area	Humanities, language, arts, mathematics, science, technical including programming, other occupational
Type of learning	Procedural skills, declarative knowledge, deeper learning

*These levels are a simplification of the four levels of OER access described in Smith (2013), as cited by Shear, L., Means, B., and Lundh, P. (2015: 12).

The same authors explain that the OER ecosystem would benefit from common terminology to describe different kinds of OER research studies. They propose the following categories, each of which includes a set of outcomes:

- ***Impact studies that include a counterfactual*** (that is, a comparison or control group for which outcomes are measured to show the results that would have occurred without the OER). One might measure the following outcomes:
  - student learning outcomes
  - student motivation/socioemotional learning factors
  - teacher practices/motivation
  - access to learning
  - cost effectiveness (requires both learning outcome and cost data)

- ***Empirical studies that measure outcomes but lack a counterfactual.*** These might look at the same outcomes as impact studies, but do not necessarily allow for comparison or a control group to measure the impact of OER.

- ***Implementation studies.*** Focus on how OER are implemented through, for example, case studies and differentiating between methods of OER implementation.

- ***Policy studies.*** These are descriptive studies involving OER policies and policy changes that do not contain outcome data or quantitative data on implementation variables (Shear, Means, and Lundh 2015: 13).

Swatscheno (2020) explains that decisions over what metrics to track should be made early on in any OER-related process or programme because different stakeholders may be concerned with different metrics. Moreover, different stakeholders are able to collect different metrics depending on their context, so it is important to have a clear grasp of which metrics are being used in order to plan measurement efforts. The author suggests the following metrics for measuring OER:

- downloads
- page visits
- user engagement (for example, web page visit duration)
- sales of physical copies
- course adoptions
- adaptations and remixes of the resource
- reviews
- peer review
- student surveys and testimonials
- overall cost savings for students
- effect on the textbook market

Except for the OER Global Monitoring Framework (see Table 1), the best practice examples presented in this section focus largely on OER measurement at institutional and/or teaching and learning levels. Very little information could be found about OER measurement at the global or even national policy level. As such, the final section of this chapter presents an initial effort to define a measurement framework for the OER Recommendation.

Towards a global OER measurement framework

UNESCO and its partners are currently working with national governments on the implementation of the OER Recommendation. One aspect of this work entails developing indicators for monitoring progress of countries against the five areas of action defined in the Recommendation (UNESCO 2019). Once finalised and agreed to, these indicators are likely to guide the approaches countries take to OER and will therefore influence how OER is used in support of distance education provision.

Against the backdrop of the specific challenges inherent in measuring OER and informed by the best practice lessons discussed above, Table 4 summarises a set of outcomes and indicators that could be considered for monitoring the effective implementation of the OER Recommendation. The challenges of shared understandings of what counts as OER across different contexts was discussed above. In addition, in relation to measuring the OER Recommendation, also challenging is defining what supportive OER policy looks like across regional and national contexts, as well as how to identify whether access to OER is inclusive and equitable across vastly different educational environments, each with varying forms and degrees of exclusions. To account for this, in the framework presented below both normative and quantitative indicators have been included (UNESCO and COL 2019). The normative indicators take the form of qualitative ratings. While it is recognised that qualitative ratings can mean different things, this approach also encourages users of the framework (whether governments or institutions) to engage in reflective practice on their achievements towards the indicators within their own contextual boundaries. To allow for aggregation of indicators with qualitative ratings, definitions for each rating category have been proposed.[3]

3 **The following definitions of rating categories are proposed:**
Not at all – no activities/interventions related to the indicator are underway or planned; there is no evidence of progress towards the relevant outcome
Somewhat – activities/interventions related to the indicator are in early stages and/or being planned; there is initial evidence of progress towards the relevant outcome
Mostly – activities/interventions related to the indicator are clearly underway; there is evidence of significant progress towards achieving the relevant outcome
Always – activities/interventions related to the indicator are standard practice; the relevant outcome has been achieved

Table 4: Proposed measurement framework for the OER Recommendation

Areas of Action	Outcomes	Indicator – How we count it	Questions to guide qualitative assessment
1. Building capacity of stakeholders to create, access, re-use, adapt and redistribute OER	1.1 Stakeholder communities aware of benefits of OER and limitations of copyright	1.1.1 Number and type of capacity building and awareness raising interventions about OER benefits held per year	a. How were capacity building and awareness raising interventions about OER designed and delivered? b. What type/s of learning occurred during the interventions (e.g. procedural skills, declarative knowledge, deeper learning)? c. What capacity building and awareness raising needs did participants have and to what extent were they met? d. What lessons were learned from the interventions, and how can they be applied in future efforts?
		1.1.2 Number of participants in capacity building and awareness raising interventions about OER benefits per year	
	1.2 Capacity building programmes offered at all levels of education, both formal and non-formal, on how to use OER and related digital literacy skills	1.2.1 Number of capacity building programmes offered in the education sector on how to use OER and related digital literacy skills	a. How were capacity building programmes on how to use OER and related digital literacy skills designed and delivered? b. What type/s of learning occurred during the interventions (e.g. procedural skills, declarative knowledge, deeper learning)? c. What capacity building needs did participants have and to what extent were they met? d. What lessons were learned from the programmes, and how can they be applied in future efforts?
		1.2.2 Number of participants in education sector capacity building programmes	
	1.3 Tools for accessing OER enhanced and made easily accessible	1.3.1 Institutional or national OER repository exists	a. What is the purpose and scope of the tool or repository and how does it align with national educational goals? b. What types of OER does the repository contain and how are they sourced, created, curated, organized, and delivered to users? c. How has the repository or tool promoted the access, use and sharing of OER, and what evidence exists to support this? d. What OER repositories/tools are available and did capacity building interventions address the full range of available repository/tool functionalities? e. How were capacity building interventions focussed on OER repositories and tools designed and delivered? f. What measures are in place to ensure the quality and relevance of capacity building interventions? g. What lessons were learned from capacity building interventions, and how can they be applied in future efforts? h. What feedback did participants provide about using the repository and tools and how can this be used to improve future capacity building interventions?
		1.3.2 Number of capacity building interventions focused on OER repositories and tools	
		1.3.3 Number of participants in capacity building interventions focused on OER repositories and tools	

Areas of Action	Outcomes	Indicator – How we count it	Questions to guide qualitative assessment
2. Developing supportive policy	2.1 Policies/ frameworks that ensure that educational resources developed with public funds are available as OER	2.1.1 Rating of the extent to which educational resources developed with public funds are available as OER (Not at all, somewhat, mostly, always)	a. What policies and strategies exist which support the development and use of OER with public funds? b. What processes determine the types of educational resources that are developed with public funds and which resources should be openly licensed? c. If there are OER that are developed with public funds, what types of licensing conditions are used and how accessible are the resources?
	2.2 Policy and legal frameworks developed that promote the use of OER in support of educational outcomes, including incentive measures for stakeholders to implement policies and procurement models that support OER	2.2.1 Rating of the extent to which policy and legal frameworks promoting OER use in support of educational outcomes include incentives for stakeholders to use/re-use OER (Not at all, somewhat, mostly, always) 2.2.2 Rating of the extent to which policy and legal frameworks enable procurement of OER-related products and services (Not at all, somewhat, mostly, always)	a. What policies and legal frameworks that promote OER and/or enable the procurement of OER-related products and services currently exist? b. How are these policy and legal frameworks circulated and implemented across different levels of the education system? c. What stakeholder incentives exist in current policies and legal frameworks to use/re-use OER? d. What additional stakeholder incentives might be added to existing or new policies and legal frameworks? e. How is the implementation of such policies and legal frameworks measured and evaluated? f. How are the relative benefits of procuring OER-related products and services measured against those of copyrighted or commercial alternatives, and how is this information used to inform procurement decisions?

Areas of Action	Outcomes	Indicator – How we count it	Questions to guide qualitative assessment
3. Encouraging effective, inclusive and equitable access to quality OER	3.1 Availability of OER in different languages, and contextualized to the needs of target users to support equity and inclusion of learners at all levels	3.1.1 Rating of the extent to which OER are available in all national languages (Not at all, somewhat, mostly, always)	a. What policies, strategies, and initiatives are in place to promote the availability of contextualized OER for learners at all levels (e.g. supporting all national languages and varied social, economic and cultural contexts)? b. What measures are in place at the institutional or national level to ensure that the needs of learners, teachers, and other stakeholders are accounted for? c. What networks and partnerships exist between government, different communities, educational institutions, and stakeholders in the OER space to support the production and distribution of OER for different linguistic, social, economic, and cultural contexts? d. What impact has the availability of contextualized OER in different social, economic, and cultural contexts had on teaching, learning, and research? What evidence exists to support these claims? e. What criteria are used to evaluate the relevance and accuracy of OER for different contexts?
		3.1.2 Rating of the extent to which OER for use in low/no connectivity contexts are available (Not at all, somewhat, mostly, always)	
		3.1.3 Rating of the extent to which OER have been contextualized for local social, economic and cultural contexts (Not at all, somewhat, mostly, always)	
	3.2 Quality assurance criteria for OER based on guiding principles of learning excellence, equity and inclusion	3.2.1 Rating of the extent to which quality assurance criteria for OER based on principles of learning excellence, equity and inclusion have been developed (Not at all, somewhat, mostly, always)	a. What principles of learning excellence, equity, and inclusion currently inform quality assurance criteria for OER? b. How are OER quality assurance criteria communicated to stakeholders, and what monitoring and evaluation processes occur to determine their effectiveness?
	3.3 Research conducted on implementing the OER Recommendation	3.3.1 Number of studies on OER development, use, and/or impact being planned (e.g., in proposal stages)	a. What areas or topics do planned, current, or completed studies on OER development, use, and/or impact address? b. Who carried out the research and what methodologies were used to ensure that the studies were rigorous? c. What are the anticipated/actual outcomes of the OER studies, and what contribution will they make to advancing the knowledge and understanding of OER development, use, and/or impact? d.What resources and support will be/were provided to researchers involved in the OER studies and were they sufficient? e. What are existing research gaps or limitations that need to be addressed?
		3.3.2 Number of studies on OER development, use, and/or impact currently underway	
		3.3.3 Number of studies on OER development, use, and/or impact completed	

Areas of Action	Outcomes	Indicator – How we count it	Questions to guide qualitative assessment
4. Nurturing the creation of sustainability models for OER	4.1 Awareness raising, creation and catalysing of sustainability models that foresee that cost of accessing educational materials is not shifted to individual educators and students	4.1.1 OER sustainability model(s) have been developed 4.1.2 Number of awareness raising activities about OER sustainability models held in the past year 4.1.3 Number of participants at awareness raising events about OER sustainability models 4.1.4 Rating of the extent to which OER sustainability models and practices are in place (Not at all, somewhat, mostly, always)	a. What features and components of OER sustainability models are currently in place? b. What are the strengths and weaknesses of current OER sustainability models, and how can they be improved or refined to be more effective? c. What resources and support are required to implement OER sustainability models, and how are they being secured? d. What types of awareness raising activities were held in the past year, what were the target audiences' needs, and were their needs addressed? e. What feedback did participants provide on awareness raising activities and how can this be integrated into future such events? f. What were the objectives of awareness raising activities about OER sustainability models and practices held in the past year, and to what extent were they met? g. How effectively do current OER sustainability models align with long-term national goals and priorities?
5. Promoting and reinforcing international cooperation	5.1 Establishment of networks to support OER (communities of practice, intra-/inter-institutional, regional/sectoral)	5.1.1 Number of international cooperation agreements to co-develop and share OER 5.1.2 Number of OER-related networks currently active 5.1.3 Number of OER-related communities of practice currently active	a. What international cooperation agreements, OER-related networks, and communities of practice currently exist, and which countries or stakeholders are involved? b. What is the impact of these agreements, networks, and communities of practice? c. Where do implementation gaps exist, and how can they be addressed?

Conclusion

The OER Recommendation does not explicitly mention the term distance education. Nonetheless, the Recommendation's focus on openness, as well as its clearly articulated commitment to the Education 2030 Framework for Action, which does identify the importance of distance education, underlines the relevance of this global policy development in the distance education space. Distance education policymakers, institutions and practitioners are likely to be influenced by the implementation of this Recommendation at national levels in the coming years. Thus, understanding and reflecting on how implementation of the OER Recommendation might be measured is important to the broader field of distance education. To support this process, this chapter has unpacked how the OER Recommendation might be measured in a manner that both creates shared global indicators and celebrates the uniqueness of local implementation contexts. Distance education policymakers are encouraged to consider their current or planned use of OER using these indicators as a guide.

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Book 1

Conclusion

Folake Ruth Aluko, University of Pretoria and Daniella Coetzee, University of the Free State

In Book 1 of the series *Does Distance Education in the Developing Context Need More Research? Building Practice into Theory* the first three thematic sections were dealt with in thirteen chapters.

These were:

1. History, philosophical and theoretical approaches, and paradigms in distance education
2. Building frameworks in distance education research
3. Praxis in distance education research

The authors have attempted to justify why research into distance education is important and ground the practice on sound philosophical and theoretical foundations. In doing so, they citing some examples of praxis in the field.

In the second book, readers can look forward to exploring other regional trends and gaps, scholarship, and quality assurance in distance education research.

Biographies

Folake Ruth Aluko

Dr Folake Ruth Aluko is a researcher within the Unit for Distance Education at the University of Pretoria. She manages the quality of the institution's distance education (DE) programmes. Ruth facilitates training and workshops and is involved in the evaluation of DE (Open Distance Learning [ODL]) programmes. Ruth is a co-editor of the books Assuring Institutional Quality in Open Distance Learning in the Developing Contexts and Exploring Dual and Mixed Mode Provision of Distance Education. She is the Chief Editor of the *Teacher Education through Flexible Learning* (in Africa and other Developing contexts) open journal, and she has served two terms as President of the National Association of Distance Education in Southern Africa (NADEOSA). Ruth is also the Treasurer of the Distance Education Association of Southern Africa (DEASA). Her research focus areas include quality management of ODL programmes, mobile learning, access, social justice, programme evaluation, student support, and teacher professional development. Ruth is a National Research Foundation (NRF) rated researcher, a peer review system that assesses the standing of South African researchers.

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Mohini Baijnath is an educational researcher and project manager. Through her work with Neil Butcher and Associates and OER Africa, she has engaged with an array of stakeholders to conduct research and evaluation, and design instructional materials. Mohini's work has spanned several stages of education including schooling, technical and vocational education and training, higher education, and workforce training. Her research interests, in which she has also published, include open educational resources, educational technology, artificial intelligence, and education policy. Mohini obtained her Master's degree in Sociology, and her Honours in Social Anthropology, both from the University of Cape Town (UCT).

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Geesje van den Berg is a full Professor in the Department of Curriculum and Instructional Studies at the University of South Africa (UNISA) and a Commonwealth of Learning Chair in open distance learning (ODL) for teacher education. Her research focuses on student interaction, academic capacity building, openness in education, and teachers' use of technology in ODL. She has published widely as a sole author and co-author with colleagues and students in ODL and curriculum studies. She leads a collaborative academic capacity-building project for UNISA academics in ODL between Carl von Ossietzky University of Oldenburg in Germany and UNISA. She is the programme manager of the structured Master's in Education (ODL) programme and teaches two modules. Numerous master's and doctoral students have completed their studies under her supervision.

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Jean Henry Blignaut, PhD in Curriculum Studies, is a senior lecturer in Curriculum Studies and an active member of the research entity Self-Directed Learning (SDL) in the Faculty of Education at North-West University (NWU). He has spent the last decade researching and teaching at various academic institutions, including public and private institutions. His previous roles include Head of Department for Business and Humanities faculties, Information Technology Programme Manager, academic advisor, and curriculum designer. In the academic field of Curriculum Studies, he lectures students at both the undergraduate and postgraduate levels in contact and distance modes of delivery. In addition, he is the programme leader for the Bachelor of Education Honours within the School of Professional Studies in Education of the Faculty of Education at NWU. He has collaborated in writing nine conference papers thus far, all presented at various national and international conferences. His research concentrates on various aspects of education, specifically SDL. He has authored ten published academic journal papers/ book chapters since he was appointed at the NWU. He also regularly reviews academic journal articles and book chapters submitted for publication. In addition, he serves as a supervisor to postgraduate masters and PhD students.

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Neil is passionate about helping governments, development partners, and educational institutions to reform education systems to enable people and societies to achieve their full human potential. Having worked in education in developing countries across the globe for over 30 years, Neil recognizes that there are no simple formulae for educational reform; each context is unique, as are the people who inhabit it. Thus, providing service to initiatives focused on education reform requires the willingness to listen and understand what is most important, combined with a patient conviction that transformation, no matter how difficult it may seem, is possible. Neil is based in South Africa and has travelled extensively through the developing world conducting research on educational policy, higher education, TVET, distance education, education management information systems (EMIS), and educational technology for a range of organisations, governments, and donors. He works with OER Africa as the project's OER Strategist and is also currently consulting to the World Bank on a range of project activities across Africa, Asia, and Eastern Europe.

Daniella Coetzee

Prof. Daniella Coetzee is currently retired and a research associate at the Free State University in South Africa. She was formerly the Head of the Department of Philosophy and Policy Studies, the Dean of the School of Open Learning, and the Principal of the Free State University's campus of open learning until 2020. She was the President of the National Association of Distance Education and Open Learning in South Africa (NADEOSA) from 2018 to 2019 and formerly President of the Education Association of South Africa (EASA). Her publications focus on policy studies in education, ideology critique, and open distance learning. She supervised more than fifty MEd and PhD students in Philosophy of Education and is currently conducting research in Higher Education in South Africa.

Jennifer Glennie

Ms Glennie is the founding director of Saide, a not-for-profit organisation committed to enabling successful open learning for all. She has overseen a variety of interventions giving practical expression to open learning principles, particularly through the application of appropriate educational technology, open education resources (OER), and distance education strategies. Current examples are Saide's OER Africa (www.oerafrica.org), working with universities to create and use OER, and African Storybook (www.africanstorybook.org)—facilitating the development of a plentiful supply of accessible storybooks in local languages and reflecting local contexts to promote the love of reading. The application of appropriate quality criteria for distance education has been a focus throughout the years, as has been the collaborative development of open courseware. She was a founding member of South Africa's Council on Higher Education and Higher Education Quality Committee, serving for twelve years. She served as South Africa's representative on the Commonwealth of Learning (CoL) Governing Body for two terms. She was the founding President of the National Association for Distance and Open Education in South Africa. She served on the Unisa Council for many years, chaired the five-person Interim Council to establish Sol Plaatje University, serving on its Council for two terms as Deputy Chair. She has received honorary awards from both CoL and the University of Pretoria.

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Dr. Mario Landman, an experienced academic management professional with over fifteen years in private higher education, humbly endeavours to foster positive change and growth. His career exemplifies a lifelong commitment to learning and skill diversification.

In various domains, Mario has demonstrated his strengths. He takes pride in envisioning innovative educational programmes that align with evolving student needs and industry demands. E-education technologies are a focus of his, ensuring that students have access to cutting-edge online resources. His dedication to faculty development empowers educators with the latest pedagogical methods.

Efficient operational management is another aspect of Mario's expertise, optimising resources and institutional efficiency. He remains dedicated to upholding rigorous academic quality standards and ensuring the best education for students. Mario humbly navigates the complex world of

educational regulations, maintaining compliance with grace.

A holistic approach to comprehensive student support services underscores his philosophy, providing an enriching educational experience. Marios career exemplifies his dedication to nurturing academic excellence and inspiring growth. As a lifelong learner and visionary, he continues to serve as a guide in the field of academic management, setting an example, and encouraging others to reach greater heights in their pursuit of academic excellence.

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Dr Tony Lelliott is a programme specialist (in the area of teacher education) with Saide, an NGO based in Johannesburg, South Africa. At Saide he is co-leader of the OER Africa continuous professional development (CPD) project and has been involved in a number of research projects. He produced a landscape review for the Teacher Professional Development@Scale coalition for the Global South and managed the production of a book titled *Learning about Sustainable Change in Education in South Africa* which researched a schooling intervention in KwaZulu Natal. He has also participated in materials development projects for the Department of Higher Education and Training in South Africa. Prior to joining Saide, Tony worked at the University of the Witwatersrand where was in several leadership roles over the years including as Director and Dean. Tony is the author of 25 publications in refereed journals and books, as well as 47 local and international conference papers. He has supervised ten doctoral and thirteen master graduates to completion.

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Professor Cosmas Maphosa is a full Professor of Education Management and holds a Doctor of Education degree in Education Management. He is currently pursuing a PhD in Open and Distance Learning with the University of South Africa. He has worked in the higher education sector since 2003 as a lecturer, researcher, senior academic development practitioner, senior lecturer, associate professor, and full professor. He is currently Professor and Director in the Institute of Distance of Education in the University of Eswatini. He has published one book, six book chapters, and one hundred and thirty-five journal articles in accredited scientific journals to date. Cosmas has, to date, successfully supervised fifteen full-thesis PhD candidates. His research interests are in education management, curriculum development, as well as open and distance e-learning.

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Tony Mays is the current education specialist for open schooling at the Commonwealth of Learning in Vancouver, Canada, and also the managing Associate Editor of the Journal of Learning for Development. He completed his undergraduate studies in the United Kingdom and then started his career as a secondary school teacher in Malawi through a posting organised by the British charity Voluntary Service Overseas, in a school which supported both traditional full-time day scholars as well as non-traditional learners registered with the Malawi College of Distance Education. His interest in teaching and learning through both contact and distance education methods, as well as combinations thereof, continued throughout his subsequent career which increasingly focused on teacher development through distance education and then also on distance education, working with Promat Colleges, Saide, the University of Pretoria, and the University of South Africa. He is a former President of the National Association of Distance Education and Open Learning in South Africa (NADEOSA), former Honorary Treasurer of the Distance Education Association of Southern Africa (DEASA), and former chair of the biennial Distance Education and Teachers Training in Africa (DETA) conference. Tony holds a DEd in Curriculum Studies from the University of South Africa.

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Dr. Irénée Ndayambaje holds a PhD in Educational Planning. He is a Senior Lecturer at the University of Rwanda, College of Education. He has taught in different higher learning institutions, published several papers in peer-reviewed journals, and co-authored books and book chapters. He also served as the Director General of the Rwanda Education Board under the Ministry of Education of Rwanda. He has successfully served as a consultant of regional and international agencies such as the International Labor Organisation (ILO), Commonwealth of Learning (COL), Education Development Trust (EDT), African Institute for Development and Policy (AFIDEP), UNICEF, USAID, UNESCO, FHI 360, World Vision, and Save the Children. Dr Irénée fluently speaks English, French, and Kinyarwanda.

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Charlene du Toit-Brits

Charlene du Toit-Brits (PhD) is a Professor and an NRF-rated researcher (C2 rating) in Curriculum Studies at the North-West University. She has actively trained NWU Faculty of Education teachers in distance education and full-time education programmes. She has specifically been involved in designing different academic programmes for in-service training of school principals, teachers, and education students in various subject specialities: Curriculum Studies, Comparative Education, and Research Methodology. Her research focuses on various elements of self-directed learning (SDL) within teacher education and fosters SDL among teachers and school learners. Her research aims to inform the 21st-century workplace and learning environment to enhance lifelong SDL and to inform scholarship on SDL within the unique South African landscape. Charlene has published several articles in various national and international journals and academic books and has supervised several master's and PhD students.

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Merridy is a senior researcher and project manager at Neil Butcher and Associates (NBA) with twenty years of experience doing social and educational research in both traditional academic and applied environments. Merridy has worked at all levels of the education sector in South Africa and other developing country contexts, including schooling, technical and vocational education and training, community colleges, universities, and skills development. She is well versed in qualitative and quantitative research methods, monitoring and evaluation, institutional research, participatory, and action research. She has published widely in national and international journals, has published two scholarly books, and was an Associate Editor (Education and Social Sciences) for the South African Journal of Science from 2015–2017. Merridy has a PhD in Higher Education Studies from the University of the Free State and an MPhil in Development Studies from Oxford University, which she attended as a Rhodes Scholar. Amongst other clients, she is currently working with Arizona State University (ASU) as evaluation partner for the Baobab Social Learning Platform and with VVOB as learning partner in a project focused on professional development on learning through play in the Early Childhood Education sector.

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VOLUME ONE

Does Distance Education in the Developing Context Need More Research? Building Practice into Theory

Edited by Folake Ruth Aluko and Daniella Coetzee

This book focuses on distance education research, a dire need in the field, especially in Africa and other developing contexts. Distance education in this book has been used as an umbrella term for any form of education in which there is separation between the teacher and the learner, which necessitates the use of media. The authors from a range of African countries and international experts who have had a stint of their career in the developing contexts, borrowing from their wealth of experience, discuss research trends in distance education in their milieu, identifying the gaps and how this mode of delivery can be strengthened. By so doing, their passion for quality which has been a major area of concern in the field was brought to the fore. They have reiterated the fact that it is possible to enhance quality in this mode of delivery by not only conducting research but also applying its findings to theory, practice, and policy.

The content of the book has not been published elsewhere; it is the original work of the authors.

This book will be of great value primarily to academics, researchers, and specialists in the field of distance education, especially considering the fact that the mode is no longer regarded as a second-best option.

NON-FICTION
ISBN 9780796117823
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