E-portfolio as an alternative assessment approach enhancing self-directed learning in an Open Distance Learning environment

by

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DECLARATION

I declare that **E-portfolio as an alternative assessment approach enhancing self-directed learning in an Open Distance Learning environment** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

_____   Date: 30 November 2018

DECLARATION BY SUPERVISOR

I, Prof MM van Wyk declare that the thesis has been submitted to originality checking software.

Signature of supervisor: …………………………..   Date:

DEDICATION

This thesis is dedicated to my parents, Mrs Margaret and the late Mr Alfred Bilankulu. God could not have given me a better gift in you. You taught me how to persevere, work hard and you believed in me even when I doubted my strengths.

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ABSTRACT

Assessment is an integral part of teaching and learning in higher education. The use of technology in higher education, particularly in the ODL environment, has brought some changes on how we teach and assess students. The traditional assessment practices needed to be reviewed and reconfigured to meet the requirements of the 21st century assessment practices. The purpose of this doctoral study was to design a framework to guide the assessment of an E-portfolio as an alternative assessment approach in an ODL context. The integrated theoretical framework of the learning theories (behaviourism, cognitive and constructivist) and the ODL theories (connectivist, online collaborative and self-directed) underpinned the study. This integrated framework explored lecturer and student experiences in the use of E-portfolio, as an alternative assessment to enhance self-directed learning. In striving to get in-depth insight into this study, the pragmatism paradigm, which calls for the mixed methods research design, was employed for the collection and analysis of data. The sample was drawn from a cohort of six participants and fifty-six respondents in the three colleges of the university. This sequential exploratory mixed methods design employed semi-structured interviews, document analysis for qualitative data collection while a Likert scale of an online questionnaire was used to collect quantitative data. The findings of this research indicated that the E-portfolio can be of greater use as an alternative assessment approach and was able to empower students with higher order thinking skills, critical thinking skills and self-directed learning equipping them with the 21st century skills. Several challenges were experienced during the implementation of the E-portfolio, which included lack of digital literacies and technical assistance, non-synchronisation of the learning management system for hosting E-portfolio (myUnisa), UNISA's policies which do not include E-portfolio assessment processes and procedures. In conclusion, the literature study, the findings of the empirical research and the recommendation of this study formed the basis for designing the framework to guide the assessment of an E-portfolio as an alternative assessment strategy for an ODL context.

Keywords: alternative assessment, E-portfolio, self-directed learning, critical thinking skills and higher order thinking skills, e-learning and online assessment

LIST OF ACRONYMS

AaL	assessment as learning
AfL	assessment for learning
ALA	American Library Association
AoL	summative assessment of learning
CEDU	College of Education
CMS	Content Management Systems
CPD	Continuing Professional Development
CTS	Critical Thinking Skills
DSSA	UNISA Directorate Student Support and Administration
DVD	Digital Video Disc
eCDF	E-learning Collaborative Development Fund
E-portfolio	electronic portfolio
HOTS	Higher Order Thinking
ICT	Information and Communication Technology
IP	Internet Protocol
LMS	Learning Management System
MCQ	Multiple Choice Question
MCQs	Multiple Choice Questions
MOOCs,	Massive Open Online Courses
OCL	Collaborative Learning Theory
ODeL	Open Distance e-Learning
ODL	Open Distance Learning
PDP	Personal Development Planning
PoE	Portfolio of Evidence
PQM	Programme Qualification Mix
RPSC	Research Permission Sub-Committee
SDL	Self-Directed Learning
SDLS	Self-Directed Learning Skills
SPSS	Statistical Package for Social Sciences
SRIPCC	Senate Research Innovation, Postgraduate Degrees and Commercialisation Committee
TVET	Technical Vocational Education and Training
UNISA	The University of South Africa

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CHAPTER 1
ORIENTATION AND BACKGROUND TO THE STUDY

1.1   INTRODUCTION

The assessment of students in higher education plays a major role in teaching and learning. Lopes (2015) point out that "Assessment tends to shape every part of the student learning experience". We live in an era during which the growth of information and communication technology (ICT) has impacted on how students learn and are taught and assessed. The use of Information and Communications Technology (ICT) has transformed the education world; hence, education is no longer limited to certain places and time due to the full utilisation of technology. Moreover, digital learning through distance learning, as a new medium of learning enhanced by alternative assessments and e-assessment, is considered an essential part of learning (Kereluik, Mishra, Fahnoe & Terry, 2013). For decades, assessment relied on traditional assessment while promoting rote learning and the memorisation of facts thus focusing on the lower levels of Bloom's Taxonomy.

Traditional methods of assessing students using venue-based assessment, such as examinations, have been employed over the years to ensure that learning outcomes are met and to provide information about student progress. However, these assessment tools and methods, mainly based on the behaviourist approach (Yastibas & Yastibas, 2015), are no longer considered effective and efficient as assessing students via one or two methods that focus mainly on knowledge testing and which neglect assessing skills and competencies, does not reveal the holistic learning that takes place. In addition, assessment lay in the hands of the teacher, educators and academics whose purpose was to grade students and certify their knowledge, or the lack thereof (Boud & Falchikov, 2006; McGarr & Clifford, 2013).

However, with changes experienced in education, educators and students are now expected to use assessment as an integral part of the learning process, during which student knowledge, skills and competencies are developed (Kean, 2012; McGarr & Clifford, 2013). This means that the introduction of an alternative approach to assessment in higher education, mainly ODL, provides a holistic, authentic

assessment that is performance based (Conrad & Openo, 2018). Thus, assessment recognises where students are in their learning, communicates strengths, highlights areas for development and identifies the steps required to improve further learning. In recent years, there has been an increasing interest in the 21st century skills that students need to acquire and develop in order to compete globally; namely, career skills, digital and information literacy skills and learning skills (that include creativity, critical thinking, collaboration, communication and problem solving) (Chaudhary & Dey, 2017).

A constructivist approach, which focuses on student-centred activities and defines education, as learning by doing, is the basis of modern education methods and techniques, such as a problem-solving method or a project-based method (Yastibas & Yastibas, 2015). Abbaszad Tehrani (2010) posits that the main focus is on learning by doing, and assessing this process requires different assessment methods and tools that factor in student involvement, understanding, personal differences and individual performance when evaluating student performance. Furthermore, involvement of the student learning process requires each to be goal-oriented, self-determined and in control of their learning. Therefore, self-directed learning is encouraged (Fisher & King, 2010; Garrison, 1997; Grow, 1991). Emanating from this background, Chapter 1 discusses assessment in higher education, focusing on understanding that assessment tasks that are authentic as well as intellectually challenging are essential for assessing students in the 21st century.

1.2   ASSESSMENT IN HIGHER EDUCATION

Assessment is the primary force that shapes what and how our students learn. It is, furthermore, the means by which we, as academics evaluate student achievements and it ultimately, forms the basis on which a qualification is awarded. Van Laar, van Deursen, and van Dijk (2017) note that the world is changing rapidly and is becoming a 21st century digital era. Therefore, students have to be equipped with the necessary knowledge and skills. Within the South African education system, the new dispensation forced higher education to revisit the way in which students are taught and assessed. In addition, there was a paradigm shift within teaching and learning approaches moving from teacher-centred to student-centred approaches that are

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embedded in the constructivist perspective. The constructivist approach requires students to be actively involved in their learning, and this implies that assessment practices have to be set to match the student-centred approaches of the 21st digital learning century. Alternative assessment practices in higher education illustrate the importance of assessment practices that promote the constructivist perspective and have gone further to adopt the connectivism approach to learning. The connectivist approach influences the collaboration of learning using network connectivity and the use of technology to facilitate teaching and learning online, unlike traditional assessment that focuses on rote learning and the memorisation of facts.

Assessment is seen as "the systematic collection of information about student learning, using the time, knowledge, expertise, and resources available in order to inform decisions that affect student learning" (Walvoord, 2010:2).Walvoord, (2010):describes three crucial steps in assessment: goals, information, and action. This means that educators and lecturers no longer determine and take full control of the content taught, objectives, assessment practices and pacing of the learning in their subjects, modules or courses. Students have to become actively involved in their learning and must set goals that will help them succeed. In this light, assessment cannot rely on one or two methods of traditional assessment because the ways of gaining knew knowledge have changed, signalling the need for the introduction of alternative assessment methods and tools. Traditional assessment focuses on knowledge testing rather than the application and the practicality of a real-life situation that would benefit the students in their professional careers. In traditional practice, assessment often remains narrowly focused on qualifications and reporting achievements, driven by institutional and societal aspirations and tensions such as accountability and economic well-being. In contrast, alternative assessment incorporates higher order thinking like creative thinking, problem solving, research skills and digital literacy that is essential to equip students for a changing world and student learning in the 21st century and is thus considered authentic assessment (Lopes, 2015).

Williams (2011) emphasises that there are various ways of assessing students alternatively, which opens the door to a range of assessment techniques that can be used by lecturers. Libman (2010) explains that alternative assessment is performance

based and allows students to create their own learning; as a result, students become active participants by learning through real-life situations. Furthermore, Bulus and Kirikkaya (2011) contend that alternative assessments, resulting from an educational reform, are goal-oriented. Biggs and Tang (2011) argue that the choice of assessment is critical, as the assessment tasks should be aligned to the learning outcomes to produce a constructive learning practice.

Education sectors need to prepare students with 21st skills such as digital literacy, creative thinking, effective communication and high productive skills (Knight, 2008) in addition to collaborative problem solving, complex problem solving, creativity and digital information literacy, which incorporate applying and integrating information and communication technologies in education. These 21st century skills will help create students who are balanced, resilient, inquisitive, principled, informed, caring, patriotic, as well as effective thinkers, communicators, and team players (Nairm & Hussin, 2016).

As a result, this has prompted higher education institutions to introduce e-learning and e-assessment to prepare and equip students with skills that are required in the 21st century. The changes brought about by use information and communication technology (ICT) has compelled the education sector to review their teaching, learning and assessment practices. Particularly considering online assessment, where technology plays an integral role in conducting the assessment. In addition, society has moved into the so-called fourth revolution as pointed out by Warschauer and Matuchniak, (2010:179) which emphasises the use of technologies and as such, this has had an impact on higher education.

The fourth revolution that we are currently experiencing means living within a network society. People are increasingly creating and defining their own network environments through the use of emerging and evolving technologies. Even though the fourth revolution has had an influence on society for a number of years, it seems as if the potential impact that a network society and technologies "could have on higher education is not yet fully understood or researched" (Greenhow, Robelia & Hughes, 2009; 209). Not all people form part of the information-based, network society, but most are affected by these revolutionary events (Castells, 2009). Olivier (2015:1)

argues that the primary "challenge for higher education in Africa is to provide effective education for a society that is fragmented on all levels such as access to and costs of technology, basic education standards," skills and financial resources to name but a few, but also the aspiration to become an information-based economy with effective use of technology by everyone could be taken for granted. I concur with Olivier (2015) that with the challenges hampering the use of the technologies, students in the ODL environment need to be taught through e-learning and e-assessment to develop their digital literacy skills. It is also essential to note that students in this era are millennials or the Net Generation; they are technologically savvy and are avid users of a variety of digital platforms. This generation, connected through social media twenty-four hours a day and seven days a week carry "mobile devices everywhere. They are the first 'millennial' generation who do not have to adapt to new technologies of the digital era like the use of the internet, mobile technology, and social media" (Brigham, 2015:78). South African millennials prefer or find it convenient to study through ODL for personal reasons as well as occupational ones. ODL in South Africa is also attracting older students who are not technologically savvy as well as some who are challenged with network connectivity and cannot easily connect to the internet as they are based in remote areas. These adult students find it difficult to use digital resources and often need the support and assistance of their peers and other stakeholders to develop literacy. Digital literacy, defined as the ability to use information and communication technologies to find, understand, evaluate, create and communicate digital information, is an ability that requires both developing cognitive and technical skills (Pangrazio, 2016) to bridge the gap in the learning process.

As a result, higher education institutions are faced with millennials and technology strangers. However, Kkulska-Hulme, Norris and Donohue (2015:7) and Alvarado, Coelho & Dougherty (2016) content that higher education institutions, particularly ODL need to make use of the advantage of being able to connect with students, collaborate with them wherever they are in the world to make their learning more meaningful and relevant. On the other hand, institutions also need to take cognisance of those who are not technologically savvy. In addition, widespread usage of smartphones and mobile devices is a strong contributor of the millennials' ease with using technology everywhere and at any time, with it become part and parcel of their daily routine particularly as they tend to master the skills of exploring and using apps on their

devices. Consequently, the best and practical way to facilitate teaching and learning is through their devices but ensuring that all students develop and master digital literacy and technology literacy (Greenstein, 2012). It is thus clear that digital and information literacy in an ODL environment as postulated by Khairil and Mokshein (2018:662) "is one of the fundamental aspects that students really need to master" particularly as e-learning can be extrinsically motivating, as well as promoting cooperation and collaborative work (Alvarado, Coelho & Dougherty 2016).

Mayrath, Carke-Midura, Robinson, and Schraw (2012) note that, "As computers become more universal, familiarity with technology should not be an issue"; however they do warn that "or instructional design, specifically usability and accessibility, can overload a user's cognitive resources and impede performance." Taking heed of this warning, higher education institutions should seize the opportunity to focus on the use of technology to benefit the practice of assessment.

In addition, the use of alternative assessment, Joint Information Systems Committee (2011) advocates that education institutions should make use of technology-enhanced assessment approaches in order for them to expand student learning. Furthermore, assessment practices need to ensure that the technology tools used in learning support the purpose of the task, taking into account students diverse needs and contexts in which the assessment or feedback takes place. Technology, in this case, is not used to assess student's technical or IT skills, nor should it exclude some students or make the task unreliable, and finally it should not require students to engage with technology and media with which they are unfamiliar. With researchers such as Astin (2012) arguing for changes in assessment which are necessary to improve student learning, greater diversity in assessment methods, tools and techniques is called for. However, this results in changes to the funding of universities, debates on the role of higher education, increased student fees, and a greater focus on student expectations regarding employability.

A number of authors (Lee & McLoughlin, 2010, Garrison & Vaughan 2008; Biggs 2003) who offer a variety of ways in which assessment in higher education is conducted has discussed alternative assessment practices. However, a small-scale study has been documented about lecturer perceptions of assessment. Fletcher, Meyer and

Anderson's (2012:119) study, which analysed the differences between lecturers and students with regard to assessment, showed that lecturers are inclined "to view assessment as a trustworthy process aiding teaching and learning". Brew, Riley and Walta (2009) on the other hand, found that lecturers used peer assessment mainly for formative purposes. Other studies, such as McLaughlin and Simpson (2004) and Stefani (1994) have noted that many lecturers feel uncomfortable with participative strategies such as peer assessment because of concerns such as the reliability of the grades provided, and fairness or power struggles.

1.3 BRIEF CONTEXT OF THE UNIVERSITY OF SOUTH AFRICA (UNISA) AS AN OPEN DISTANCE LEARNING (ODL) UNIVERSITY

In the next section, a historical overview of UNISA is given (1.3.1), then the strategic plan developed in 2016 to facilitate a move from and an ODL to an ODeL institution is described (1.3.2), and finally, the university's context of assessment practices is detailed in 1.3.3.

1.3.1 Historical Overview of the University of South Africa (1873-2005)

The current university was established in Cape Town in 1873 as the University of the Cape of Good Hope and its name was officially changed to the University of South Africa in 1916. UNISA, as a distance college, relocated to Pretoria in 1918. In 1946, the institution became the first public university in the world to teach exclusively by means of distance education. UNISA pioneered tertiary distance education, a move which indicated the beginning of the University as it is known today. Given our rootedness in South Africa and the African continent, UNISA has played a very important role in offering access to high quality tertiary education to previously disadvantaged groups.

1.3.2 Strategic Plan 2016 - 2030: from an ODL towards an ODeL University

The University of South Africa (UNISA) has been an African university shaping futures in the service of humanity for 145 years. On 4 July 2018, UNISA celebrated its 145 years of lighting the way through services of humanity. In the same vein, it celebrated

the centenary of the birth of its famous alumnus, Rolihlahla Nelson Mandela. During the 145 years of celebration, the chancellor, Dr T.M. Mbeki (4 July 2018) pointed out that, *It is in the context of the imagined future that all of us will work to live up to the vision of reconstructing UNISA as practically the African University. I am honoured to salute all those, staff, students, management and workers of UNISA who will be the architects of this outcome* (p3). Figure 1.1 below illustrates the historical timeline of the university to 2018.
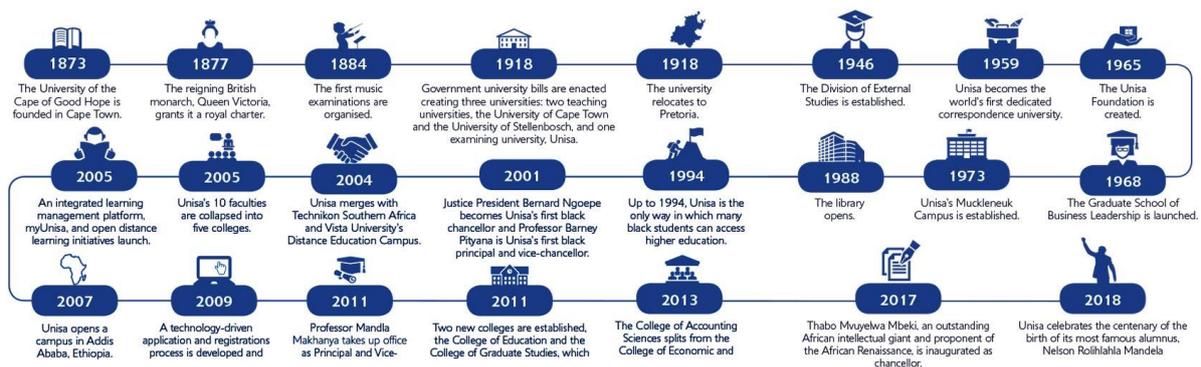
Figure 1.1: UNISA's historical timeline of over 145 years

Changes within the business model in 2005 saw the launch of an open distance learning (ODL) initiative with the ten faculties collapsing into five colleges. In 2013, two new colleges were established namely: the College of Education (CEDU) and the College of Graduate studies (UNISA, 2013, followed by the split of College of Accounting Sciences from the College of Economic and Management Sciences to become the eighth college (*cf.* Figure 1.1*).* As stated in the Open Distance Learning policy (2008:1), …ODL is a *multi-dimensional concept aimed at bridging the time, geographical, economic, social, and educational and communication distance between student and institution, student and academics, student and courseware and student and peers. Open distance learning focuses on removing barriers to access learning, flexibility of learning provision, student-centeredness, supporting students and constructing learning programmes with the expectation that students can succeed.* As an ODL university, UNISA embraced the fact that it needed to quickly adapt to the fast-paced higher education environment of the 21st century. In this light, UNISA has reflected and reviewed its teaching, learning and assessment practices. In its current form, the university is harnessing the new and emerging potential in information and communication technology to project the university as an ODL role

player in the digital space. To achieve the vision as an ODL university in Africa and globally, the university should position itself strategically. Therefore, UNISA has been developing a *UNISA Strategic Plan 2016-2030,* that documents amongst others, technological advances with implications for an Open Distance e-Learning (ODeL) institution relevant in the 21st century, thus aligning the university with the new era of technology use in its teaching and learning.

1.3.3   UNISA'S Context of Assessment Practices

UNISA uses a blended learning approach to facilitate the teaching and learning process with regard to its student population in Africa (UNISA, 2013a). UNISA, like other higher education institutions, has and still uses traditional assessment. However, the rapid and dynamic changes in the world of information and communication technology (ICT) have since 2015 forced UNISA to review and reconfigure assessment practices. The implementation of e-learning to improve teaching and learning also required transformation of assessment practices and where alternative assessment practices were adopted (UNISA, 2014). The move towards e-learning involves the move from teaching and learning practices that include print-driven, manual systems, an overburdened programme qualification mix (PQM), complicated infrastructure, provider-centred academic architecture, to taking optimal advantage of ICTs and educational technology. Given the global trend towards e-learning, assessment has also been transformed to online assessment. One of the key institutional imperatives at UNISA when starting to pilot the alternative assessment practices process was to understand how these alternative assessment practices could be implemented so that it could move to online assessment in the future, if properly implemented.

It has been almost three years since the inception of the use of alternative assessment, and lecturers and students have different experiences and views regarding the use of E-portfolios as one of the tools and methods used for assessment purposes. The key reason for an explicit focus on improving assessment practices has had a considerable impact on the quality of learning (Boud, 2015). The university has an online platform (Learning Management System (LMS) called myUnisa that makes online access possible for registered students. In this regard, students are able to access study

material through MyUnisa, couriers and other postal services. For online teaching and learning, the MyUnisa platform also makes provision for communication with students via discussion forums and announcements. In this regard, with the online platform in place, the university is striving to improve the quality of assessment, and as such, the management at UNISA took the decision to explore alternative assessment methods and to do away gradually with traditional venue-based assessment replacing it with alternative assessment methods.

The UNISA Senate approved the alternative assessment project at its June 2014 meeting (UNISA Senate Report, 2014). The necessary steps for approval were followed and task teams were formed with academics and representatives from various support departments. The University of South Africa (UNISA) rolled out the alternative assessment project in 2015 by inviting colleges to nominate a number of modules to participate in the alternative assessment pilot project. The colleges responded to the call and several modules (undergraduate and postgraduate) were chosen to implement the alternative assessment. The types of alternative assessment identified for the project were: take-home assessments (including timed assessments and MCQs), portfolios (online and E-portfolios), webinars, peer review assessment and continuous assessment (UNISA Senate report, 2014). There are various types of other alternative assessments, but this study focused on the alternative assessment approaches recommended and approved by the UNISA Senate. The lecturers in various colleges chose their alternative assessment tools from the tools approved by the senate. With the introduction of alternative assessment at UNISA, the decision to implement new approaches in selected modules while maintaining traditional assessment methods in other modules, led to challenges for lecturers in its pilot phase. This research study explored lecturer and student experiences using an E-portfolio for alternative assessment.

For the purpose of exploring alternative assessment, the following policies namely: UNISA Assessment policy was used for basis of the study and the Tuition and Curriculum policy to design the E-portfolio assessment framework (*cf.* Chapter 3, 8). The research study designed steps for a scoping review (*cf.* Section 4.2), which provided relevant scholarly publications on how lecturers and students experience the

implementation of alternative assessment, using E-portfolios, in particular, as a technology-enhanced assessment tool in addition to student views regarding E-portfolios as alternative assessment methods in self-directed learning. This research utilised the best practices that guided the development and use of E-portfolios as alternative assessment for future use. This research study intended to empower teachers, academics and assessors with the development of other types of assessment that will be beneficial for the institutions and contribute to the growing body of knowledge. The particular environment for this study is colleges, schools and departments in the institution using an alternative assessment approach, particularly E-portfolio alternative assessment approach in ODL environment.

1.4   PROBLEM STATEMENT

In the context of UNISA, an alternative assessment approach was introduced in 2013. Since the introduction, challenges have emerged regarding both the implementation and assessment of student work. This has compelled lecturers, whose modules formed part of the alternative assessment project, Review *and Reconfiguration of the Unisa Assessment System and Practices* (2013-2015) to redesign appropriate and applicable alternative assessment tasks that are relevant to 21st century digital teaching, learning and assessment. UNISA's Senate and Assessment team has identified several alternative assessment tools for academics to consider namely: take-home assessments (including timed assessments and multiple choice questions (MCQs), portfolios (online and E-portfolios), webinars, peer review assessment and continuous assessment (UNISA Senate Report, 2014).

The seven colleges were given the prerogative to choose the type of alternative assessment approach relevant and suitable for their modules. The College of Education (CEDU), in which this researcher is based, decided on online and E-portfolios as alternative assessment tools, amongst others, while other colleges chose from various alternative assessment practices as approved by the senate. A task team was mandated by Senate to report on the status of alternative assessment at the University and reported that academics need continuous training and development, as well as support in order to use innovative alternative assessment approaches (UNISA Senate Report, 2014). Several challenges were highlighted by lecturers pertaining to

assessment of E-portfolios, such as lack of technical skills related to alternative assessment use, in particular Mahara as a learning management system (LMS) hosting the E-portfolio. Furthermore, lecturers and students raised concerns regarding myUnisa network connectivity, digital literacy skills and online support. It emerged from the Senate report that some lecturers and students were resisting the move from traditional assessment to alternative assessment practices as per requirement in the modules for an online context. This resistance by students impacted on some lecturers and as a result, they reverted to traditional assessment practices.

It has been established that the use of alternative assessment has revealed a number of challenges for both lecturers and students who embarked on using E-portfolio tool. These lecturers experienced challenges pertaining to assessing evidence and providing feedback on formative and summative assessment tasks. Emanating from these challenges, the researcher was prompted to investigate lecturer and student experiences in using E-portfolios as an alternative assessment strategy in an ODL university.

1.5 THE MAIN RESEARCH QUESTION

This research study seeks to answer the following main research question:

How can a framework be designed to guide lecturers on how to assess the E-portfolio as an alternative assessment tool in an ODL context?

In order to answer the research question, the following sub-questions were derived from the main research question:

- How do lecturers experience the use of the E-portfolio as an alternative assessment strategy in an ODL context?
- How do students experience the use of the E-portfolio as an alternative assessment strategy towards self-directed learning?
- How does the E-portfolio, as an alternative assessment approach, support student learning in an ODL environment?

- How does the E-portfolio equip students with higher order thinking (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLS) in an ODL environment?

This study developed a hypothesis for the three dimensions: higher order thinking skills (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLS) and computed mean scores and statistical significance between male and female students.

Ho: There is no statistical significance difference between male students and female students responses regarding HOTS, CTS and SDLS on E-portfolios as alternative assessment.

H_1 : There is a statistically significant difference between males and females students responses regarding HOTS, CTS and SDLS on E-portfolios.

1.6 AIMS AND OBJECTIVES OF THIS STUDY

This doctoral study aimed at **designing a framework to guide the assessment of an E-portfolio as an alternative assessment strategy for an ODL context**.

The following are the objectives of this study:

- To explore lecturer experiences in using the E-portfolio as an alternative assessment strategy in an ODL context.
- To determine student experiences in using the E-portfolio as an alternative assessment strategy towards self-directed learning.
- To determine the extent to which the E-portfolio equips students with higher order thinking (HOTS), critical thinking skills and self-directed learning skills (SDLS) in an ODL environment
- To establish how the E-portfolio, as an alternative assessment strategy, supports student learning in an ODL environment.

1.7   SIGNIFICANCE OF THE STUDY

Significance provides the rationale for the importance of the study for the selected audience (Creswell, 2012:113). For this reason, it is necessary to provide reasons why the study was valuable.

1.7.1   At the Practice Level

At the theoretical level, this study wished to extend the existing research on the use of E-portfolios as an alternative assessment strategy that focuses primarily on enhancing students' self-directed learning (SDL) in an open distance learning environment. The study intended to demonstrate that the use of E-portfolios not only makes it possible for effective teaching, learning and diverse assessment practices, but it enables the use of a broader range of skills (mainly HOTS and SDLS) far better than traditional assessment practices.. Aligned to the latter, this study is foregrounded in the learning and ODL theories as an integrated theoretical frame (*cf*. Chapter 2, Figure 2.1). This study has the potential to answer some important questions regarding alternative assessment, particularly E-portfolio use in an open distance and learning towards student self-directed learning. Moreover, by determining which assessment instruments to use, as well as the commonality in distance education programmes, educational leaders, lecturers, curriculum developers, programme managers and relevant stakeholders can evaluate these for possible implementation to establish procedures for assessing learning objectives in an open distance learning environment. This study provided rich data with regard to using E-portfolios as an assessment strategy in an ODL to provide useful insights for educational policy makers and higher education stakeholders. It is envisaged that this study will add to the existing knowledge by offering suggestions for new ways of developing and designing E-portfolios for alternative assessment. Such assessment could enhance student learning through self-directed learning and lifelong learning which is required for the global economy.

1.7.3   At the Personal Level

On a personal level, motivation for undertaking this study arose from the researcher's experiences as a teacher and lecturer, since assessment plays an influencing role in her teaching and learning. The lens used to perceive teaching, learning and assessment is moulded by her experience in the classroom as a teacher at a school, and a lecturer at a Technical vocational education and training college. Her interest was first stimulated by the dilemmas and tensions created for teachers, like herself, who were committed to the idea that the aim of education is, above all, to enable students to become fulfilled individuals, citizens, workers, and family and community members. However, frequently, as academics and teachers, our practice is constrained by the need to focus on authentic learning rather than being results oriented. When the researcher was appointed to the UNISA, an ODL university, the focus on assessment was gradually transferred from a venue-based examination towards non-venue based assessment approach. With this study, the researcher intended to validate that the use of alternative assessment not only makes it possible for effective learning and the diversification of assessment practices, but also to validate that a broader range of skills is utilised with alternative assessment rather than traditional assessment practices. The researcher furthermore strove to show that research into the sharing of experiences about alternative assessment practices can help increase personal assessment practices and aim to increase student success.

1.8   THEORETICAL FRAMEWORK

Research that is not grounded in theory or a conceptual framework is wasteful (Kawulich, 2016:111). This study employed an integrated theoretical framework namely learning theories (*cf.* Chapter 2.2.3.1-2.3.3) to explore UNISA lecturer and student experiences regarding the use of E-portfolios as an alternative assessment approach towards self-directed learning (*cf.* Chapter 2). The study is conducted with an open distance learning institution and as such, it was relevant to include ODL theories (*cf.* Chapter 2.2.4.1-2.4.3) that foreground the study, as they are essential to the successful implementation of E-portfolio as an alternative assessment strategy in an ODL context. The rationale for the use of six theories is based on the fact that

learning theories of behaviourism, cognitivism and constructivism have been used in the 20th century and are still relevant in the open distance learning in the 21st century. The theory that is associated with constructivism and connectivism pedagogy requires students to work together to solve problems. Self-directed learning (SDL) and collaborative learning are mainly educational and are goal oriented to the enhancement of lifelong learning (Voogt & Roblin, 2012).

Thus, the social constructivist approach is useful for understanding how lecturers and students are able to navigate the use of digital literacy as they work to master E-portfolios. This study, therefore, uses a social constructivist lens to examine the use of E-portfolios in an ODL towards self-directed learning. The collaborative learning theory also relates well to the constructivism pedagogy because these theories allow students to be independent and create knowledge through collaboration with each other and the community at large. With these theories, students are encouraged or required to work together to solve problems, discuss ideas or acquire new knowledge. The use of E-portfolios requires lecturers and students to engage with the culture of digital literacy, which can be extremely challenging for both lecturers and students. However, through behavioural change and conditional learning, students can work collaboratively using network connectivity to understand how to make use of E-portfolios for their learning needs and construct meaning out of this new form of literacy.

1.9   RESEARCH METHODOLOGY

Creswell (2012)) advise that it is important that every researcher creates guidelines that give order and direction to the study. They advise that the guidelines must be set before undertaking research in order to assist the researcher keep focus. In order to be guided throughout this study, the researcher selected the exploratory mixed methods design, which combines elements of both qualitative and quantitative methods in studying a phenomenon. The main reason for the use of this method was to get a holistic picture of E-portfolio use as an alternative assessment strategy utilised in an ODL context. In applying the mixed methods approach, the researcher was able to use various instruments and tools for data collection, sampling, and data analysis in a single study. The rationale for selecting a mixed methods research design was

influenced by the researcher's interest in understanding participant perceptions and experiences regarding the impact that alternative assessment has on enhancing student performance.

1.9.1   Research Paradigm

This study employed a pragmatist paradigm with a combination of positivism, interpretivism and critical theory as the lenses foregrounding this study (*cf.* Chapter 5, Figure 5.1). In the first place, this research would like to refer to Nieuwenhuis's (2007:55) viewpoint, which argues that positivism emphasises the rationalistic view of knowledge that can only be discovered through scientific methods. This paradigm maintains that humans must be studied in the same way as nature is studied and as such, scientific knowledge is regarded as fact. However, emphasis on a single reality results in disregarding social interaction as a source of knowledge construction. Secondly, in the critical paradigm people understand how society functions and the methods by means of which, unsatisfactory aspects can be changed. Finally, interpretivism stands in opposition to positivism and maintains that there are many truths and multiple realities due to the fact that external reality is variable. On the other hand, Morgan (2014:1051) posit that an interpretivist approach provides the participants with the opportunity to raise their voices, concerns and practices in order to be heard and, at the same time, it enables the researchers to gain insight and in-depth information. Similarly, critical theory shares characteristics with interpretivism by focusing on studying and understanding society, but it places more emphasis on reason as the highest potential in human beings and, through reasoning, people are enabled to criticise, challenge and change the nature of a society (De Vos *et al.*, 2011:9). In this context, critical theory advocates a change in the environment, as it is expected of UNISA to instigate changes in the way students are assessed. Moreover, the new digital era requires that higher institutions should transform and embrace changes in education brought about by e-learning and e-assessment which should equip students with higher order thinking skills (HOTS) required for personal, social and economic growth globally.

1.9.2   Research Design: An Exploratory Mixed Methods Approach

The study employed a sequential mixed methods design. For this study, an exploratory mixed method design was used based on Onwuegbuzie and Turner's (2007) work. The authors pointed out this type of design "involves the collection of both qualitative (open-ended) and quantitative (closed-ended) data in response to research questions" (Onwuegbuzie & Turner, 2007:79). This design involves philosophical assumptions that provide direction with regard to the collection and analysis of data and uses the mixture of qualitative and quantitative approaches. In addition, Creswell (2012:342) concurs that this design focuses on "collecting, analysing and mixing both qualitative and quantitative data" in a single study or series of studies. With reference this study, an exploratory mixed methods design was employed using different phases namely: the qualitative phase of the study that included semi-structured interviews with primary lecturers and document analysis of the tutorial letters 101, student E-portfolios as evidence and the UNISA Assessment Policy. Secondly, the quantitative phase of the study employed an online survey to students. Data were collected through document analysis and then semi-structured interviews were conducted with lecturers during the qualitative phase. A quantitative phase followed, during which this researcher administered an online survey to students who were registered in the identified modules of Subject Didactics Economics (SDEC00N), Subject Didactics Life Sciences (SDBIOLJ), Developing Health Science Curricula: Principles and Process (HSE3704), Animal Health Practice III (ANH301A), Curriculum Development and Assessment in Adult Education (CUDAAEE), and Instructional Techniques and Multimedia in Adult Education (INTMAEU) for the year 2018. These modules employed E-portfolios as a teaching, learning and assessment tool.

Triangulation of results was attained through the use of a variety of data collection instruments such as individual semi-structured interviews, document analysis of student E-portfolios, tutorial letters and the university assessment policy as qualitative and finally, an online survey as a quantitative instrument.

1.9.2.1 Trustworthiness and reliability of the data collection instruments

Trustworthiness of qualitative research instruments (*cf. Chapter 5, Section 5.5*)***:***
In the qualitative research phase of this study, trustworthiness, based on the four criteria, credibility, transferability, dependability, and confirmability (Lincoln & Guba, 2000), is essential in research. Researchers need to describe how they will ensure trustworthiness and in this study data from semi-structured interviews and document analysis could be compared for triangulation and thus ensure trustworthiness.

Reliability of the quantitative research instrument (*cf. Chapter 5, Section 5.6):*
Reliability is when a research instrument is free from error and consistent in its measurement over time and across situations (Leedy & Ormrod, 2005:93; Zikmund, 2003:300). In this study, a self-designed questionnaire was completed by students. In light of this instrument, the researcher ensured that the instrument (online questionnaire) used in the data collection phase was appropriately and accurately designed and were piloted using twenty students not involved in the study for validity. Furthermore, the reliability of the study was ensured by making use of the Cronbach's alpha coefficient, standardization of the survey questionnaire an peer debriefing. The internal consistency of the items was measured by making use of the Cronbach's Alpha Reliability Coefficient. The reliability test, the Cronbach's alpha coefficient was computed and the self-designed questionnaire was overall highly reliable at $\alpha < 0.81$ (*cf*.8.4)

1.9.3 Targeted Population and Sampling

When defining a sample, De Vos, Strydom, Fouche and Delport (2011:456) state that it comprises "measurements drawn purposively from a population in which researchers are interested". In this study, convenient purposive sampling was used to identify the lecturers and students involved in E-portfolio alternative teaching, learning and assessment in the seven colleges of the university, namely the College of Law, Education, Health Studies, Agriculture and Environmental Studies, Human Sciences, and Economic and Management Sciences. The population and sampling of this study were drawn from students and lecturers involved in the use of E-portfolios in the following identified modules, with module codes are as follows: Subject Didactics

Economics (SDEC00N), Subject Didactics Life Sciences (SDBIOLJ), Developing Health Science Curricula: Principles and Process (HSE3704), Animal Health Practice III (ANH301A), Curriculum Development and Assessment in Adult Education (CUDAAEE), and Instructional Techniques and Multimedia in Adult Education (INTMAEU) for the year 2018. A full list of lecturers and their students involved in the E-portfolio assessment for sampling was requested from the identified Information and Communication Technology Department of the institution. The research participants as the target population, comprised nine UNISA lecturers drawn from various colleges currently using the E-portfolio tools as an alternative assessment strategy, chosen because they had experience of teaching, and assessing students using E-portfolios as the phenomenon under investigation. Furthermore, the lecturers had to be willing to engage in an interview process, which involved follow-up interviews (when necessary) by means of which the researcher could gain access to a particular perspective on the phenomenon under investigation. The second sample for this study was drawn from the total number 3 641 students registered in the identified modules or courses involved in E-portfolio teaching, learning and assessment. However, only the returned and completed online surveys were used for this study (*cf.*chapter 3).

1.9.4   Data Analysis

The data for this mixed-methods study were analysed from both the qualitative and quantitative instruments used in this study. The qualitative analysis was carried out first, after which, the quantitative analysis was done.

Qualitative Phase 1: The qualitative data collected through semi-structured interviews were transcribed first. The researcher analysed the data in accordance with the analysis procedures, where the researcher coded the data before organising them into themes. The transcription of data collected from interviews with lecturers were analysed manually using a qualitative inductive data analysis. This entailed the organisation and creation of codes into chunks of meaning (Bhengu & Myende, 2015). The researcher observed recurrent themes and patterns during the analysis process, and responses were coded, arranged and organised into the identified themes and categories. In the case of the reviewed documents (E-portfolio checklist), the researcher employed specific criteria to guide the analysis process using content

analysis. The different categories were used to link and identify the different categories and themes of the interviews.

Quantitative Phase 2: The researcher coded all the online surveys and analysed the collected quantitative data using the Statistical Package for Social Sciences (SPSS) to compute descriptive data through cross-tabulations, histograms, graphs and pie charts. The overall reliability of the online survey was computed, using a reliability test (Cronbach's Alpha coefficient). The researcher determined and listed all the variables that were to be measured, and scrutinised the distribution of data in order to determine if they were normal or non-normal. It is important that the researcher used the most fitting techniques to analyse data in order to ensure the accuracy of the findings. For this reason, the researcher presented the data in the form of graphs and tables. For the inferential statistics, t-tests, ANOVA, correlations and a regression analysis were computed and displayed.

1.10   ETHICAL CONSIDERATIONS

This study adhered to the generally agreed upon ethical principles of social science research. Prior to the collection of data for this study, the researcher applied for ethical clearance from the College of Education (CEDU) Research Ethics Committee, after approval from the CEDU committee. The researcher then sent the application to the University Research Permission Subcommittee (RSPC) for permission to conduct research involving UNISA employees, students and 2018 data. The conduct of research requires not only expertise and diligence, but also honesty and integrity (Burns & Grove, 2005). According to Litchman (2013:51), the code of ethics states that the primary goal of ethical considerations is to assure "the welfare and protection of individuals and groups with whom educational research works".

Moreover, Gray (2013) argues that the ethics of the research is concerned with the appropriateness of the researcher's behaviour in relation to the subjects of the research or those who are affected by it. In this research study, the essential ethical standards were maintained by clearly explaining the procedures to the research participants and respondents, about the necessity of confidentiality, informed consent and developing procedures for ensuring full disclosure of the nature, purpose and

requirements of the research. The participants were informed in writing concerning the objectives of the study, and what was expected from them as participants for the online surveys and the interviews. The participants were informed that the interviews would be audio recorded and that the data would be kept for a period of five years after the study. Confidentiality was maintained throughout the study and no information will be made available to unauthorised persons. The lecturers were not compelled to take part in this research and during the interviews, the lecturers' names were not used, instead, pseudonyms were used to protect their identification. Student online surveys were completed anonymously. After all information was communicated to the participants, they were requested to sign the consent forms.

1.11   CLARIFICATION OF CONCEPTS

The concepts used in the study are briefly explained below. The definitions provided serve to explain the meaning of the concepts used within the context of this study.

Alternative assessment advocates that students have a choice regarding the form and content they provide in order to answer questions or to perform tasks (Lpoes,2015) that is meant to provide proof to the educator that sufficient learning has taken place. This definition suggests that alternative assessment should be seen as an umbrella term that can include various and wide ranging options.

Assessment: methods used to determine student level of understanding, skills and knowledge

Traditional assessment: tests which involve multiple choice questions, true and false questions, and completion questions, which focus on the lower levels of Bloom's Taxonomy (Marzano, Pickering & McTighe, 1993).

E-portfolios are a digitised collection of artefacts including demonstrations, resources and accomplishments that represent an individual, group or institution (Lorenzo & Ittelson, 2005). "This is a product, created by the students, when they collect digital artefacts articulating experiences, achievements and learning" and as "a purposeful aggregation of digital items ideas, evidence, reflections, feedback, etc., which presents

a selected audience with evidence of a person's learning and/or ability" (Gray, 2008: 6-7).

Open distance e-learning is a multi-dimensional concept aimed at bridging time, geographical, economic, social, and educational and communication distance between students and the institution, students and educators, students and courseware and students and their peers. Open distance learning focuses on removing barriers in order to access learning. It provides flexibility, focuses on student-centredness by supporting students and constructing learning programmes with the expectation that students are able to succeed (UNISA, 2008). Open distance learning "is an approach to learning that gives students flexibility and choice over what, when, where, at what pace and how they learn" (UNISA, 2008:7). However, UNISA still uses due dates and cut-off dates for registrations, submissions of assignments and examination writing and is therefore only 'open' in some respects. It seems as if each university defines openness in its own terms.

Self-directed learning, as defined by Knowles (1975: 18), is seen as self-directed learning 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 human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

1.13 THE STRUCTURE OF THE THESIS

The thesis was divided into eight chapters.

Chapter 1 provided the introduction to the study, background, rationale, problem statement, aims and research objectives and the research questions that guided the study. The research methodology, the significance of the study, the study limitations and delimitations, the ethical considerations, and definitions of concepts are also described. As a conclusion to the chapter, the content outlines for the remaining chapters are explained.

Chapter 2 provided literature review on the present integrated theoretical framework on open distance e-learning in general and in the ODL context, in particular.

Chapter 3 provided a scoping review based on the assessment terms, concepts, and attributes associated with assessment in general, e-assessment, forms of assessment and types of alternative assessment practices in ODL.

Chapter 4 provided a scoping review on an alternative assessment strategy that forms part of e-assessment and is employed in an ODL environment.

Chapter 5 presented the methodology, methods and techniques including data validation and ethical considerations that were used to conduct the research specifically, the approach, design, instruments, sampling procedures as well as the data collection and analysis methods.

Chapter 6 provided an analysis and interpretation of the results from the qualitative and quantitative data collected and collated from the field. Reports on the results of the study in the form of themes that emerged from the interviews with primary lecturers, document analysis and an online survey questionnaire completed by students were also presented.

Chapter 7 concluded with a summary of the study's findings, recommendations, implications, limitations, and reflection of the thesis as a whole, including its original purpose and the extent to which the study answered the research questions. Finally, the chapter provided the conclusions of the study as a whole.

Chapter 8 drew the study's findings together by establishing, design and developing an E-portfolio framework as an alternative assessment approach for an ODL university

1.14 CHAPTER CONCLUSION

In this chapter, the introduction to the study, the background, rationale, the problem statement, the aims and research objectives and the research questions that guided the study, the research methodology, the rationale for the study, the significance of

the study, the ethical considerations, and the clarifications of concepts were described. As a conclusion to the chapter, the content outlines for the remaining chapters were explained. The following chapter, Chapter 2 discusses a review of the theories underpinning the study, in particular, theories on E-portfolio alternative assessments and ODL.

CHAPTER 2

INTEGRATED THEORETICAL FRAMEWORK UNDERPINNING THIS STUDY

2.1 INTRODUCTION

The previous chapter discussed how one proceeds with the study by describing the background to the study, the research problem, the research question and sub-questions, and it also presented a brief outline of the research process. This chapter explored an integrated theoretical framework that provided a perspective or lens through which the study was examined. Therefore, this literature study served the purpose of reviewing literature on learning theories and ODL theories underpinning the use of E-portfolios as alternative assessment approach to enhance self-directed learning (SDL) The existing gaps in the field were identified, thereby, ensuring the relevance, importance and usefulness of grounding the phenomenon under investigation. The following theories underpin this study: Behaviourist, Cognitivist, Social Constructivist, Online Collaboration, Connectivism and Self-Directed Learning as the focal point.

2.2 OPEN DISTANCE LEARNING AND THE IMPLEMENTATION OF e-ASSESSMENT IN THE 21st CENTURY

Learning through distance education has taken place for centuries. It is argued in the Christian religion that St Paul's epistle to the Corinthians was an early form of distance learning (53-57 AD). In due course, a number of generations have evolved throughout the years through distance education. Anderson and Dron (2011) identify three generations of distance education classified according to the dominant pedagogy used, namely, cognitive-behaviourist pedagogy, social-constructivist pedagogy and connectivist pedagogy, which focus on the learning experiences encapsulated in the learning design. Since then a great deal of distance education development has emerged with the implementation of technology as one of them. The University of South Africa (UNISA) is the oldest open and distance learning institution in Africa with more than 350 000 students from over 130 countries registering yearly.

Since its inception in 1873, UNISA has served as an examination centre for the Oxford and Cambridge Universities (UNISA 2014: 4). In the process of developing as a well renowned university over the last 145 years, UNISA has invested in technological initiatives in order to facilitate relevant learning and support students in the 21st century (UNISA, 2011:38). Then University has undertaken initiatives to facilitate not only open and distance learning (ODL), but open distance and e-learning (ODeL). Although UNISA's identity as an ODL institution is still relatively in the early stages of development (UNISA, 2013) and the University currently operates as a distance education provider as defined by Holmberg (2005). UNISA as an ODL university, like many other institutions, has adopted online learning, which attracts students from the millennials. It is worth noting that UNISA employs blended learning and, therefore, applies online learning and face-to-face learning with some modules that have gone wholly online. As indicated in Chapter one, global change brought by scientific developments such as Information and Communication Technology (ICT) have had an impact on the education sector and UNISA, like many other institutions, has been affected particularly with the use of technologies in education. According to Bates, Bates and Sangra (2011:459), "One aspect of this is the way in which technology has become an essential part of our lives".

Similarly, Patterson and McFadden (2009:523) point out that online learning is "increasing [in] popularity throughout the years, mainly because of its convenience and flexibility for students". In the same vein, Keegan (2005) characterises the growth of distance education in terms of generations of technologies adopted by open and distance learning institutions eager to provide support to its teaching-learning process. According to Siemens (2005) and Castle and McGuire (2010), 21st century learning cannot be offered in the traditional manner of teaching and learning of the previous centuries. Moreover, the world has expectations of students as they join the digital world of work after graduation. Kereluik, Mishra, Fahnoe and Terry (2013:236) posit that the term twenty-first century learning is broadly used "to explain the fundamental changes in the nature" of education that have occurred as a consequence of rapidly changing technologies around the world. In this era, creative thinking, problem solving, higher order thinking skills, personalisation, collaboration, communication, informal learning, productivity and content creation are central to the competencies and skills students are expected to develop, and as such, cognisance must be taken of the way

in which these skills are taught. Redecker and Punie (2013) note that "these elements are key to the overall vision of twenty-first century learning". It is, therefore, essential that students are equipped with the relevant knowledge and skills to live in a multifaceted, multitasking, technology-driven world.

In the light of the above, higher education institutions have been compelled to move towards student-centred learning where the focus shifts to the process and not the product. Most importantly, institutions are called upon to "foster student-centred learning as a way of empowering students in all forms of education" (Biggs,2011:22). The development in teaching and learning practices in the 21st century has also brought about changes in how students are assessed, simply because traditional assessment is no longer applicable for online teaching and learning. Hence, Scott (2015) argues that assessment in the 21st century has to be powerful, fit for purpose, valid, and should focus on preparing graduates to become competent and ready to work in their professions when joining the employment sector, as teachers, health workers, scientist, or law enforcers, for example. As a result, students will be able and ready to meet the challenges of current and future job markets.

In view of this shift, assessment tasks need to be authentic and performance-based using real-life situations, so that through practice students can develop competency in the necessary skills. These assessment tasks should thus evaluate student ability to consolidate learning across knowledge domains and the ability to apply knowledge, by solving problems and thinking creatively. This developed ability will demonstrate the capabilities that are relevant to living and working in a volatile and rapidly transforming world. In support, Bennett (2011) argues that for assessment to meet the requirements of the transformed world, high stake and innovative forms of assessment should be aligned strongly with a constructivist approach to learning, which is the learning perspective most widely accepted in higher education as enhancing student learning. In addition, connectivism through network and collaboration among students and lecturers promotes a wider student activity and involvement in their learning. The next section will discuss the learning theories underpinning the study.

2.3   THEORIES UNDERPINNING LEARNING

In the introduction and the background to this literature review, it has been noted that the aim of this study is to explore the use of E-portfolio as an alternative assessment approach to enhance self-directed learning in an ODL environment. This section of literature review explores and evaluates the importance and validity of the learning theories. Braun and Clarke (2013) defines a learning theory as a logical framework of how we come to know about learning, a logical integrated frame or lens. Similarly, Veletsianos (2016) states that noble theories can stand the test of time and continue to be useful as they help individuals understand education and act appropriately. These theories have been selected because they speak to ideas that create opportunities for students to construct knowledge and take charge of directing their learning through collaboration with others using connectivity through technology, taking into consideration the behaviour and conditions of the learning environment.

The section below discusses the pedagogical learning theories. Behaviour learning theory is discussed in 2.3.1, while in 2.3.2, Cognitivist Learning Theory is presented and finally, Constructivist Learning Theory is outlined in 2.3.3.

2.3.1   Behaviourist Learning Theory

Behaviourist learning theory, initially developed in the 1920s, has since been associated with learning. Watson and Pavlov were the main advocates of this theory. In turn, Jean Piaget (1896-1980), a Swiss biologist and psychologist, is well known for creating a highly influential model of child development and learning. Currently, behaviourism continues to be influential in teaching and learning in higher education. It is important to note that the behaviourist theory focuses on what is observable with regard to how people behave and especially, how particular behaviours can be changed. According to Harasim (2012), the behaviourist theory is empirical, observable and measurable. In turn, Schunk (1991) points out that behavioural theorist believe that learning when occurs it results in a change in behaviour, or in the capacity to behave in a given fashion as a consequence of practice or other forms of experience. Behaviourist psychology, in ODL, focuses attention on those aspects of behaviour that are capable of direct observation and measurement.

The behaviourists see learning as a mechanical process of associating a stimulus with a response, which produces a new behaviour (Winn, 1990; Skinner, 1968). According to Ertmer and Newby (2013) and Brown (2006), this implies that the student is not responsible for his learning, but learning is engineered by the educator who delivers a particular learning content, then assesses the content, which reinforces the learner response, a statement supported by Skinner (2011:126) who points out that "Such behaviour is strengthened by reinforcement".

In addition, behaviourist learning theory emphasises two major types of conditions:

- Classical conditioning: for example, Pavlov's dog experiments in which behaviour becomes a reflex response to a stimulus.
- Operant conditioning: the example of Skinner's rat experiments, which refer to the reinforcement of behaviour by a reward or punishment.

Eskelinen, Koskinen, Kokkinen and Tyrväinen (2004) postulate that learning is based on the foundation of impulse-reaction relation, where students receive feedback for the answer, which helps to avoid wrong answers. This means that learning is assessed quantitatively with a simple examination, where a student needs to recall answers in the exam. However, the consequences result in the delusion of learning, where learner alignment of knowledge does not change permanently because examinations traditionally only require the repetition of facts without building a new alignment of knowledge. Behaviourist methods typically rely heavily on the use of positive reinforcement such as verbal praise, good grades and prizes. Behaviourists view the student as a passive recipient of information who will respond to a stimulus (Weibell, 2011).

Piaget (1968) claims that there are four developmental stages according to which children progress: first, the sensorimotor stage where the child interacts with the environment and builds a set of concepts about reality and how it works; secondly, the pre-operational stage in which the child is not yet able to conceptualise abstractly and needs concrete physical situations. The third stage constitutes concrete operations when the child starts to conceptualise and create logical structures that explain his or

her physical experiences. Finally, the stage of formal operations is one in which the child's cognitive structures are like those of an adult and include conceptual reasoning. What is of primary importance to behaviourists is how the association between stimulus and response is made, strengthened and maintained. Behaviourists believe that students start as a tabula rasa (on a clean slate) and their behaviour is shaped by reinforcement (Piaget,1968). The student is characterised as being reactive to conditions in the environment as opposed to taking an active role in discovering the environment. The positive and negative reinforcement support the reititeration of conduct. In addition, behaviourists believe that punishment decreases the chances of repetition of the behaviour (Schunk, 1991). Skinner (1968) found that inappropriate or previously learned behaviour could be extinguished by withdrawing reinforcement. Although both the student and the environmental factors are considered important by behaviourists, environmental conditions receive the greatest emphasis. The learning implications of this theory are that it allows for students to be provided with immediate feedback to monitor how they are doing which allows then to take corrective action if required (Altuna & Lareki, 2015; Dede, 2008; Brown, 2006; Skinner, 1968). Learning in terms of this school of thought is indicated by a change in the behaviour of a learner, and it happens solely through a system of positive and negative rewards. Therefore, feedback to students can change their behaviour from knowing what learning has occurred and what needs to be improved. Accordingly, positive rewards and negative rewards play an important role.

Furthermore, according to Lorrie (2000), this school of thought emphasises that learning materials should be sequenced appropriately to promote student-learning. For instance, sequencing can be from simple to complex, the known to the unknown, and knowledge to application. Harasim (2017) advocates that these taxonomies with their different levels, are the basis for assessing student outcomes and provide educators with more reliable procedures for setting and assessing learning objectives. According to behaviourist theory, students should be told explicitly about the outcomes of the learning process "so that they can set expectations and can judge for themselves whether or not they have achieved" the outcomes of the lesson. Students should be tested in order to determine whether or not they have achieved the learning outcomes (Schunk, 1991:2).

In a nutshell, Greeno and Moore (1993:49) emphasise that the behaviourist perspective encourages a focus on the efficiency of conveying information and training skills and emphasises teaching that involves the well-organised routines of classroom activity, with clear plans and goals. The behaviourist perspective is relevant for this study as it focuses on equity of access and opportunity to acquire valued knowledge which supports the development of practices that ensure that "all students can achieve a satisfactory level of basic knowledge" (Winn, 1990:48). This allows students the opportunity to acquire knowledge through practice. The students are able to use the feedback to identify what they know and understand what they still need to learn. In contrast, online education expects students to read and follow instructions in order to understand the process needed to use E-portfolios, this process falls within the cognitivist learning theory and is discussed in the next section.

2.3.2   Cognitivist Learning Theory

The cognitive theory emerged from a reaction to behaviourism, the predominant school in experimental psychology at the time. Bates (2015) posits that cognitive approaches to learning that focus on comprehension, abstraction, analysis, synthesis generalisation, evaluation, decision-making, problem solving and creative thinking, are applicable in higher education. The shift from behaviourism to cognitivism stemmed from the behaviourists' failure to explain why and how individuals make sense of and process information. It could be said that the limitations of behaviourism fostered the cognitive movement. Deubel (2003) states that scholars and psychologists were dissatisfied with behaviourism's heavy emphasis on observable behaviour, and as a result, "many disillusioned psychologists challenged the basic assumptions of behaviourism Greeno & Moore, 1995:49)." They claimed that prior knowledge and mental processes not only play a bigger role than stimuli in orienting behaviour or responses, but also intervene between a stimulus and response. As opposed to behaviourists' emphasis on behaviour, the cognitive school focuses on meaning and semantics. Several scholars posit that, according to the cognitivists, not all learning occurs through the shaping and changing of behaviours, instead, the primary emphasis is placed on how knowledge "is acquired, processed, stored, retrieved, and activated by the learner during the different phases of the learning process" (Anderson & Dron, 2011:267). Additionally, Merriam & Caffarella, (1999:46) reported that the

cognitive learning is an active process "involving the acquisition or reorganisation of the cognitive structures through which humans process and store information". This cognitive approach would mean focusing on teaching students how to learn and develop stronger mental processes for future learning. To achieve mental processes, students using E-portfolios in an ODL context need to develop a deeper understanding of concepts and ideas to enhance their self-directed learning. According to the cognitivists, information from the environment is not automatically received but is processed according to the child's prevailing mental structures (Bargh & Ferguson, 2000).

Researchers have posited that schemata or cognitive structures are the building blocks of intellectual development. Furthermore, they define schemata as "An abstraction of experience that you are constantly fine-tuning and restructuring according to new information you receive" (Piaget, 1968:7). Schemata serve several functions in learning, namely, categorising, remembering, comprehending, and problem-solving. Again, schemata regulate attention, organise searches of the environment, and fill in the gaps during information processing. Thus, the mind uses schemata to organise and process all the information individuals receive from the world selectively (Ertmer & Newby, 1993:51). Accordingly, Piaget (1968) argues as learners assimilate input from the environment, new information is not simply stored in the mind like information in files but is integrated and inter-related with knowledge structures that already exist in the mind of the child. Every schema is coordinated with other schemata and itself constitutes a totality with differentiation parts.

Anderson and Dron (2011:87), argue that the cognitivist approach emphasises the collaboration that exists between the student and the lecturer in the creation of knowledge. As a result of this collaboration, the student is no longer a passive recipient of information, but a co-creator of knowledge. The lecturer's most important responsibility is to facilitate and monitor the student's perspective, thinking and feeling. This simply means that, with regard to E-portfolio usage in a particular module, the students and lecturers collaborate in the creation of knowledge unlike where students just receive knowledge without question with the teacher just imposing learning on students.

According to the cognitive theory, learning is attained through the rehearsal, and consistent use of the information, that with more practice and repetition of tasks through assessment and feedback, learning occurs. Hence, Bruning, Schraw, Norby and Ronning (2004) postulate that consistent work and practice to embed previous learning, will help new learning. The cognitive perspective promulgates a focus on differences among students in terms of their interests and engagement in the concepts and methods of subject-matter domains, in the understanding that they bring to scholarly activities and in their learning strategies and epistemological beliefs, and supports the development of practices in which these multiple interests, understandings, and approaches are resources that enrich the educational experiences of all students (Greeno, Collins & Resnick,1996). Cognitive psychologists, therefore, place greater emphasis on what students know and how they come to acquire it than what they do. For this reason, the cognitive school of thought focuses on making knowledge meaningful and helping the students to organise and relate new information to prior knowledge in memory (Ertmer & Newby, 1993). Therefore, in this regard, a cognitivist approach to to teaching is relevant for this study as it guides the learning that takes place during the development and design of an E-portfolio. Research has shown that more effective learning takes place if students are actively involved, rather than being passive (Nurmela, Palonen, Lehtinen & Hakkarainen, 2003), as is purported to be the case with behaviourism.

2.3.3   Constructivist Learning Theory

Constructivism is the learning theory that developed as a counter-reaction to behaviourism and cognitivism. It therefore emerged as a result of a paradigmatic shift that rejects the views of both the behaviourist and cognitivist schools of thought and leans towards the premise that people construct their own knowledge through their personal experience rather than knowledge transmission and the recording of information conveyed by others (Sexton, 1997; Jonassen, 1991). According to Vygotsky (1978:84) and reiterated by Roberts and Potrac (2014), this theory emphasises the way that individuals, through their cultural backgrounds and the environments, acquire and develop their understanding and knowledge. Harasim (2012) emphasises the role of the individual in making sense of the world in which they live and, therefore, confirms that humans cannot be programmed like robots to

respond at all times to the same stimulus. In fact, constructivism believes that learning is a dynamic process. Piaget is commonly considered the pioneer and parent of constructivist thought. Piaget's (1968) cognitive development is based on the idea that children's active engagement with their environment leads them to the construction of meaning and learning (Piaget, 1968). Piaget (1968) further argues that children must continually reconstruct their understanding of phenomena through active reflection on objects and events until they eventually achieve an adult perspective. Piaget's theory provides a framework by means of which lecturers and educational technologists can analyse the behaviour of the student and design educational environments, within which students can construct their knowledge and understanding in order to increase learning outcomes, performance and quality of learning (Piaget, 1968). From a constructivist point of view, learning is an active process that requires students to engage in sense-making to organise and construct their knowledge (Mayer, 2004; Bransford, Brown & Cocking, 1999). Various scholars, such as Roberts and Potrac (2014), Harasim (2012 and Ertmer and Newby (2013) and point out that constructivist trends and educational systems have been adopted in many countries. Constructivism emphasises the fact that students should construct their own knowledge in constrast to behaviourism where knowledge is mapped onto them with teachers being the source of information. Students are thus provided with an opportunity to generate solutions to problems they encounter with minimal help from lecturers.

Students are not a blank slate as is alleged in behaviourism (Bandura, 2005; Jonassen, 1991; Merril, 1991. Constructivist pedagogy regards students as active participants involved in building and creating knowledge, individually and socially, based on their experiences, cultural factors and interpretations (Atherton, 2013; Hussain, 2012;) rather than as passive vessels to be filled with information. . Students bring their experiences and cultural factors to the learning process. Similarly, scholars posit that constructivism emphasises that each of us generates our own rules and mental models that we use to make sense of our experiences (Jonassen, 1991; Airasian & Walsh, 1997). In the same vein, Stavredes (2011) concurs that learning is simply the process of adjusting our mental models to accommodate new experiences. As a result, there will be differences between taught knowledge and learned knowledge, since each student interprets taught knowledge based on his/her experience and builds his/her meaning based on that knowledge. In this regard, when

students are involved in learning activities that require them to use their real-life situations, they build on their experiences, and more knowledge is created. As a result, the role of the lecturer, in terms of constructivist theory, is to try to understand how students interpret knowledge guiding them to refine their understanding and interpretation, and correct any mistaken understandings to improve the quality of the learned knowledge. Therefore, constructivism is recognised as a learning theory that emphasises the interaction of persons as well as the refinement of skills and knowledge.

It is worth noting that there are two types of constructivism that are most relevant to learning and education, namely, cognitive and social constructivism (Gredler, 1997; Fosnot, 1996). Vygotsky's theory of social cognition learning in the ODL environment sees culture playing a key role in the development of cognition. Vygotsky focused on interpersonal and social interactions and how social and linguistic interactions come into play. In general, learning is a social experience that occurs at the individual level and must be adapted before it can be applied and modified for future use. In this regard, using Vygotsky's (1978) principle of social interaction, Searle (1996) argues that effective learning will take place within an interventionist environment in which there are opportunities to develop and apply new skills and knowledge in appropriate ways to meet an individual's learning needs. Another type of constructivism that is closely tied to social constructivism is communal constructivism that is seen as "an approach to learning in which students not only construct knowledge as a result of interacting with the environment (social constructivism) but are also actively engaged in the process of constructing knowledge for their learning community" (Tangney, FitzGibbon, Savage, Mehan & Holmes, 2001:1). In communal constructivism, learning is seen as a social and collaborative activity that is facilitated rather than directly being taught by the lecturer. Accordingly, these students are able to collaborate and interact throughout the learning process. Leask and Younie (2001) point out that according to constructivist theories, students participate more in the learning process by creating their own knowledge, while the social constructivist adds an interactive dimension, especially in terms of when they work together, as asthe their social or cultural environments influence their thinking and learning.

Although Vygotsky (1978) emphasised the role of speech as a communication tool the fact that new information communication technologies such as computers, discussion boards, emails, massive open online courses (MOOCs), and virtual worlds increasingly support communication has taken Vygotsky's theories of learning into the information age. The communal constructivist approach requires that the learning environment is innovative and as such courses be dynamic and adaptive to the learning context of the 21st century with a rich ICT focus. This approach requires that, from the outset, students should see themselves as producers and not just consumers of information. Within the learning environment, particularly the ODL environment, a wide variety of techniques are used to instil the idea in students that they are involved in the process of constructing knowledge, and that construction is a communal affair. To achieve this, students are encouraged to embark on group work and project-based learning (Scardamalia & Bereiter, 2006).

Communal constructivism stresses that students should be listened to and their thinking and knowledge-creation should be important to others. Giving students the responsibility will train them to be responsible citizens and to take charge of their learning that will enhance and support self-directed learning. There are four tools for making this happen: scaffolding, cognitive apprenticeship, tutoring and cooperative learning. Scaffolding is a technique that involves changing the level of support for learning (Vygotsky, 1978), by offering support in the form of learning materials, generic resources and tutorship to meets their needs. In the case of UNISA, students are able to access learning material online through the myUnisa platform, which also provides information on additional learning resources and methods of support, to resolve any issues they may have.

In addition to scaffolding, student benefits from lecturers who think of their relationship with a student as a cognitive apprenticeship, using scaffolding and guided participation to help students learn (Sharma & Hannafin, 2007). As lecturers engage in such an activity, they develop an understanding of the importance of the problem, comprehend the relevance to the topic, and construct knowledge through experience (Cole & Wertsch, 2011; Woolfolk, 2010). As constructivism views learning as a social experience, communication, interaction and collaboration are essential, as highlighted (*cf.* Chapter 4) where these form the backbone of the pedagogy in E-portfolio teaching,

learning and assessment, as an alternative assessment. In this researcher's opinion, in line with Vygotsky's (1978:57) views, the use of constructivism, particularly social constructivism, develops confidence and respect for others, encouraging etiquette and social skills among students.

Dhindsa and Emran, (2006) argue that in constructivism, assessment is not only based on tests but also on student observations, student work and students' points of view, following the notion that knowledge is constructed through observations, reflection and interaction with the surrounding environment in terms of their peers, lecturers or technology. Rust, O'Donovan and Price (2005) aver that constructivism calls for the elimination of grades and standardised assessment. Constructivist assessment or alternative assessment, through oral discussions, hands-on activities, mind-mapping, cooperative learning, experiential learning, problem-based learning and inquiry learning are more succesful in determining students' learning progress. This type of assessment would, therefore, focus on the extent to which students can structure and restructure material for different purposes without the help of others (for example, through inquiry-based tasks), and the feedback given would support students to become more self-directed.

Atherton (2013) suggest that this approach requires students to reflect, self-assess and generate feedback on their own learning. Nilson (2016) emphasises that students can identify some form of personal gain from a learning activity, motivated to test their current level of learning against known standards, and are supported to help address subsequent personal learning needs. In an ICT-rich environment, students are involved in a constructivist process of collecting, organising, reflecting on and showcasing selected artefacts in digital format to attain self-determined goals. Hartnell-Young and Morriss (2007) and Cambridge (2001) contend that working in such an environment entails making connections between different artefacts through self-reflection, that is, to construct meaning from the artefacts and link it to the purpose of use.

To sum up, students construct their knowledge by reflecting and building upon their current experiences and prior knowledge, rather than knowledge being acquired through rote learning and memorisation of learning. Constructivism is particularly

relevant as it offers a context in which cooperative and collaborative learning as well as effective assessment can take place. The learning theories discussed in this section are integral to the study as they close the gap between learning theories applied in the 20th and 21st century. The next section discusses the theories underpinning Open Distance Learning.

2.4 THEORIES UNDERPINNING OPEN DISTANCE LEARNING (ODL)

Behaviourism, cognitivism, and constructivism (as discussed above) are the three most widely used learning theories applied in creating learning environments. However, these theories were developed in an era when learning was not influenced by the use of technology. In the 21st century, the development and implementation of technology has reorganised how we live, how we communicate, and how we learn. Accordingly, education has moved away from the paper-based learning and has embraced technology-use as a means to facilitate teaching and learning.

In this section, three theories underpinning learning in an Open Distance Learning (ODL) environment are discussed. In this study, connectivism (Section 2.4.1) and collaborative learning (Section 2.4.2) have a shared focus, they emphasise the use of technology to mediate teaching and learning in an open distance-learning environment. This is mainly applicable because students can connect and collaborate amongst each other anywhere and at any time with network facilities and resources. In an ODL environment, this access to technology assists in bridging the gap between time, space and distance between students and students, lecturers and students and ultimately, students and the institutions. Furthermore, the chosen theories are relevant to the ideas that create opportunities for students to construct knowledge through the utilisation of technological options that can be used in both distance and conventional institutions. In addition, collaborative learning creates communication and collaboration among students. Therefore, in an ODL environment, self-directed learning (Section 2.4.3) is significant to encourage students to set goals, control and direct their learning. The theories are discussed in-depth below.

2.4.1   Connectivism Learning Theory

Connectivism provides a theoretical lens through which this study seeks to examine the use of an E-portfolio assessment strategy in an ODL context. The connectivism theory is considered a relevant theory for 21st century learning resulting from the Information Communication Technology (ICT) revolution. Garcia, Brown and Elbeltagi (2013) describe the third millennium as an era that is characterised by a changing world, new technologies and a large body of information available to students through network platforms within teaching and learning irrespective of geographical boundaries and time zones. This leads to the justification of the connectivism theory in this study. In 2004 and 2005 respectively, Stephen Downes and George Siemens developed connectivism "as a learning theory for the digital age" Siemens (2008:15). Siemens (2004:4), who is considered the forerunner of connectivism, defines this theory as "a learning theory which is contextualised in a digital era characterised by the influence of technology in the field of education. The ability to recognise when new information alters the landscape based on decisions made yesterday is also critical". Siemens (2013) maintains that connectivisim reflects a new version of constructivism because it connects others and provides access to a rich learning environment. Hence, technology has transformed the content of the curriculum as well as the modes of learning.

Siemens points out that traditional learning theories such as behaviourism, cognitivism and constructivism have limitations because these theories were developed at a time when technology had not impacted on learning to the degree it has today (Siemens, 2008:3). Siemens (2004:67) argues that "competence [is gained] from forming connections" and the "capacity to know more is more critical than what is currently known". Learning occurs as individuals discover and build connections between these nodes. In essence, connectivism is a learning theory in which knowledge exists outside the student and in which the student makes connections between information to build knowledge (Siemens, 2014). Duke, Harper and Johnston (2013) argue that connectvism was developed mainly to counteract the limitations of behaviourism, cognitivism and constructivism theories. Downes (2007:78) describes connectivism as a "network-based pedagogy" underpinned by the theory that "knowledge is distributed across a network of connections, and, therefore, that learning consists of the ability to

construct and traverse those networks." In terms of this theory, the internet is used to connect students and promote teaching and learning in an online environment. In essence, connectivism is a growing phenomenon in educational discourse.

Siemens notes that connectivism is a learning theory comprised of a different series of nodes to connect hundreds of networks to facilitate learning. This happens as individuals share their interests, knowledge, perspectives, expertise and opinions in online or virtual learning environments (Siemens, 2008). After much research, Siemens developed the connectivity theory by exploring how students learned using the internet during their studies. These students are called digital natives because they use a digital and networking approach to learning (Siemens, 2005a, 2007; Downes, 2007). The younger generation of today, is referred to as the "net generation," because they spend most of their time using smartphones and computers practically. Use of such media has a dramatic influence on students and their thinking has been restructured, therefore, it makes it difficult to educate this generation using the traditional face-to-face methods. In response to the net generation (Combes,2012) and the digital native (Prensky, 2001), education has had to embrace the potential of technology.

New technologies of the digital age have affected teaching and learning in two key ways. First, the rise of Web 2.0 tools, such as blogs, wikis and other collaborative tools, is affecting the manner in which learning can occur. Web 2.0 is defined as the second stage of the Internet revolution, characterised by the shift from static web pages to dynamic or user-generated content and the social media growth (Anderson, 2016). Web 2.0 can also be defined, however, as web applications that erase the barriers between the production and consumption of information (Floridi, 2009). Trna and Trna, (2015) find it essential that academics are equipped with new competencies and pedagogical professional skills to use technology to support learning, seek learning philosophies to structure their understanding and innovations (Bell, 2010).

Secondly, the new technologies of the digital age have resulted in an exponential growth in knowledge that can now have a much shorter half-life. In some cases, the relevance of knowledge can now be measured in months and years as opposed to centuries (Siemens, 2004). Marhan (2006) posits that this results in a greater two-way

collaborative process and a less linear learning experience. Students use the digital and internet Web 2.0 technologies either for socialisation or learning. As a result of this proliferation, knowledge is becoming increasingly sub-symbolic, distributed, interconnected and personal (Covello, 2010). McLoughlin and Lee (2011:51) further state that the connectivism theoretical framework allows learners "to exploit the affordances of Web 2.0 and to facilitate personal choices, participation, collaboration, and creative production". Web 2.0 applications are expected to transform learning by providing multiple opportunities for student engagement, interaction, reflexive dialogue, content sharing, creativity, collaborative and self-directed learning (Zimmerman, 2011; Jimoyiannis, 2013; Dede, 2011). In this regard, many researchers have suggested that a Web 2.0-based learning environment is student-centred by nature, and allows more control on the part of the students, in terms of engagement, peer interaction, content creation and collaboration (Tang & Lam, 2014; Jimoyiannis, Tsiotakis & Roussinos, 2013; Shea, Hayes, Uzuner-Smith, Vickers, Bidjerano, Gozza-Cohen, Jian, Pickett, M., Wilde Tseng, 2013).

In addition, Web 2.0 applications offer enhanced opportunities for educators to consider new ways of designing and delivering their educational programmes by:

- extending learning environments from time and space bound classroom places;
- promoting openness and the dynamic emergence of the courses, which are determined by students' needs, interests and individual learning initiatives; and
- adopting new forms of pedagogy which offer authentic learning opportunities through self-directed. (McLoughlin & Lee, 2010:128).

Mattar (2010:11) describes connectivism as "distributed learning" since learning is no longer controlled by individuals but it is also controlled by other people who use the internet to connect with them.

Higher education institutions, such as universities, develop information databases and digital images so students can advance towards self-directed learning. To achieve this

objective, a great deal of online information is available for students use to impact their learning in a meaningful way Students, academics and other stakeholders can use the extensive knowledge and information currently available on the internet to advance teaching and learning (Mattar, 2010).

Mattar's view of distributed learning, also referred to as "social networked learning" (Fonseca, 2011:345), and "network connected learning" (Fadel, Rogers, Satterthwaite, Smith, Warren, Palmer & Fiennes, 2013:164), that uses technology to generate, store and distribute knowledge using digital and interactive technologies is supported through the connectivist learning theory. At UNISA, an open distance learning university (ODL), a blended learning approach, consisting of contact sessions with students as well as an online teaching mode, is used. To deliver this blended learning mode, UNISA uses an online learning management system (LMS), called myUnisa that can be viewed as distributed learning through a connected network using the internet. The following major principles of connectivism (Siemens, 2003), which integrate the concepts from the network (Marhan,2007,Barabarsi, 2002; Illich, 1971), chaos (Gleick, 1987; *Science Week*, 2004), complexity (Morrison, 2006), and self-organisation theories (Wiley & Edwards, 2002; Rocha, 1998) are that:

- learning and knowledge are based on diversity of opinions;
- learning is a process of connecting specialised nodes or information sources;
- learning may occur in non-human devices;
- the ability to know more is critical than what is currently known;
- nurturing and maintaining connections is necessary to facilitate lifelong learning;
- the ability to see connections between fields, ideas, and concepts is a fundamental skill;
- currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities; and
- decision-making is itself a learning process.

According to Siemens (2004:79), "Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right

answer now, it may be wrong tomorrow due to alterations in the information climate that impacts the decision". This network creates a climate of connectedness, openness, diversity and autonomy, which facilitates learning and knowledge acquisition (Tschofen & Mackness, 2012). Siemens (2004) explains that connectivism is guided by the belief that "decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions between important and unimportant information is vital". Connectivism and its corollary, connected knowledge, are ideas developed by Siemens and which emerged from the proliferation of modern technologies available to learning practitioners. Learning occurs in different settings including communities of practice, personal networks and workplace tasks (Siemens, 2004). In addition, Conole (2013) and Siemens (2013) explain that learning occurs in communities, where the practice of learning entails participation in the community. Downes in *A Network Pedagogy* (2006, para. 4) suggests that a learning activity is, in essence, a conversation undertaken between the learner and other members of the community. This conversation, in the Web 2.0 era, consists not only of words but of images, video, multimedia and more. The connections that students make help them create their own learning network, and it is through this connected web, that students are able to stay up-to-date with content as it changes.

Connectivism, as a learning theory for the digital age, has had an impact on teaching and learning since ICTs provide the social media for networking and information distribution to all network members in order to gain knowledge. The relevance of connectivism in this study is that lecturers and students should be able to establish networks and nodes for knowledge acquisition and sharing in real time, to empower themselves and their peers. From the teaching point of view, teachers share and interact with peers to improve their knowledge of the subjects they teach and get ideas on how to improve their teaching techniques. These attributes are due to the complex nature of connectivism and are the key principles that characterise connectivism as a learning theory, which should be taken into account.

On the other hand, the student in the digital age is at the centre of the learning process, playing an active role in accessing and making use of the numerous sources of information available online. Hence, today's students have been aptly described as

"do-it-yourself" learners (Nussbaum-Beach & Hall, 2011:234). The student in the digital age is at the centre of the learning process, playing an active role in accessing and making use of the numerous sources of information available online. It is for this reason that the theory of connectivism finds relevance in this study, explaining the nuances inherent in involving students in higher education. In fact, Kathleen-Dunaway (2011) asserts that one of the principles of connectivism, is how higher order-thinking skills are activated when individuals can distinguish which of the abundance of information available online is reliable.

2.4.2   Collaborativism (Online Collaborative Learning Theory)

Behaviourist, cognitivist and constructivist learning theories emphasise learning as an individualist pursuit. Educational researchers found these theories of learning inadequate to address the importance of conceptual change and knowledge building in the contemporary online environment. Oliveira, Tinoca and Pereira (2011) posit that online collaboration is the computer-mediated version of traditional in-class collaborative learning. With the possibility and accessibility of multilevel interaction, resource sharing and higher order thinking activities, online learning environments provide students with the opportunity to develop competencies in a real-world situation (Floyd & Simpson, 2008). In this regard, students are the co-creators of learning content within a technology-rich environment and are their own agents in the learning process. Therefore, the use of the constructivism perspective and the advancement of the internet has led to the development of a particular form of constructivist theory that supports the original idea of networked learning. This has brought about the development of what Harasim (2012; 2017) calls online collaborative learning theory (OCL).

Harasim (2017) portrays a collaborative model of learning in which students are encouraged to work in pairs or groups to create knowledge, invent and investigate approaches to enhance their learning. The OCL theory not only expects students to be active and engaged, lecturers also play an important role as links to the knowledge community (Scardmalia & Beirter, 2006). Zemmels, (2012) note with contention, that educational practice with its emphasis on knowledge transmission, cannot be limited to the millennials who are interactive beings rather than passive recipients of mass

information. As millenialls are technology inclined, learning online and collaboratively can result in interesting learning ensuring effective and effecient learning. The online learning in tandem with collaborative learning impacts positively on the learning process since group diversity evokes a re-thinking of the intention of every participant (Vygotsky, 1978). Collaborative learning promotes that students work in small groups towards the same goal (Prince, 2004). Therefore, 21st century students are envisaged as active and enjoy interaction and collaboration with peers and teachers to expand their knowledge. It is noteworthy that collaborative learning is not new in teaching and learning it forms an important aspect of Vygotsky's socio-cultural theory, the ''zone of proximal development,'' which argues that students cannot gain an understanding of new ideas or concepts unless they "acquire help or feedback from a teacher or a peer" (Vygotsky, 1978:111). In his view, Vygotsky states that collaboration can assist students with problem-solving when they interact as peers and work towards their individual cognitive growth and knowledge acquisition. However, collaborative learning in the 21st century has moved to an online context. Binkley, Erstad, Herman and Raizen, 2012 contend that the recent thinking about the different skills students need in the future has emphasised collaborative problem solving collectively. As a result, the development of e-learning and e-assessment tools like E-portfolios, support collaboration among students. Ku,Tseng and Akarasriworn (2013) posit that online collaborative learning attracts considerable attention in distance learning as online collaboration plays a key role in providing opportunities for students to interact wherever they are at any time.

Harasim (2012) suggests that the collaborativist learning theory differs from constructivist learning by locating active learning within a process of social and conceptual development based on knowledge discourse. Bruffee (1999:133-134) contends, "we think because we can talk with one another". He adds, "education initiates us into conversation and by virtue of that conversation initiates us into thought". In view of the latter, collaborating with others through sharing ideas and providing feedback to each other, ignites more thought in individuals as they are able to engage deeply in discussion and therefore critical thinking evolves. Garcia, Brown and Elbeltagi (2013) concur that through this interaction, learning occurs as peers collaborate, share opinions and critique each other by means of dialogue. Consequently, the collaborativist learning theory builds on the constructivist learning

theory by exploring and emphasising the role of discourse, as theorised by Vygosky (1978). Furthermore, Bruffee (1999) asserts that students are initiated in the process of conversation (discourse) used by knowledge communities to create knowledge and to improve ideas. The author emphasises the importance of collaboration with regard to knowledge acquisition so that students can construct knowledge through engagement with other students. In the context of this study, online collaboration is essential as it provides the opportunity for students to collaborate amongst themselves wherever they are to share ideas, critique and advice each other through constructive feedback. Additionally, the studies of Latour and Woolgar (2013) conclude that scientists construct knowledge through conversation that indicates that knowledge can be constructed through every field and walk of life. Taking this discussion into account, Harasim (2012) had identified three phases of knowledge construction through discourse in a group. The three phases are as follows:

- **Idea Generation:** This first phase entails sharing divergent thoughts generated within a group by means of brainstorming, verbalisation, generating information, and thus, sharing ideas and positions on a particular topic or problem. This can be applicable in E-portfolios, particularly in an ODL environment, where students are afforded an opportunity to collaborate on different levels and make the best of the learning process through engaging with each other.

- **Idea Organisation:** The second phase is the beginning of conceptual change demonstrating intellectual progress and the beginning of convergence as participants confront new or different ideas. These ideas develop according to their relationship with and similarities to one another, selecting the strongest and weeding out weaker positions. As a result, students compare, analyse and categorise the different ideas previously generated, again through discussion and argument.

- **The Intellectual Convergence:** The third phase is typically reflected in a shared understanding to reach a level where intellectual synthesis, understanding and (including agreeing to disagree) consensus occurs. This includes agreeing to disagree, usually through the joint construction of some

artefact or piece of work, such as an assignment, essay, or any other joint piece of work.

The ultimate results of the collaboration (see Harasim, 2012) call for a final position, although in reality, the position is never final because, for a learner, once started, the process of generating, organising and converging on ideas, continues to an ever deeper level. The principle of OCL involves a process of constructing learning from others and not relying on learning as it is, but interrogates and interacts in the process to create meaning and understanding. Therefore, in terms of this theory, learning is shared unlike in traditional learning whereby students are seen as being passive and isolated students. Online collaborative learning theory, which is in line with the new concept of learning, involves the mutual engagement of students working together to solve a problem or working together on learning tasks. Bates (2015) argues that the idea is not to substitute lecturers in the ODL environment, but to use technology to improve communication between students and lecturers. This will develop a particular approach with regard to developing learning through knowledge construction and through social discourse. Like all other theories, the online discourse has its strengths amongst others (Bates, 2015).

The author empathises two strengths: firstly, that online collaborative learning can lead to deep, academic learning or transformative learning that is as good as, if not better than, the discussions based in classrooms; secondly that, online collaborative learning can also support the development of a range of high-level intellectual skills, such as critical thinking, synthesis, and evaluation, which are the key requirements for learning in the digital world (Bates, 2015). In view of the latter strengths, online learning exposes students to learning in a broader way as they get to collaborate widely with as many peers as possible. Therefore, in the e-learning and online assessment platform students are not relying on learning that takes place within their vicinity but extended knowledge.

The use of e-learning and e-assessment compels higher education institutions, particularly with ODL students, to encourage students to collaborate throughout their studies. UNISA with its alternative assessment approach, such as E-portfolios, encourages teaching and learning through an online platform that affords students

opportunity to engage in and interact with others in the learning space to acquire deeper learning and understanding. Within the online platform of MyUnisa, students can use e-discussion forums to post their work, share ideas and provide feedback to others, which promotes peer tutoring. Meaningful reflection can be best facilitated by peer collaboration, artefact co-creation, mentoring, and peer feedback within a learning community culminating in an E-portfolio. Hence, Barbera (2009) asserts that collaboration is the focal point in E-portfolio learning with the robust interaction and communication between students, peers and lecturers providing opportunities for new knowledge construction within a particular social context.

Similarly, Jimoyiannis, (2012) notes that collaboration provides students with an authentic experience related to the selection and discussion of appropriate artefacts, but also real-time feedback and contributions from all the relevant role players that contribute to the opportunity to connect, clarify and communicate as and where needed. In essence, E-portfolios allow students to participate in various multimedia spaces where they can showcase their learning and participate in the discourse relating to the learning experiences within an online community of practice (Buzzetto-More, 2010; Pitts & Ruggirello, 2012). In an online learning environment, as Thomas and Brown, (2011) point out, students are able to join the online communities to gain the knowledge they need and share their expertise online. It is, therefore, necessary to align this E-portfolio study with collaborative learning.

2.4.3   Self-Directed Learning Theory

Higher education has embraced the self-directed learning theory (SDL) as an educational concept that has received increasing attention in recent years. In order to evaluate the link between E-portfolio assessment and self-directed learning theory, this section starts by explaining what self-directed learning is, along with its benefits and characteristics. Knowles (1975:15), the father of self-directed learning (SDL) theory, defines it 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 human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes". What has emerged from the Knowles definition is the important fact that the process underlying

the self-directed learning theory includes a personality construct. Generally, self-directed learning is a distinct necessity in the economy as it promotes competence and career success as workers take control of their work (Guglielmino, 2008). Similarly, Brookfield (1995) describes self-directed learning as a process in which individuals set goals, locate resources, choose the method and evaluate progress through critical reflection.

Self-directed learning is an essential skill required in the 21st century educational world (Foley, 2000). Song and Hill (2007) suggest that when students take responsibility for their self-directed learning personal attributes such as resource use, strategy use, and motivation come into play. In the higher education context, the SDL approach creates possibilities for students to take the initiative in their learning with or without the help of lecturers in diagnosing their needs. Therefore, as Patterson, Crooks and Lunyk-Child (2002:56) posit students will be "identifying their learning needs, formulating learning objectives, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes". Zimmerman (2000), Paris and Paris (2001) contend that self-directed learning is the basis of all types of learning in ODL; it can create many possibilities for students to take control of their learning acquisition. Thus, students play an active role in their learning by planning, organising, controlling and evaluating their learning process that will unfold; ultimately these cognitive attributes help students become lifelong learners. According to Brookfield (2009), SDL involves working in self-directed ways, while engaging in group-learning environments. Recognising that SDL is beneficial, the way students choose to move in and out of the peer networks, is a recurring theme in SDL research. All individuals are capable of self-directed learning, but the degree of development varies in terms of their individual differences, including learning motivation, self-efficacy, self-esteem, conscientiousness, openness to experience and even intelligence. Self-directed learning contains three dimensions: motivation, metacognition, and self-regulation (Garrison, 1997). From the perspectives of both Garrison (1997) and Oddi (1987), the self-directed learner is an individual with a high degree of self-efficacy, is intrinsically motivated, is an individual who sets goals and chooses appropriate strategies to achieve those goals, and who is willing to meet new challenges. Therefore, SDL theory is relevant in this study because it equips students with behavioural traits such as goal orientation, motivation and self-regulation, which

enables students to direct their own learning ways and progress to achieve their academic goals. As a result, students take charge of their own learning and they are then able to direct their learning. Therefore, as postulated by Voogt and Roblin (2012), SDL is an important means that provides students with competence skills that are essential for the 21st century.

While the ODL offers an opportunity for them to study in their given time and space, they are expected to take control of goal achievement in their academic performance. Self-directed learning is gaining momentum in ODL. ODL institutions mostly attract adult learners who have other important roles to play in their everyday lives and as a result find ways in which to accommodate their studies in their busy schedules. As adult students they are independent, are required to take responsibility for their learning and have self-control in their learning process. Consequently, students are responsible for organising their personal objectives, resources and assessment.

Tennant (2007) states that there are three emerging trends in the study of adult learning that have emerged for consideration in the 21st century: the cross-cultural dimensions of adult learning, adult engagement in practical theorising and, lastly, the ways in which adults learn within the systems of education (distance-education, computer-assisted instruction, open learning systems) that are linked to technological advances. Brockett and Hiemstra (1991) contend that educational facilitators must help learners participate in various activities, including the assessment of personal needs, planning subsequent learning activities, securing or creating the necessary learning resources and assessing personal progress in achieving learning goals. This ultimately equips students in the ODL environment to be able to self-directed their learning, planning, organising and taking ownership of their learning.

The use of E-portfolio, as found at UNISA, is relevant for self-directed learning as it allows students to be actively involved through the process of E-portfolio production and its assessment. To ascertain the acquisition and development of skills, assessment plays a critical role as it assists students in becoming self-regulated, reflexive and independent with the capability to exercise high-level evaluations on their own and others' work that allows for lifelong learning.

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2.5 THE INTEGRATION AND RATIONALE OF USING THE THEORIES UNDERPINNING THE STUDY

In scrutinising the various learning theories, it is evident that there is a relationship between behaviourism, cognitivism, constructivism, connectivism, collaborativism and self-directed learning. The E-portfolio alternative assessment approach introduced at UNISA is underpinned by these theories. These theories influence each other with various components that are essential to the successful implementation of E-portfolio as alternative assessment strategy in an ODL context. The learning theories of behaviourism, cognitivism and constructivism have been applied in the 20th century and are still relevant in the online learning in the 21st century and still play an influential role in teaching and learning as they determine the behavioural change of students as learning takes place.

In contrast, connectivism and collaborative theory encourages connection to the network world and requires students to work together to solve problems. Furthermore, self-directed learning (SDL) encourages goal orientation, which enhances the practice of lifelong learning in the 21st century (Partnership for 21st Century Skills, 2009; and Voogt & Roblin, 2012). The collaborative learning theory also relates well to the constructivism pedagogy because these theories allow students to be independent and create knowledge through collaboration with each other and the community at large. With these theories, students are encouraged or required to work together to solve problems, discuss ideas, or to acquire new knowledge.

In this context, collaborative influences, particularly during E-portfolio design and development, have a positive effect on student learning. This means that it is anticipated that students are self-directed in order to achieve learning goals. Therefore, students need lifelong learning skills, such as digital literacy, communication and information skills, problem-solving, higher order thinking skills, creative thinking skills, and interpersonal and self-directional skills to be successful in the 21st century. The use of E-portfolios in teaching, learning and assessment can therefore embrace these theories as they bring the best to support student learning.

In this study, the method of assessment regarding E-portfolios under investigation drives learning as students become actively involved throughout the learning process towards product development while deep learning takes place. This assessment type becomes a shift from formative to summative assessment and equips students with the knowledge and skills needed to be achieved at the end of the learning process. Figure 2.1 below depicts the learning theories used in this study and relationship amongst each.
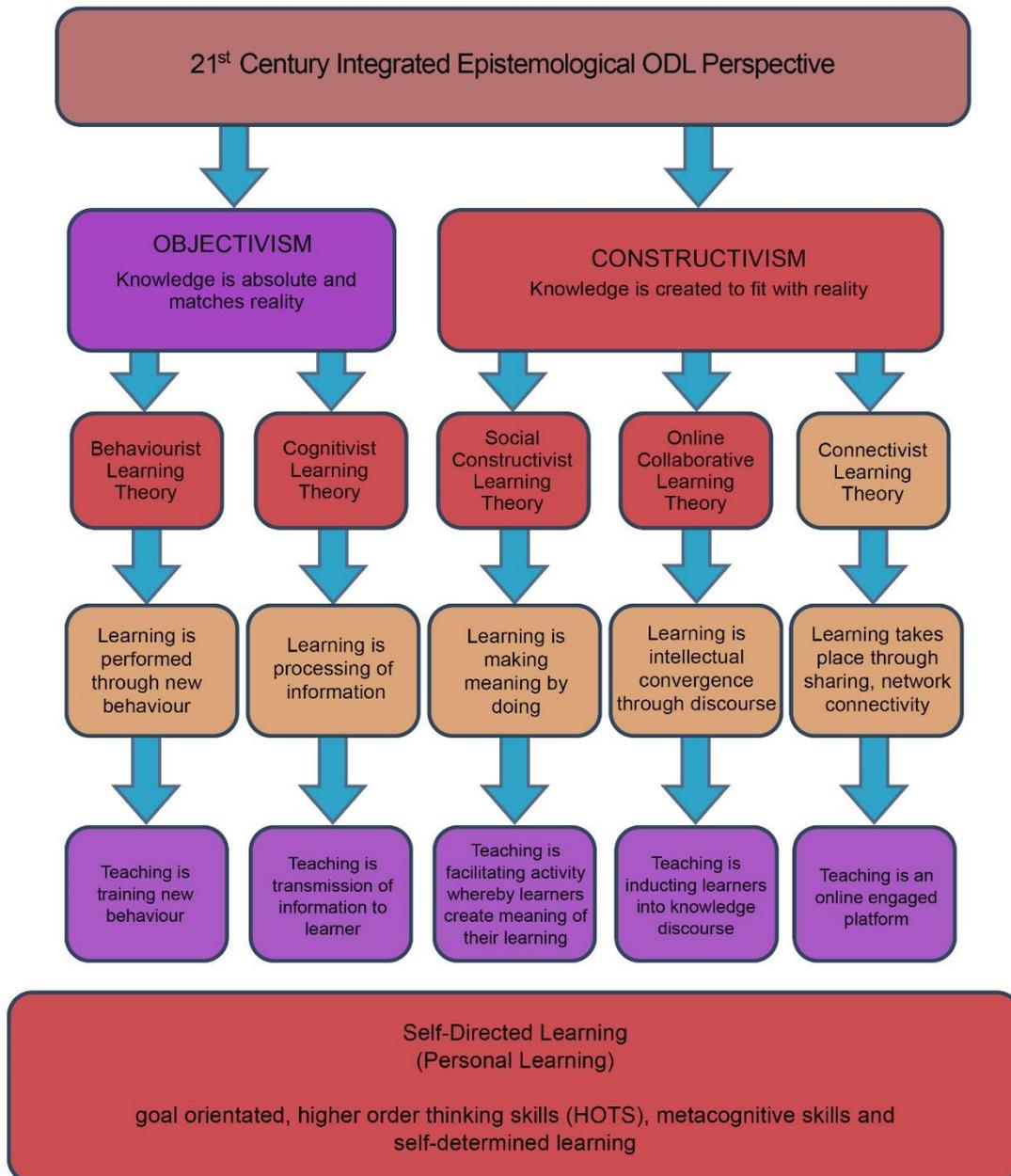
Figure 2.1: 21st Century Integrated Epistemological ODL Perspective
(Adapted From Harasim, 2017)

2.6   CHAPTER CONCLUSION

This chapter highlighted a number of prominent matters and guiding principles that underpin e-assessment (such as E-portfolios) as well as alternative assessment strategies to enhance self-directed learning in the ODL environment. This literature review outlined the theories that underpin this study, namely, the behaviourist, cognitivist, constructivist, connectivist, collaborativist and self-directed learning theories respectively. The emphasis in this literature was not only on the measurement of student learning, but also on alternative assessments as a means to enhance self-directed learning. The theories benchmarked their relevance in 21st century teaching and learning that embraces online learning. Thus, they also initiated change in the assessment of students from traditional assessment to alternative assessment strategies that are groundbreaking and relevant for this century. These alternative assessment methods are pertinent for online learning that can use these theories as lens to report on the importance of self-directed learning. These theories underpinning open distance learning have a bearing on assessment practices in ODL. The integration of the theories in this study, therefore, are relevant and applicable for use at UNISA as an ODL university.

The next chapter will outline the literature on assessment, and alternative assessment approaches as the 21st century approach and strategy in an ODL university.

CHAPTER 3
A SCOPING REVIEW OF ASSESSMENT AND ALTERNATIVE ASSESSMENT APPROACH IN AN OPEN DISTANCE LEARNING CONTEXT

3.1   INTRODUCTION

This chapter provided a scoping review on assessment, the importance of assessment on ODL and alternative assessment within the context of ODL. This scoping review was intended to determine the research currently available to address both the research topic and future research needed to gain a satisfactory perspective on the impact that assessment, alternative assessment and the importance of assessment in ODL to enhance student learning through self-directed learning. A scoping review was conducted to establish information relevant about current assessment practices and was obtained from various databases and sources to produce a body of evidence about assessment in higher education focusing predominantly on assessment, alternative assessment and assessment in ODL.

3.2   A SCOPING REVIEW OF LITERATURE ON ASSESSMENT AND ALTERNATIVE ASSESSMENT

The purpose of this scoping review was to provide an overview of the exiting literature based on assessment, alternative assessment and e-assessment as proposed by Arksey and O'Malley, 2005). A scoping review was used to synthesize research evidence (Daudt & van Mossel & Scott, 2013; Levac, Colquhoun & and O'Brien, 2010) and identify research gaps in the existing literature regarding the phenomenon under investigation. Steps, identified relevant and appropriate for this scoping review, were followed in order to draw conclusions from existing literature. Steps followed are outlined below:

Step one comprised a desktop search for scholarly work (n=50) on assessment, alternative assessment and e-assessment was done. The researcher used terms such 'assessment, alternative assessment, authentic assessment and e-assessment' to identify relevant publications. The researcher used the following databases, Pro Quest Dissertation and Theses, EBSCO HOST, Educational Resource Information Centre

(ERIC), Google Scholar for this research search path. Initially Google scholar as a search engine was used to search for articles and related sources. Furthermore, an alert was created to notify the researcher about recent publications on assessment, conference papers, unpublished manuscripts, government or agency reports, peer reviewed studies were also used. Assessment policies of UNISA and other open distance learning universities were also sourced and used to undertake the scoping view on alternative assessment approach.

During **step two**, educational consultants (UNISA personal librarians) were requested to support the researcher with following databases: Pro Quest Dissertation and Theses, EBSCO HOST, Educational Resource Information Centre (ERIC). The researcher consulted with UNISA librarians using search terms to retrieve available information on assessment and alternative assessment (n=50). The various articles (n=18), dissertation (n=2), theses (n=2) and academic book chapters (n=8) were emailed to the researcher. Finally, the researcher retrieved the UNISA Assessment policy (n=1) and official documents (n=3).

Step three consisted of the pre-screening of relevant titles and abstracts (n=32) for inclusion in the review and elimination of irrelevant titles of full text (n=18). In **Step four,** reading full texts of the scholarly articles (n=14).The researcher applied criteria such as e-learning, e-assessment, alternative assessment and self-directed learning of the full text of the scholarly articles.

During **step five** additional searches on alternative assessment was done for inclusion purposes (n=4). A final review included alternative assessment. Finally, **step six** included a review of assessment and alternative assessment publications (n=18). This scoping review (a scientific enquiry on the phenomena under investigation) provided relevant and up-to-date information on assessment and alternative assessment approach and its current implementation in higher education.

3.3   CONCEPTUALISATION OF ASSESSMENT

Assessment is an essential part of formal higher education (Gikandi, Morrow & Davis, 2011) and forms the core component in the teaching and learning process. Airasian

(2005:9) defines assessment as the broad process of collecting, synthesising and interpreting information in which testing, measurement, and evaluation all play a contributory role. Similarly, Clements and Cord (2013) state that assessment is an essential component in the teaching and learning environment and should promote learning as well as being a measure to certify outcomes. Furthermore, Andrade and Cizek (2010), Hattie and Timperley (2007) and Black and Wiliam (1998) concur that the primary goal of assessment is to improve teaching and learning.

Orsmond, Merry and Reiling (2000) contend that assessment tends to shape every part of the student learning experience and refers to the evaluation of overall performance and generating assumptions regarding learning (Sadler, 2009). Walvoord, (2010) defines assessment as a systematic collection of information on student learning using the time, knowledge, expertise and resources available to inform the decision on how to improve learning and is considered a process that involves three steps to establish student learning goals: collecting qualitative and quantitative evidence, informing the assessor how well students meet these goals by using the information to enhance learning.

In this researcher's view, **assessment** refers to the numerous ways, methods or tools that educators (in this context, lecturers or academics) can use to measure, evaluate and document the academic readiness, learning progress, skills acquisition, or the educational needs of students. Therefore, assessment is able to establish what students know, can do and what students do not know and what they cannot do, particularly where assessment tasks require practical application. Assessment's role allows teachers to check whether teaching methods, tasks and materials need changing or adapting in order to improve student learning and development. The choice of assessment is critical, and assessment should be properly aligned to the learning outcomes that can produce constructive learning (Biggs & Tang, 2011). Therefore, teaching and learning methods must be assessment-centred to offer students opportunities to prove their emerging abilities and receive backing to enrich their learning. In the next section, the purpose and use of assessment (Section 3.3.1) will be discussed, while in Section 3.3.2 the principles of assessment are outlined.

3.3.1   The Purpose of Assessment

Assessment has a profound impact on teaching and learning and its primary purpose is to improve student learning. Ramsden (2003) points out that learning-oriented assessment is about several purposes and functions at once. In the same vein, assessment experts, William and Thompson, 2017 and Boud (2015) indicate that the purpose of assessment is to enhance the quality of teaching and learning. They further posit that educational assessment should not simply measure what students have achieved but that assessment should help students to learn and achieve learning goals Bloxham and Boyd (2007) argue that assessment can reveal a student's strengths, weaknesses and ways of learning and enables students to be given feedback that will help them improve. Adding to these views, Sadler (2010) and Rowntree (2015) posit that assessment has a major influence on what and how students learn and on how much time they spend studying. Assessment usually aims to quantify the effectiveness of learning and is seldom an end in itself, but is rather an important element in the learning process (Biggs, 2011). Thus, assessment is seen to have three main purposes, namely:

- To support student learning,
- To judge the quality of student achievement, and
- To satisfy the needs or demands of accountability.

For assessment to be effective, the above mentioned purposes should be considered when designing assessment tasks. The purpose of assessment in higher education is to capture students' time and effort, generate or design appropriate student learning activities and provide constructive feedback timeously (Gibbs, 2013). On the other hand, Lambert and Lines (2013:360) argue that assessment is sometimes regarded as a "necessary evil," which serves more to support educators than students. Therefore, according to McAlpine (2002), the aim of every assessment can be ascertained by determining :

- Why the assessment is being conducted,
- Which decisions can be made from the results of the assessment, and

- What information needs to be collected to ensure the most effective way of collecting the required information.

In this researcher's view, **assessment** refers to the numerous ways, methods or tools that educators and lecturers can use to measure, evaluate and document the academic readiness, learning progress, skills acquisition, or educational needs of students. Consequently, assessment is able to establish what students know, and what students do not know and what students can do and or cannot do mainly because some assessment tasks require them to do it practically (Biggs, 2011). If this is the way assessment is viewed, lecturers will have a deep understanding of what their students know, understand, and can do with their knowledge. This will enable lecturers to consider if they need to modify the teaching methods, activities, and materials, to improve students learning and development. Hence, Biggs and Tang (2011) argue that assessment has an influence on student learning that means that assessment, and not only the curriculum defines how and what students learn. Ultimately, the choice of assessment is critical and assessment should be properly aligned to the learning outcome that can produce constructive learning. Overall, teaching and learning methods must be assessment-centred to offer students opportunities to prove their emerging abilities and to receive support to facilitate further learning.

3.3.2 The Principles of Assessment

Assessment in ODL serves the same purpose as in conventional institutions where assessment supports and is accountable for quality improvement of student learning (Gikandi, Morrow & Davis, 2011). Race (2014) postulates that assessment principles are developed to guide lecturers in carrying out good assessment and making sound judgements. According to Xu and Brown (2016), the main aims of the principles of assessment are greater consistency and transparency in the design and application of assessment tasks. In the process, these principles lead to stimulate assessment practices so the aims of assessment are fully achieved as a developmental process to support learning. Therefore, these principles allow for a wide variety of assessment design and tools throughout the curriculum including those linked to disciplinary and professional requirements. Notably, Cleaver, Lintern and McLinden (2014), Gibbs, (2013) and Amundsen and Wilson (2012) note that lecturer understanding of the

purpose and pedagogical philosophies underlying assessment differs across different types of qualifications, study levels and disciplines but development of assessment is determined by the curriculum, and learning outcomes within which they work. Taking this into consideration, Sambell, McDowell and Montgomery (2012) provide central principles which underpin effective assessment practice in higher education which are outlined as follows:

3.3.2.1   Authentic assessment

In order to successfully assess students, authentic assessments should be employed. Assessment of students should focus on what the assessors want students to achieve and should avoid being driven by what is easy to assess or the way in which assessment has always been done, such as traditional assessment (TA). Cox, Imrie, and Miller (2014) point out that the assessment content and methods should emphasise authenticity and complexity rather than rote learning that allows reproducing of knowledge. In this researcher's view, authentic assessment should allow students to think deeply and be tasked with applying their knowledge and skills in real-world situations.

3.3.2.2   Balancing summative and formative assessment

Formative and summative assessment should be carried out effectively by the integration of each but one should not dominate and drive the entire teaching, learning and assessment process (Burke, 2010). Effective assessment practices should look at student engagement, which is qualitatively different from engagement in genuine learning rather than over-focusing on marks and goals (Price, Carroll, O'Donovan & Rust 2011). Time, space and energy must be found to infuse the student experience with formative assessment (assessment for learning to reduce the dominance of summative assessment (assessment of learning).

3.3.2.3   Creating opportunities for practice and rehearsal

Students should be given opportunities through assessment to practice their learning and improve, building competence and confidence before summative assessment is

conducted. One of the best ways for students to learn is by educators and lecturers allowing the space to learn through trial and error through numerous tasks. Thus, they become confident learners through practice (Stiggins, 2002).

3.3.2.4 Designing formal feedback to improve learning

Feedback is key to assessment. Therefore, well-designed feedback is essential to student learning and growth. Higher institutions of learning tend to use conventional feedback in terms of tutor or lecturer written feedback, for instance, comments on written assignment (Hounsell, McCune, Hounsell, and Litjens, 2008). In addition to the latter, feedback can be drawn from other sources of feedback including peer and self-review and reflection.

3.3.2.5 Designing opportunities for informal feedback

Students should be encouraged to interact beyond a formal curriculum, which can generate an informal feedback session. As students work together, they are able to discuss ideas and methods, interact with teachers, test their own ideas and skills, see how other students go about doing things and begin to absorb the standards and requirements of the subjects (Boud, Cohen & Sampson, 2014). In addition, technology allows students to communicate with each other outside the formal communication by using online platforms such as Facebook, twitter and WhatsApp to share and discuss their studies.

3.3.2.6 Developing students as self-assessors and effective lifelong students

If students are to be active in their own learning they need to be able to make decisions for themselves, decide which approaches to take and evaluate their own progress. There should be opportunities for students to be active participants in assessment processes and develop assessment literacy. "For students to gain a sense of ownership" in their learning, assessment needs to position students as active learners (Boud & Molloy, 2013:235). These principles are presented below in Figure 3.1.
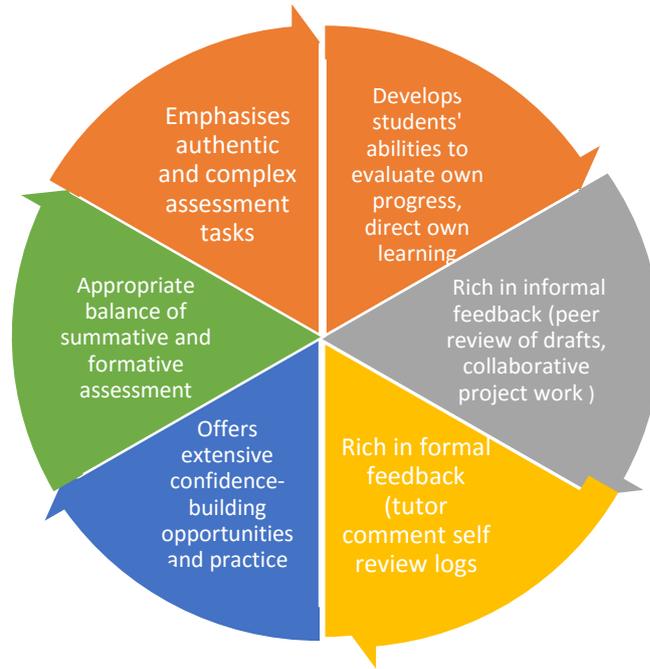
Figure 3.1: Principles of assessment in open distance learning in higher education

(adapted from Sambell, McDowell & Montgomery, 2012)

3.4 FORMS OF ASSESSMENT ENHANCING STUDENT LEARNING

Assessment is crucial for any area of academic endeavour. Formative assessment (assessment for learning), summative assessment (assessment of learning) and self- and peer assessment (assessment as learning) are extremely important (Mostert & de Bryn, 2011) and accordingly, these assessment practices in higher education are used to enhance student learning. Formative assessment is an integral part of the teaching process and takes place during learning activities, with self assessment being the process of analysing oneself or one's actions, while summative assessments are given periodically to determine what students know and still need to know and which normally happens at the end of the lesson (Dixson & Worrell, 2016; Brown, 2015; William, 2011).The following sections elaborates more on the different types of assessment such as formative assessment (3.4.1), summative assessment (3.4.2) and self and peer assessment (3.4.3).

3.4.1 Formative Assessment (Assessment for Learning)

Formative assessment, also referred to as assessment for learning and sometimes also referred to as continuous assessment, is defined as the process of researching and interpreting evidence for use by students and their educators to decide where their learning is taking place, where they should go and how best to do it (Assessment Reform Group 2002; and Heritage, 2010). By drawing on the concept of formative assessment various scholars, state that it tends to be criterion based and occurs during a learning activity with the aim of activating students (Johnson, Becker, Cummins, Estrada, Freeman, and Hall, 2016; Wiliam, 2011; Ecclestone, 2010). Subsequently, students become owners of their learning providing a richer picture compared to representations made possible through summative measures. Hence, Braun and Clark (2013) argues that student ownership of learning can be increased by enhancing active learning and student engagement.

Formative assessment is considered an integral component to good teaching, student motivation, engagement and higher levels of achievement providing evidence of instruction (Spector, 2015; Woolf, 2010). Geisinger (2016) points out therefore, that it is important for lecturers to choose the right technique, methods and tools to assess and which will develop holistic and quality students. Growth within the development of new learning technologies provides opportunities for formative assessment in the ODL environment (Johnson *et al.*, 2016; Woolf, 2010). For example, research has identified how various technology offerings are integrated into the next generation of problem-based designs to enhance both online and personal interactions and collaborative knowledge building (Jin & Bridges, 2014, Roskos & Neuman, 2012; Narciss, 2008,). The use of technology has an advantage for students who are assessed continuously within an online distance education environment. Joyes, Gray and Hartnell-Young (2010) posit that an online assessment approach can promote a student-centred approach and more active learning experiences are encouraged that lead to pedagogical changes in higher education. Additionally, with constructive feedback, student engagement, improved achievement and enhance motivation to learn is fostered. In these circumstances, formative assessment provides lecturers with a more accurate representation of student gains in knowledge and skills by using various strategies during the teaching process (Lee & Hannafin, 2016). Therefore, formative

assessment is regarded as a 'learning opportunity' not just a test of student performance; assists in planning future learning; diagnoses student strengths and weaknesses and provides feedback to the students on their progress. In addition, formative assessment involves monitoring the learning process, thereby assisting the learners with learning, while assessment as learning focuses on the evidence of learning and its individual and collaborative reflection. In this context, UNISA students are assessed through various formative assessments that contribute to their learning, while also providing them with effective cognitive skills (foundational and reflexive), practical skills, and learning attitudes and values that are needed for further study or in a workplace situation or for any other goals after certification.

The UNISA policy (2015) indicates that the function of formative assessment in ODL is to provide contact, support and structure to the learning experiences of students often unfamiliar with and alienated by the distance learning experience. In this regard, Bennett (2011:125) presents the four key principles of formative assessment that benefit students learning:

Firstly, there is a need to meet students at their level of knowledge and to revisit prior learning. Secondly, students have to be actively involved in their learning. Thirdly, students must be clear about the learning goals, so that they "know the criteria they are evaluated against and how to improve" on their work. Finally, students need to engage in self and peer assessment to develop a critical awareness of what is required of them and to improve their work.

Therefore, formative assessment ensures that students play an important role in managing and directing their own learning, while being fully aware of their learning objectives and expected learning outcomes. It is worth noting that students in an ODL environment are not afforded the opportunity of daily teaching therefore formative assessment provides them with numerous practice opportunities to work towards the learning goals. As a result, opportunities for formative assessment increase student exposure to learning as well as feedback from peers and lecturers (Lu, Bridges & Hmelo-Silver, 2014).

Feedback plays a pivotal role in the cycle of assessment. Hughes, 2016, define good feedback as feedback that helps to clarify a good performance (goals, standards, expectations criteria), promotes the development of self-assessment (reflection) in learning and facilitates deep learning. Furthermore, this results in the acquisition of quality information and encourages lecturers and students to engage in dialogue about learning, inculcating positive motivational beliefs and self-esteem (Sukrajh, 2018). Ultimately, this provides opportunities to bridge the gap between the existing and the expected performance, and in addition, it provides teachers with information that can be used to help shape their teaching.

Hattie and Timperlay (2013) separate feedback into several categories: teacher feedback, peer, book, parent, self, and experience feedback which function as corrective, alternative, clarifying, encouraging, and a self-evaluative tools respectively. Feedback guide students in identifying what they can do to close the gap between their current performance and the desired performance. With the latter in mind, Hattie and Timperlay (2013) state that by providing effective feedback, students ask three major questions: *Where am I going in my learning? (What are my goals?), How am I going to reach my goals? (What progress is being made towards the goal?),* and *Where to go next from here? (What activities need to be executed to make better progress?).* These questions are able to give a clear direction regarding student learning. In Table 1.1 below, the five strategies of formative assessment, developed by Wiliam and Black (2008), answer the three questions, which indicate student-learning progress.

Table 3.1: Five key strategies of formative assessment

Where the student is going?	Where the student is now?	How to get there?
Teacher/ Lecturer:		
Identifying and clarifying learning objectives and criteria for success	Effective discussions and other learning tasks that elicit evidence of student understanding, engineering effective classroom discussions and other learning tasks that elicit information about student learning.	Provide descriptive feedback that moves students forward in their learning (that is, outlining what was done well, what needs improvement, and how to improve). • Engaging students as learning • resources for one another • Empowering students to become owners of their own learning
Peer:		
Understanding and sharing learning intentions and criteria for success.	Activating students as instructional resources for one another by engaging in peer and feedback.	Students are actively involved in the learning process, not just as passive receivers of knowledge.
Student:		
Understanding learning intentions and criteria for success.	Activating students as the owners of their own learning through self-assessment and goal setting.	Students actively taking charge of their learning with other peers and using feedback to determine their success in learning

Source: adapted from Wiliam and Thompson (2007)

The table above highlights the importance of lecturers and students involvement in the learning process for the success of formative assessment. Their actions are seen through the arrangement of practical and discursive actions in which they participate through feedback sessions. Hawe and Dixon (2017) argues that formative assessment thus fosters the interdependence of teaching, learning and assessment, and challenges the view of assessment as a peripheral component of pedagogy. On the other hand, formative assessment also helps to sharpen and improve teaching skills. The goal is to help students identify their strengths and weaknesses, to target further learning, and it should help lecturers to recognise and deal with challenges experienced by students during the process. Bennett (2011) comments that quality assessment evaluation depends on a profound understanding of the subject domain

and, as such, highlights two implications. Firstly, there is the importance of interpreting evaluation information significantly and being able to organise appropriate feedback. Secondly, and partly as a consequence of the first implication, "the tools and the intellectual instrumentation we give to educators may differ significantly from one domain to the next because they ought to be precisely altered to the domain in question" Bennett (2011:567). As a result, this will afford lecturers the chance to adjust their teaching based on the needs of the students. However, for formative assessment to be taken on board, there needs to be engagement and co-operation among the various stakeholders that interact within the context of educators' work, (Carless 2015).

In summation, Tannehill, Van der Mars and MacPhail, (2013) argue that well-planned, designed and implemented assessments inform the most effective, meaningful and worthwhile instruction strategies to improve teaching and the subsequent student learning experiences.

3.4.2   Summative Assessment (Assessment of Learning)

Assessment of learning assists teachers in using evidence of student learning to assess achievement against outcomes and standards. Unlike formative assessment, which is an ongoing process, summative assessments are usually performed at defined key points during a unit of work or a specific point in the learning process, or at the end of a certain teaching period such as the end of a unit, term or semester. Summative assessment may be used to rank or grade students thus summarising student achievements after some defined period of time (Biggs, 2011; Gikandi, Morrow & Davis, 2011). The effectiveness of assessment of learning for grading or ranking depends on the validity and reliability of activities.

This form of assessment is used for making a judgement about the achievement of outcomes in order to certify that students may progress in their studies or may graduate. Summative assessments are normally executed through grading, scoring primarily from tests, tasks, projects, exams and work portfolios (Sambell, McDowell & Montgomery, 2012). The main purpose of summative assessment is to sum up what each individual achieves and provides this information in a way that is suitable for use

beyond their studies, such as access to further stages of education or to employment (Boud, 2012; Sambell, McDowell & Montgomery, 2012; Biggs, 2011). In addition, summative assessment allows lecturers to use evidence of student learning to assess achievement against outcomes and standards.

On the one hand, summative assessment can be seen as an opportunity for learning but that is dependent on the nature and quality of the feedback which could be used to plan future learning goals and pathways. As a result, this assessment determines whether the student is competent or not yet competent in respect of outcomes determined for learning. On the other hand, unlike formative assessments, which are generally used for providing feedback in the learning process, summative assessments are generally high-stake assessments and are used to get a final assessment of how much learning has taken place, that is, how much a student knows (Ecclestone, 2010). Summative assessments are almost always graded and are typically less frequent, occurring at the end of segments of instruction, quarterly, semesterly or yearly (Gay, Millis & Airasian, 2009). Typically, if a student performs satisfactorily, no more formal learning in the assessed subject occurs, except in the case of a cumulative final examination. In addition, Harlen and Gardner, (2010) argue that summative assessments' role assists with determining a student's level of success or proficiency at a particular time, furthermore, summative assessments are also used to determine eligibility for special programmes; for example, gifted and talented education, to assess if a student should advance to the next level, to provide career guidance, or to assess qualifications for awards.

In the learning environment, summative assessments should not only give students a chance to demonstrate their conceptual understanding, but also an opportunity to think critically as they apply their understanding under novel conditions to solve new problems or to explain phenomena (Rowntree, 2015; National Research Council, 2001). One of the most common summative assessments used in universities are the mandated venue-based examinations. The same is being observed at UNISA wherein students sit for examination in various venues around the world. However, summative assessment can be administered using a variety of alternative assessment methods and tools.

Summative assessments have goals envisaged by any given education institution, which can even be applied in the ODL environment. These goals are to:

- describe both student achievement and growth of student learning accurately as part of programme evaluation and accountability systems;
- provide valid, reliable, and fair measures of student progress towards, and attainment of the knowledge and skills required to be career-ready and be actively involved in the employment industry; and
- Capitalise on the strengths of computer adaptive testing as efficient and precise measurements across the full range of achievement (Green, 2018).

Common Core Standards (2014) note that summative assessments are not limited to multiple-choice questions, tests and examinations, but also extend to include response items, technology-enhanced items and performance tasks. This variety of assessment tools allows students to demonstrate problem-solving, higher order and critical thinking skills that ultimately assist them in retaining knowledge. Furthermore, Kim *et al.* (2008) argue that the nature of every module, its purpose and student characteristic determines the impact on the assessment method used. Therefore, not all types of alternative assessment are suitable for all modules, and careful consideration should be given to select the correct type of assessment.

3.4.3   Self- and peer assessment (Assessment as Learning)

Self-assessment is an essential part of assessment as learning that encourages students to be involved in their learning. The purpose of assessment is to determine the amount, level, value or worth of something. Therefore, self-assessment is a process through which students work to consider and specify the level, value or quality of their own learning (Topping, 2010). In this regard self-and peer assessment provides students with the opportunity to monitor their own learning, ask questions and use a range of strategies to decide what they know and can do, and then how to use the assessment for new learning, in the process of developing and supporting student metacognition (Chang, Tseng & Lou, 2012). Baars, Vink, van Gog, de Bruin and Paas (2014) argue that self-assessment involves retrospective monitoring of

previous performance and reporting the quality of student work completed. In this light, the researcher notes that self-assessment and peer assessment is assessment conducted by students to check their progress and results of how far they have gone regarding their learning. Additionally, self- and peer assessment can be recommended as an appropriate approach to student involvement in formative assessment, wherever the assessment for learning reform agenda has been advocated (Berry, 2011). As a result, this will afford students the opportunity to continuously assess themselves throughout the learning process. Numerous scholars, argue that to prepare students to face their future learning needs, students should be exposed to various assessment strategies to develop self-assessment (Brown & Harris 2014; Major, Meakin, & Perrin 2011). These self-assessment skills will contribute to student ability to make judgements of their learning, applying skills that will yield good self-assessment results (Spiller, D., 2012; Cassidy 2007). Furthermore, Boud (2008) suggest the following affordances of assessment as learning:

- Students to take responsibility for their own learning by making judgements of their learning using assessment strategies to actively monitor and evaluate their own learning.
- Requires students not to be passive receivers of knowledge but to ask questions about their learning.
- Requires involvement with educators and students in creating learning goals to encourage growth and development.
- Provides ways for students to use formal and informal feedback and self-assessment to help them understand the next steps in learning.
- Encourages peer assessment, self-assessment and reflection.
- Feedback, together with evidence, helps lecturers and students decide whether students are ready for the next phase of learning or whether they need further learning experiences to consolidate their knowledge, understanding and skills.

Additionally, lecturers can take heed of the following model in order to practice Assessment *as* Learning: (adapted from Western and Northern Canadian Protocol, 2006: 42-43) that includes:

- Discussing the learning outcomes with the students,

- Creating criteria with the students for the various tasks that need to be completed and/or skills that need to be learned or mastered;

- Providing feedback to students as they learn and ask them guiding questions to help them monitor their own learning,

- Helping them set goals to extend or support their learning as needed in order to meet or fully meet the expectations,

- Providing reference points and examples for the learning outcomes.

Lecturers are also responsible for ensuring that students have a learning environment in which they feel comfortable and safe to learn as well as having ample time to practice what is being taught.

Furthermore self-assessment allows students to go beyond completing the tasks assigned to them. They move from the passive learner to an active becoming the owner of their own learning. Initially, with guidance and tools, students learn to monitor if they have understood the learning outcome being explored and the metacognitive process. Once the metacognitive skills have been acquired, students can independently adjust their learning accordingly and demonstrate the "self-reflection, self-monitoring and self-adjustment". (WNCP, 2006:85) Extensive and relevant modelling in the questions below can help students reach this point:

- What is the purpose of learning these concepts and skills?
- What do I know about this topic?
- What strategies do I know that will help me learn this?
- Am I understanding these concepts?
- What are the criteria for improving my work?
- Have I accomplished the goals I set for myself?

Additionally, use of peer-assessment as part of an outcomes based curriculum is proposed as it forms part of assessment as learning. Peer assessment can be defined as "an arrangement for student to consider and specify the level, value, or quality of a product or performance of other equal-status learners, then learn further by giving

elaborated feedback and discussing their judgements with peers to achieve a negotiated agreed outcome" (Topping ,2010:59). The use of peer assessment can be used closely with self-directed learning that prompts the development of autonomous learning skill sets and improves the ability of students to judge their own and their peers' work to the extent that the perspectives of the students on their own abilities develops. Alternative assessment such as E-portfolios requires students to be involved in their learning by reflective practices and group work that requires self and peer assessment (Chang, Tseng, Chou & Chen, 2011). In the ODL environment various means can be used to allow to students to asses themselves regardless of the distance. Therefore careful learning design can set-up situations in which peer assessment can be linked to a series of artefacts from which students can learn through interaction and dialogue with others, assessing each other and providing feedback (Boud & Soler,2016). In this light, assessment can be in the above mentioned forms (formative and summative) in order to enhance learning in an ODL environment.

3.5   THE IMPORTANCE OF ASSESSMENT IN OPEN DISTANCE LEARNING

Open distance learning (ODL) is characterised by a separation between student and lecturer, the use of technology to facilitate teaching and learning and student centeredness. The University of South Africa (UNISA) is an ODL institution that follows a blended approach to teaching and learning although it is working towards to e-learning. This means that learning is accomplished through multiple teaching and learning strategies, a range of technologies and the deployment of both physical and electronic study material (UNISA, 2008).

In this regard, assessment plays a vital role in the process of teaching and learning, through grading of student performance in acquiring knowledge, skills and attitudes. Chaudhary and Dey, (2017) point out that one of the key reasons assessment is conducted in the ODL system is to provide feedback to students. Formative assessment begins with the first assessment tasks and includes assignments as well as semester or year-end examinations. Feedback from these assessments gives lecturers of student performance, how to proceed with the programme and to generate a spirit of consciousness to connect the concept of written materials with the varieties

of practices carried out by the students. Additionally, at the end of the learning period, summative assessment is conducted based on the formative assessment, which assists in examining student performance at every stage I order to successfully attain course or programme learning objectives. In view of the latter, the two-tier assessment practice of formative and summative assessment plays an important role in student learning. These forms of assessment practices in ODL are not only meant for students to earn grade, but are equally helpful for monitoring the effectiveness of academics programmes and adopting appropriate strategies to accomplish learning objectives.

Additionally, assessment helps students to be aware of progress in their studies, to achieve mastery of the concept, to find out the causes of the difficulties and to get the remediation to overcome the learning difficulties. It also helps students through positive feedback improves their learning if they fail to achieve the required standard. Further assessment satisfies the purpose of certification and the awarding of a degree. Secondly, it helps lecturers assess the effectiveness of the instructional strategies, communication, and involvement of the students. In case lecturers fail to achieve specific instructional objectives, they can modify their teaching-learning strategies. It also helps lecturers judge the suitability and effectiveness of self-learning material supplied to the students. Finally, assessment helps lecturers modify the learning behaviour of students and make the teaching-learning process effective and outcome-oriented.

ODL universities globally employ formative and summative assessment to assess students. Table 3.2 below outlines the assessment practices employed in attempt to enhance and develop student learning at a number of open universities.

Table 3.2: Assessment practices in Open Universities

Open Universities (ODL)	Assessment Practices employed
Indira Gandi National Open University (IGNOU), New Delhi, India www.ignou.ac.in	IGNOU conducts it Is a three-tier system of assessment: self-assessment tasks, continuous evaluation through assignments (tutor marked and computer), and term-end examinations. Assignments and term-end examinations constitute 30 and 70% respectively of the total weighting. Formative assessment comprised of assignments, the personal contact programme and workshop-related activities such as practicals, micro-teaching, community participation,

Open Universities (ODL)	Assessment Practices employed
	field experience, school-based activities, hands-on activities, seminars, group discussion, etc. Summative assessment comprises term-end examination, project and dissertation/thesis evaluation.
The Open University of China (OUC), Beijing, China http://en.crtvu.edu.cn	Every student has his/her own individual learning space and enjoys personalised support services. Learning progress can be evaluated constantly, and formative and summative evaluation are used together to ensure the learning process and quality of learning. The OUC operates a credit bank with the functions of credit accreditation, transfer, deposit and withdrawal. The bank helps learners establish lifelong learning portfolios and accredit or receive certificates for various learning achievements. The bank carries out accreditation and transfer of credits between degree and non-degree continuing education, and bridges and connects different types of learning achievements
Allama Iqbal Open University (AIOU), Islamabad, Pakistan www.aiou.edu.pk	Assessment of students in distance education system in AIOU is done in two ways: continuous assessment and term-final examination. In continuous assessment, students are required to do two assignments for each half-credit course and four assignments for each full credit course. The marks obtained in the assignments contribute to the final course result. Term-final examination is another component of overall assessment system of a course. Term-final examination helps the students to review their studies and see the course as a whole. At the end of each semester the University arranges a final three-hour written examination in each course.
Bangladesh Open University (BOU), Gazipur, Bangladesh www.bou.edu.bd	There are two types of evaluation at BOU such as continuous evaluation through tutor marked/practical assignments and the projects, and semester-end evaluation through semester–end examination.

Source: University websites of the above five Open Universities *retrieved on 13.04.2013.*

The above-mentioned universities use a two-tier system of assessment, namely formative and summative assessment, with more weighing given to the summative assessment to certify student performance. In assessment for 21st century skills, strategies and techniques that lecturers can employ are many and varied. Lecturers can consider technology-based assessment rather than traditional paper and pencil type of assessment as to meet the demands of 21st century skills. This can include alternative means of assessment tools using technology through computer-based

assessment, game-based assessment, E-portfolios and online assessment. With the transformation of assessment practices in ODL, technology plays an integral role in conducting assessment (Geisinger, 2016).

3.6 BENEFITS OF TECHNOLOGY-BASED ASSESSMENT IN AN ODL ENVIRONMENT

Using the latest technology in online learning, students are able to choose when and where they wish to learn anything (Mahat, Ayub & Luan, 2012). However, the establishment of good assessment practices is crucial for the success of teaching and learning. Moreover, the utilisation of technology has been proven to enhance assessment at different levels (JISC, 2007). Crisp (2011) asserts that assessment is a complex activity and meaningful assessment requires effort on the part of the lecturers and students. Lecturers should take the time to design assessments that are essential to foster higher order thinking skills that include critical thinking and problem solving skills. Thus, with technology-based assessment or online assessment, there are a variety of benefits over paper-based traditional assessment. Accordingly, online assessment offers a range of potential opportunities and benefits for lecturers, students and institutions. Accordingly, technology-based assessment provides an effective form of formative assessment that can be conducted regularly, allowing "students to evaluate their knowledge independently" using online resources (Joglar, Martin, Colmenar & Martinez, 2009:458). An important aspect to consider is that with online assessment the outcomes of assessment tasks are normally known immediately. Other benefits of using online assessment have also have been explored in distance learning such as conducting group assessment (Soon & Sarrafzadeh, 2010); plagiarism detection (Berry, 2011); and multi-dimensional evaluation (Ozkan and Koseler, 2009). In this view, the benefits ensure that technology-based assessment in ODL results in better assessment in the 21st century than traditional assessment. Many benefits provided by technology-based or online assessment that can benefit the student in the ODL environment and are discussed below.

3.6.1   The Effectiveness of Feedback

Feedback on performance, which might include student, peer, teacher, or other types of assessment feedback, is an important aspect of learning (Chang, Tseng, & Lou, 2012). The key to assessment is providing students with prompt feedback and as such, one of the main benefits of feedback through online assessment in an ODL environment, is that it enables feedback to be given instantaneously. Thus, feedback becomes an important aspect in improving self-regulation of student learning. Thus online assessment should be seen as a system of components to evaluate student academic performance.

3.6.2   Reliable and Valid Measurement

The questions and marking in an online setting are reliable and valid. To establish valid and reliable, assessment practices, it is essential that equivalent scores for assessment activities and tasks should be established (Piaw, 2012). Firstly, online changes should be allowed to the assessment tasks. The reliability and validity problems outclass online assessments; however, interactive, formative and integrative comments address these threats of reliability and validity. For all aspects of integrated formative assessment, technology can be used to implement and encourage improved student participation through learning experiences.

3.6.3   Economic and Ecological

The online setting itself is environmentally friendly as it is paperless. A technology-based assessment platform can be convenient, cost-effective and environment-friendly. The costs of conducting electronic evaluations are extremely low because time and materials can be minimised and all data acquisition and analysis can be executed automatically. The nature of an online course allows the instructor to create online portfolios of student work. The instructor can create an electronic portfolio of student progress in the course, accumulate online assignments, comments, instructor notes and projects to evaluate student learning. Tons of paper would be saved in a year in many schools, universities and other educational institutions by replacing paper-pencil tests with computer-based tests (Piaw, 2012).

3.6.4 Practicality in online learning

Online learning provides institutions of higher education with a completely new modality to educate students without the limitations of time and location (Albee, 2015). Therefore, this allows online assessment or technology-based assessment to be practical as it can be done at any time and as what is planned by lecturers and educators. Rich and Wang, (2010) indicate that online assessment offers a large amount of flexibility to both lecturers and students. It is flexible in the sense that students can pace their learning, and consequently, in an ODL environment, online assessment allows students flexibility in terms of space, time, and pace of learning. As a result, student in the ODL environment are provided with an opportunity to be assessed anywhere as it provides a flexible assessment environment. Accordingly, participants respond faster than is the case with pencil and paper questionnaires, which cause changes in performance standards, especially with the configuration of skills.

3.6.5 Motivation

Motivation has always been one of the most important factors for learning (Fryer & Bovee, 2016; Giesbers, Rienties, Tempelaar & Gijselaers, 2014). It is one of the core mechanisms to ensure the high-quality performance of students. Roughly defined, the motivation can be either extrinsic or intrinsic. Extrinsic motivation is often defined as behaviour that is influenced by external reward or punishment, while intrinsic motivation is described as behaviour driven by personal ambition or joy (Brigham, 2015). The learning process, including computer assessment, especially online, is unique, fun, and meets the demands for the development of 21st century skills. The most important element in online learning and assessment is the touch of gamification for which the students are looking. Students are easily attracted to online learning including the assessment as it provides a modern context as opposed tothat which the traditional environment offered. According to Keller (2010), the motivation of students is extremely important in the process of learning and teaching. As a result, Fryer and Bovee (2016) and Giesbers, Rienties, Tempelaar and Gijselaers (2014) assert that the success or failure of students in learning environments is explained by how motivated they are.

3.6.6   Authenticity, Access and Usability of E-Assessment

Technology-based and online assessment systems include features that promote access and usability, and authentic assessment that produces a unique assesment. This allows students to use tools such as font size and colour edition tools, subtitled videos and transcriptions for audio resources (Hillier & Fluck, 2013). Moreover, Oakleaf, Belanger and Graham (2013:123) suggest that "the adopting an assessment system is influenced by its ease of use". The continuous use of technology tools makes it easier for students to use even more advanced tools as they prepare for online assessment. Singh and De Villiers (2015:125) recommend that "the system's interface must be intuitive and offer help options" to students. Online assessment system software should have the capacity to run on the great majority of the operating systems and devices which means that today's students have easy access and connectivity (Hillier & Fluck, 2013). Equally important, the system offers some type of support services including training assistance, to online help manuals, to telephone support (Oakleaf, Belanger & Graham, 2013) and, therefore, in addition, the accessibility and use of e-assessment can support a large number of students simultaneously (Singh & De Villiers, 2015). This facilitates education and opportunities for learning much easier than is the case within contrast to the more traditional assessment methods.

3.6.7   Engagement of Variety in Design Options

In the online assessment various tools and methods can be used. Therefore, when deciding what online assessment method to use, it is important that the assessor examines the type of assessments that support the course or programme (Oakleaf, Belanger & Graham, 2013). As quality assessment is needed in the 21st century a variety of tools is offered by e-assessment which should include a goodselection of question types to choose from (Hillier & Fluck, 2013), in order to broaden the range of skillsbeing assessed (Usener, Majchrzak & Kuchen, 2011). The possibilities that online assessment provides includes the designing of an assortment of authentic assignments, namely portfolios, e-portfolios, games and simulations, which allow the evaluation of competences that would be more difficult when using other methods (Jordan, 2013). Furthermore, online assessment systems make use of several

features for the editing of questions, namely grammar and spell checkers (Singh & De Villiers, 2015).

3.6.8   Efficient Timelines using Online Assessment

Online assessment tools use time efficiently to improve procedures and methods of assessment as it has the advantages of time-saving, immediate feedback, better use of resources, assessment records saving and more convenience (Chen, Wei & Huang 2009; Morris, 2008). This process is effortless if large databanks have been developed and are available, since marking is done automatically (Mostert, de Bruyn & Pretorius, 2012).

3.7   ALTERNATIVE ASSESSMENT

One would ask a question why universities are expected to move towards alternative ways of assessing students. To answer this question, a definition for this phenomenon as a practice is provided. Alternative assessment, also called authentic or comprehensive assessment, refers to all sorts of assessments that are used to measure student ability and proficiency in performing complex tasks that are related to the intended learning outcomes. Libman (2010) points out that alternative assessment is a non-traditional assessment practice, which excludes multiple-choice tests, venue-based examinations and other forms of classroom assessment practices. Alternative assessment practices differ from traditional assessment practices because they are goal-oriented, performance based and generally materialize from an educational reform (Bulus & Kirikkaya, 2011). Therefore, this makes the choice of assessment design critical, as proper alignment of the assessment to the learning outcomes can produce a constructive learning practice (Biggs & Tang 2011). By applying alternative assessments, educators are able to observe individual student strengths, weaknesses and skills, and thus use the information to better design their teaching approaches. Therefore, alternative assessment is a process-oriented assessment that focuses on student progress and growth over time. It focuses on tracking individual student growth and development over a period rather than comparing students and classes or year groups with one another (Olivier, 2015).

Furthermore, alternative assessment implies that students have choices regarding their ability to demonstrate their achievement of the learning objectives intended in the curriculum. It means that students have a choice regarding the form and content they provide in order to answer questions or perform tasks (North Central Regional Educational Laboratory, 2003; 2004). Many ways of alternatively assessing students opens a range of assessment techniques and methods that can be used (Williams, 2011:320). Examples of alternative assessments may include student portfolios, project work, problem-based learning, role-playing, journals, writing activities and other activities that involve using rubrics to assess student works. Alternative assessment uses activities that reveal what students are able to do with the knowledge and skills obtained through learning, emphasising their abilities and strengths, instead of focussing on their weaknesses and what they do not know. Even failure can be seen as a valuable component of the learning process and not as an outcome (Wilson, 2013).

For higher education to keep up with the demands on educational development by the network society, traditional assessment should be replaced with multi-dimensional, flexible and negotiated assessment (Blaschke, 2012). The assessment practices should focus not only on knowledge retention, but also on exposing students to opportunities to practise and apply the knowledge and skills gained, in line with the set learning outcomes of the module or programme. Simonson (2000) identifies three approaches in alternative assessment: Authentic assessment, performance-based assessment, and constructivist assessment. Firstly, performance-based assessment is a form of assessment that is based on clearly defined tasks that students need to perform in a context that mimics the workplace (authentic). The task must be able to elicit student knowledge, skills, attributes or attitudes. Performance-based assessments are useful in that they:

- apply knowledge and skills in the real world context;
- motivate students to become autonomous learners;
- involve creation of performance and products; and
- stimulate soft skills upon task execution.

Secondly, alternative assessment is referred to as authentic assessment, as explained in Section 3.3.2.1. By being authentic, it means that the assessment content and methods should emphasise authentic and complexity rather than reproducing knowledge and reductive measurement (Cox, Imrie & Miller, 2014). Authentic assessment should be original and based of the content to allow students to think deeply Therefore, the design of these assessment activities should expose students to the learning that is related to their profession, while constructivist assessment refers to the assessment that should be used as a tool to enhance both student and lecturer understanding. A constructivist approach to assessment is formative rather than summative and its purpose is to improve the quality of student learning, not to provide evidence for evaluating or grading students, hence it is an ongoing process. The use of a variety of assessment tasks designed by lecturers should be able to measure learning objectives by taking into account different learning styles. It should therefore provide opportunities for students to demonstrate their understanding of the content (Wilson, 2013) and apply the knowledge and skills. Hence, Wilson (2013:193) posits that alternative assessment is a measurement model towards student empowerment and the development of self-directed, lifelong learning where learners act as positive change agents in their respective communities (Fink, 2013). The author concludes that assessment has to have an influence on students long after they have left the formal education system for them to be able to:

- develop a deep curiosity and continue to grow as critical thinkers;
- develop key skills in life, such as effective communication skills;
- experience the joy and fun of learning and engage in life-long learning;
- take pride in what they have done and can accomplish;
- mentor others and be mentored;
- stay positive despite setbacks and challenges of life and work;
- see the connections between themselves and their beliefs, values and actions and those of others;
- think about problems and issues in integrated ways and from multiple perspectives; and

- see the need for change in the world and be positive change agents and creative problem solvers.

In summation, alternative assessment should be regarded as a continuous process therefore, not all of the above ambitions are attainable within one assessment task, module or semester and with each new group of students. The ultimate goal is to strive for these goals to be realised in the lives of all students in the end and therefore lecturers should do their utmost to provide opportunities to make these ambitions a reality.

In higher education, assessment is part of the technology-integrated ODL teaching and learning environment. Currently, UNISA is exploring alternative assessment methods in order to stay relevant in a technology-driven world. The paradigm shift from traditional assessment has brought about and emphasises alternative assessment; UNISA has therefore implemented its *Review and Reconfiguration of the UNISA Assessments Systems and Practices Project* to improve the quality of tuition, assessment, research and community engagement so that students continue to strive to become self-directed learners. As mentioned in Chapter 1, UNISA is currently implementing the review and reconfiguration project of its assessment practices to develop news ways of teaching, learning and assessment by increasing non-venue based assessment opportunities (UNISA, 2014:15). Given the influx of technologies in education, e-learning is one of the key institutional imperatives employed. Thus, an alternative assessment process, if properly implemented, might lead to the use of a non-venue-based assessment system and online assessment in the future.

This study decided to use the higher education quality criteria (Department of Higher Education and Training, 2012) relating to assessment to benchmark the current UNISA assessment practices by requesting colleges to evaluate their own practices. A number of modules were identified for participation in the alternative assessment component. Most of these were undergraduate modules for which only a small number of students had enrolled, and were led by lecturers who were willing to innovate and experiment. The alternative assessment types identified were take-home assessments (including timed assessments and multiple-choice questions), portfolios paper-based and E-portfolios, webinars, peer review assessment and continuous

assessment. This study focuses on the use of E-portfolio as alternative approach to the traditional venue-based assessment in the form of examinations. The purpose of the E-portfolio as a non-venue-based summative examination is to comply with the need for integrative learning at UNISA. Therefore, the next chapter will explore how E-portfolios are used and implemented for assessment purposes.

3.8   CHAPTER CONCLUSION

This chapter provided an overview of assessment in general, as well as alternative assessment in higher learning. The purpose and principles of assessment were discussed with regard to assessment in general and alternative assessment. This gives an indication of the importance of assessment in teaching and learning. Furthermore, this chapter elucidated why higher education institutions, ODL particularly, need a reconfiguration and a review of their assessment practices into a transformation assessment for 21st century learning. While this chapter discusses assessment, and an alternative assessment approach at UNISA, an in-depth discussion on the use of E-portfolios, as an alternative assessment approach, is provided in the next chapter.

CHAPTER 4
A SCOPING REVIEW ON E-PORTFOLIOS AS AN ALTERNATIVE ASSESSMENT APPROACH TOWARDS SELF-DIRECTED LEARNING

4.1   INTRODUCTION

In Chapter three, the literature review provided a discussion on assessment in general, and an alternative assessment approach particularly e-assessment in higher education. With reference to this chapter, the focus is how to conduct a research protocol for a scoping review on E-portfolio as assessment approach. Furthermore, specific steps were designed for a scoping review of related scholarly publications on the phenomenon. The steps followed provided a guide to search, select, eliminate and final inclusion of relevant scholarly publications. To extend the scoping review, a conceptualised view of E-portfolio for an ODL context was explained. Furthermore, the chapter focused expanded on E-portfolio pertaining to the features, purpose, typology, educational values for student learning. Finally, the chapter concludes on the benefits, effectiveness and efficiency of an E-portfolio to promote student learning by equipping them with higher order thinking and self-directed learning skills.

4.2   A SCOPING REVIEW OF RELATED LITERATURE ON E-PORTFOLIOS

As indicated in chapter three (*cf.*3.2) scoping review was used to synthesize research evidence. With reference to the previous chapter the purpose of this scoping review was to provide an overview of the literature based on E-portfolios assessment. To identify research gaps in the existing literature scoping review were steps followed and conclusions were drawn from existing literature regarding the overall state of E-portfolio. Steps followed are outlined below:

Step one comprised a desktop search for scholarly work (n=178) on E-portfolio assessment for self-directed learning. The researcher used terms such as "E-portfolio, digital portfolios, web based portfolio, higher order thinking skills, open distance learning and self-directed" to identify relevant publications. The following databases, Pro Quest Dissertation and Theses, EBSCO HOST, Educational Resource Information Centre (ERIC), Google Scholar were used for this search path. Firstly,

Google scholar as a search engine was used to search for articles and related sources. Furthermore, an alert was created to notify the researcher about recent publications on E-portfolio assessment, conference papers, unpublished manuscripts, government or agency reports, and peer reviewed studies were also used. Assessment policies of UNISA and other open distance learning universities were also sourced and used to undertake the scoping view on E-portfolios as alternative assessment approach.

During **step two**, educational consultants (UNISA personal librarians) were requested to support the researcher with following database Pro Quest Dissertation and Theses, EBSCO HOST, Educational Resource Information Centre (ERIC). The researcher consulted with UNISA librarians using search terms to retrieve available information on E-portfolio, alternative assessment and self-directed learning. The various scholarly articles (n=78), dissertation (n=4), theses (n=4) and academic book chapters (n=22) were emailed to the researcher. Finally, the researcher retrieved UNISA Assessment policy (n=1) and official documents (n=3) including, Strategic plan 2016-2030, Senate reports and UNISA newsletters.

Step three consisted of pre-screening of the relevant titles and abstracts (n=112) for inclusion in the review and elimination of irrelevant titles of full text (n=35). In **Step four,** reading of full texts of the scholarly publications based on the set criteria for inclusion (n=77). The following criteria was used for inclusion namely; E-portfolio, e-learning, e-assessment, alternative assessment and self-directed learning of the full text of the scholarly publications.

During **Step five,** additional searches on paper based versus E-portfolio publications were done for inclusion purposes and finally the following publications were relevant for the scoping review (n=8). Finally, **Step six** the final review (n=60) included assessment, E-portfolios and Higher order thinking skills (HOTS), self-directed learning. This scoping review is a scientific enquiry on the phenomena under investigation namely; E-portfolios as alternative assessment towards self-directed learning.

4.3 CONCEPTUALISED VIEW OF AN E-PORTFOLIO FOR AN ODL CONTEXT

The electronic portfolio (E-portfolio) is commonly referred to as a digital portfolio, used by students to compile evidence of knowledge, skills and values using an online learning management system (LMS). Several scholars have defined E-portfolio as electronic versions of paper based portfolios, allowing students to integrate graphics and video, in addition to text, as digital containers that allow for the storage of audio and visual content (Butler 2006; Abrami & Barrett, 2005). Similarly, Barrett (2010:6) defines E-portfolios as "an electronic collection of evidence that shows your learning journey over time". Matthew-DeNatale (2014) argues that E-portfolios are seen as online tools that assist in gathering work samples, referred to as artefacts or evidence. The various definitions of an E-portfolio have consensus among scholars that the E-portfolio encompasses both a process and a product (Jenson & Treuer, 2014). The E-portfolio as a process, allows students to move beyond learning for the sake of learning and apply knowledge, skills and values found in real life situations (Jimoyiannis, 2012). The E-portfolio, as a product, provides a personal space where students can collect and compile the digital artefacts that present evidence of their experiences and achievements, thus articulating actual learning outcomes. Barrett (2011) emphasises that portfolio development involves more than just the role of technology and an expected product; rather, prominence should be given to the process of learning during E-portfolio development, which includes constructivist actions, reflection and collaboration (Jimoyiannis, 2012). Kahn (2014) recognises that E-portfolios offer a distinct advantage over more traditional forms of portfolios due to the opportunities to include a variety of multimedia. Therefore, from a teaching and learning perspective, students using E-portfolios to engage in a learning process, collect and organise forms of digital evidence (artefacts) that demonstrate learning outcomes, skills and competencies. According to Barrett (2010), although E-portfolios allow for the inclusion of key artefacts, such as writing samples, photos and videos, much like the traditional print-based portfolio, ultimately, the critical aspect of E-portfolios is the provision of opportunities within the E-portfolio process for student reflection. Yancey (2009) highlighted the interactivity and the inherent social action of the digital media as key features distinguishing E-portfolios from their traditional hard copy predecessors.

For this doctoral study, the term E-portfolios was used throughout this study, to refer to all of the various terms used in the literature to describe the concept for consistency purposes.

4.3.1 Features of the E-portfolio

In reviewing studies related to the use of E-portfolios, ten common features were noticed and are depicted in Figure 4.1 below.

Authentic

E-portfolio is authentic because students take responsibility for their learning, so they are supposed to organize their E-portfolios, reflect on their own learning processes and findings, and improve their learning depending on their reflections (Goldsmith, 2007; Reese & Levy, 2009).

Controllable

Students can organize their E-portfolios, reflect and assess their learning processes, and make necessary changes to their E-portfolios according to their reflections (Goldsmith, 2007).

Communicative and Interactive

Students need to communicate and interact with their peers and teachers to improve their learning (Bolliger & Shepherd, 2010; Lin, 2008).

Dynamic

Structure of E-portfolios always developing as a result of the organisation of content, collection and selection of artefacts, the self-assessment and self-reflection of the learning process, and improvement made according to self-assessment and self-reflections, (Yastibas & Yastibas, 2014)

Personalised

Students form their E-portfolios on their own (Goldsmith, 2007; Schmitz et al., 2010; Gray;2008).

Integrative

E-portfolios create connections between student lives and academic work (Goldsmith, 2007).

Multi-purposed

Can be used for the assessment of student learning performances and of institutions' education programmes (Goldsmith, 2007), and for gaining employment in the future (Goldsmith, 2007; Lin, 2008; Reese & Levy, 2009).

Multi-sourced

Provides students with feedback, teachers with the assessment of student performance, and institutions with the opportunity to assess their programmes, courses, or departments (Goldsmith, 2007).

Motivational

Gives students ownership of their own learning and leads to the improvement of their skills (Akçıl & Arap, 2009; Bolliger & Shepherd, 2010; Rhodes, 2011)

Reflective

E-portfolios requires self-- reflection, students can self-reflect and assess their own learning processes via E-portfolios (Goldsmith, 2007; Reese & Levy, 2009; Lin, 2008).

Figure 4.1 Features of e-assessment

(source:Yastibas & Yastibas, 2014)

4.3.2   The Purpose of E-portfolios

The use of E-portfolios serves different purposes that are significant, namely: assessment, learning, presentation, personal, multi-owner and employability (Oakley, Pegrum and Johnston, 2013; Acker, 2004; Barrett & Carney, 2005; IMS Global Learning Consortium, 2005). E-portfolios can be used for multiple purposes depending on the context of their use. The literature explains that in educational context and at programme level, an E-portfolio may be used to track student development and connections over time, across courses and programmes to instil values of lifelong learning, self-directed learning and professional development (Khalid, Ahmad, Karim Daud & Din 2015; Ehlers, 2016). Educational portfolios can be prepared for different purposes and using different kinds of resources producing a taxonomy of electronic portfolios for developmental, presentation and assessment purposes (Van Wyk, 2017a). At course level, E-portfolios may be introduced under the auspices of professional benefit, using formative and summative assessment, continuous professional development and/or career planning. *Joint Information Systems Committee* (JISC, 2007) identifies a range of purposes that E-portfolios might serve across a lifetime of learning as follow:

- **Application purpose** – The application E-portfolio can be used to showcases evidence in support of an application for a job or for admission to further study (Strydom & Barnard, 2017). These types of E-portfolio can be used as evidence produced to demonstrate students skill learnt throughout the duration of study. Submitting this type of portfolio can provide potential employers with relevant and necessary information regarding a candidate.
- **Transition purpose** –This type of E-portfolio can provide a richer and immediate picture of achievement and need as the student progresses to a new environment, and supporting him/her through the process of transition (Abdullah, Ward & Ahmed, 2016).
- **Learning, teaching and assessment purpose** –This E-portfolio supports the process of learning through reflection, discussion and formative assessment, and providing evidence for summative assessment constructive feedback (Goulding, Bloomfiel & Reimann, 2015; Whitelock, 2011). In an ODL environment, these E-portfolios can be regarded as

evidence for the student and the institution demonstrating learning taking place in a particular course or programme.

- **Personal development planning (PDP) and continuing professional development (CPD) purpose** – This type of E-portfolios serves as supporting and evidencing the quest and achievement of personal or professional competences. This can serve the assessment evidence for skills acquired in short learning programmes that are conducted for professional development. (Chui &Dias, 2017; Watty, McKay, Ngo, Holt, McGuigan & Leitch, 2016). Institutions of higher learning have professionals like lecturers who are continuously developing in their profession, and in this regard this type of portfolio can showcase the development of individuals.

In summation, E-portfolios are being developed to serve many purposes; however in education, E-portfolios mainly serve teaching, learning and assessment purposes focusing on enhancing student learning. A properly designed E-portfolio can facilitate active student engagement, guidance and support, collaboration and reflection on their learning and lead to enhanced awareness of their own learning needs, (Yang, Tai & Lim, 2016). In this regard, E-portfolios are regarded for their effectiveness and efficient use as teaching, learning and assessment tools promoting lifelong student learning and self-directed learning. Therefore, using E-portfolios for enhancement of student learning serves different purposes that benefit learning growth.

4.3.3   Typology of E-portfolios

It is generally agreed upon that educational E-portfolios provide a holistic picture of student learning and engagement over a period of time (Matar & Al-Harithi, 2016). Strudler and Wetzel (2011:162) note that E-portfolios enable students to "document their journey in becoming competent in their chosen professional careers as they select, share, and reflect on artefacts that are in their E-portfolios". E-portfolios allow students to synthesise their learning experiences, connect their course work to real world practices, and consider what evidence demonstrates their knowledge, skills and abilities values to compose reflective descriptions that build metacognition skills (Buzzetto-More, (2010). These attributes can be evidenced in the different typologies of E-portfolio, classified in various categories to elaborate on their use in Table 4.1.

Table 4.1: Summary of typology of E-portfolios

Types of E-portfolios	Description	Purpose
Assessment E-portfolios	Demonstrate the achievement through formative or summative assessment.	Provide a means of assessment, other than standardised exams and testing, capture the multi-faceted, complex nature of student learning outcomes (Cummins & Davesne, 2009, Applegate & Irwin, 2012,).
Working E-portfolios	Demonstrate and reflect on their own learning, in the context of formal education program (Stefani, Manson & Pegler, 2007; JISC, 2008).	Contain works in progress and supports student planning and organisation, as well as their work, learning and personal development. Provide a means of tracking, planning and demonstrating student advancement, learning and development of skills over a period (Johnson, Becker, Cummins & Estrada, 2016).
Personal development E-portfolios	Contains records of learning, performance and achievement, which can be reflected on, and outcomes of that reflection, including plans for future development.	Support students to develop, demonstrate and reflect on their own learning, in the context of a formal education program (Stefani, Manson & Pegler, 2007; JISC, 2008).
Learning E-portfolios	Used to document, guide, and advance learning over time.	Include a prominent reflective component and may be used to promote metacognition, to plan learning, or for the integration of diverse learning experiences.
Presentation E-portfolios	Designed to provide evidence on the employed evidence or achievement to an audience in a persuasive way. They often contain instructions about how their contents should be rendered in a course or a programme to show and highlight the quality of student achievements, skill and competence.	Demonstrate exemplary or project work, and their competence/employability skills to stakeholders or to potential employers, with the aim to gain a new position or employment (Yorke & Knight, 2005; Willis & Wilkie, 2009).
Course E-portfolios	Assembled to support instructional and learning needs of the students attending a single course.	Document and reflect upon the ways in which they course outcomes have been met.
Programme E-portfolios	Documents completed work, the skills acquired by the students, and the outcomes they have met in an academic, professional development, employment or lifelong programme.	Use of a selection of E-portfolio to show to prospective stakeholders or employers.
Institutional E-portfolios	Record and present achievements, extra-curricular and informal activities, future plans.	Supports many courses and educational programmes of a whole institution, school or organisation (von Konsky & Oliver, 2012).

(Adapted from Chaudhuri & Cabau, 2017)

4.3.4   The Educational Affordances of E-Portfolios

There are several reasons why higher educational institutions use E-portfolios in educational practice and particularly in ODL. The use of E-portfolios in their different fields, including education, health sciences, law, agriculture, permits students to showcase competencies learnt in the process of their studies especially during integrated learning where they can provide evidence of learning (Barkley & Major, 2015). In this case the use of authentic assessment or performance-based assessment provides students with sufficient practice and developing competence in their fields of study, (Boud & Soler, 2016), and as a result, their knowledge, skills, values and achievement of skills is enriched. Numerous scholars have noted that E-portfolios provide affordances that printed portfolios cannot offer (Chaudhuri & Cabau, 2017; Ellis, 2017; van Wyk, 2017).

The following section outlines the different affordances provided by E-portfolios such as storage, access, dynamic development, linking and archiving, assessment as well as developing competence in ICT skills.

- **Storage:** E-portfolios offer an alternate to physical space to store and keep a greater amount of information, which is easily transferrable on removable media or back-up files. Students can easily replace, update and extend their older work with minimal efforts (Jimoyiannis, 2013; Hockly, Dudeney & Pegrum, 2014).
- **Access:** The information included in an E-portfolio is easily accessible from anywhere using just a browser, even though mobile devices, thus extending E-portfolio learning activities beyond the classroom boundaries (Casany, Alier & Mayol, 2012). Hence, in an ODL environment, like UNISA, students can easily access their E-portfolio work, and feedback is accessed with ease (van Wyk, 2017). Therefore, with the use of E-portfolios, students can store information easily, have easy access for viewing and review purposes, and minimize the any risk of loss (Yastibas & Yastibas, 2015).
- **Dynamic development:** An E-portfolio offers a dynamic, student-centred, interactive and collaborative environment. As a result, students do not just

collect information and become passive receivers of knowledge (Boulton, 2014). They have the opportunities for interaction, group work, collaboration, reflection and community building throughout the learning process. This implies that when their work is planned and organised, they can easily add new content information to improve the quality, which is informed by the constructive feedback from interaction and collaboration among themselves and their lecturers (Ajjawi & Boud, 2017).

- **Linking and archiving:** Information and pieces of work included in E-portfolios can be easily archived and interconnected through hyperlinks. The ability of new E-portfolio systems to create links and archives overcomes the linearity of paper portfolios. Links allow personal collection of material to become more thoughtful and easily accessible to peers and to promote novel assessment processes (Jimoyiannis, 2013).

- **Assessment:** Hui (2017) points out that students are made aware of the standards and criteria set for E-portfolios assessment, therefore E-portfolio student work is directly related to specific, well-defined standards and criteria. In their E-portfolios, students demonstrate wider dimensions of learning than just paper-and-pencil reports or exercises. The assessment activities in E-portfolios offer an authentic assessment space for both, students and instructors, incorporating features of formative and summative assessment, and self and peer evaluation, which promote student reflection, collaborative learning, self-directed learning and personal development (Wanner & Palmer, 2015).

- **ICT competence and skills:** In designing and developing E-portfolios, students gain lifelong ICT skills while editing their portfolios, creating digital artefacts, adding and sharing multimedia information, uploading commentaries, accessing and creating their personal space in the portfolio system (Adam & Tatnall, 2017; Button, Harrington & Belan, 2014).

4.3.5   The Benefits Associated with using E-Portfolio

Extensive literature has been published about advantages and benefits of using E-portfolios in higher education, that are applicable in ODL, such as enhancing digital

literacy, lifelong learning, reflective skills, increased pedagogical and technical content knowledge, values, beliefs and positive attitudes (Belgard, 2013). As students of the 21st century are mostly technologically savvy, using E-portfolios would be most appropriate to motivate their learning. Rashid and Asghar (2016) and Glenn (2000) suggest that the Net Generation needs self-directed learning opportunities, interactive environments, and multiple forms of feedback and assignment choices that use different resources to create personal meaningful learning experiences. Queiros, De Villiers, Van Zyl, Conradie and Van Zyl, (2015) point out that Net Generation students want to be more hands-on, prefer inquiry-based approaches to learning and are less willing to absorb what is put before them. This positions the use of E-portfolio in a more advantageous space and time as students have the opportunity to be assessed holistically, therefore compelling assessment designers to take into consideration the generation's education needs.

E-portfolios provide more authentic assessment methods focusing on life situations (Yastibas & Yastibas, 2015; Goldsmith 2007). E-portfolios can also assist in facilitating and documenting student experiences authentically (Yastibas & Yastibas, 2015; Reese & Levy, 2009) E-portfolios require students to be engaged in the process, so they can contribute to the enhancement of learning process and authentic assessment. In addition, E-portfolios require students to be motivated and taking responsibility for their own learning (Daunert & Price, 2014) by organising their material for a specific purpose, self-evaluating their work, and reflecting their findings about their learning process, experiences and skills. As students are responsible for their own E-portfolio process, they can individualise and personalize their learning by designing and developing their work in their own way as long as they meet the set criteria (Chaudhuri & Cabau, 2017, Schmitz, Whitson, Heest & Maddaus, 2010). As a result, their creativity is demonstrated in this regard.

A further benefit is that students have the opportunity to discover and explore their role as students, make connections and integrate their learning. Allowing students to track their growth in learning, makes it convenient for lecturers to track student process and product (Yastibas & Cepik, 2015). Thus, E-portfolios can promote student autonomy, feedback, reflection, and self-reflection. In the same vein, through motivation and feedback students will be able determine their growth throughout the duration of the

learning programme. As E-portfolios provide students with individual feedback about their learning, experiences, achievements (Brookhart, 2017) they can improve student learning through implementation of feedback and reflection, which supports permanent learning, (Walvoord, 2014) assisting students in overcoming problems. Feedback enhances reflection of student learning through "demonstrating critical thinking, higher order thinking, analytic reasoning and integrative learning" (Rhodes, 2011:5). Lin (2008) indicates that reflection assists students in revisiting their learning experiences and making a change in the way they view their learning. As such, students can develop a sense of purpose and focus with E-portfolios upon reflection (Lin, 2008). This allows student to students make a comparison between their artefacts and the criteria set, checking whether their artefacts meet the criteria or not. Rhodes (2011) mentions that E-portfolios can assess students formatively in terms of the evaluation of student learning, and summatively, in terms of the evaluation of student progress and achievement.

Higher education should strive to use assessment as a way of preparing learners not only for graduating but as learning that will be continuous and lifelong beyond their schooling years. The process of formative and summative assessments, as Rhodes (2011) further suggests, can help students become active in the presentation and representation of their learning, motivating them to do their best. Through the formative and summative assessment processes, students and academics have some time to work out how the E-portfolio functions (van Niekerk, 2015). Research has shown that the use of E-portfolios can promote surface and deep learning in an ODeL learning environment (Minnaar, 2018; Chetty, 2014; Van Rooy & Madiope, 2012). Ultimately, this benefit contributes to the assessment of the student product, individual achievements and to the effectiveness of courses, programmes, departments, or institutions (Goldsmith, 2007; Reese & Levy, 2009; Yastibas & Yastibas, 2015).

4.3.6 Limitations associated with E-portfolios

E-portfolios, like any other assessment tool, are not without challenges or controversy (Tzeng & Huang, 2011). Disadvantages of using hard copy printed portfolios (see Pearson, Harris-Reeves & Mitchell, & Vanderlellie, 2018; Williams, 2005) may also

apply to E-portfolios. Thus, it is important to note that the digital medium does not erase the challenges also faced by paper-based portfolios.

Firstly, students still battle with reflective writing, from a pedagogical perspective, with challenges often being associated with conceptualising the meaning of 'reflection' and the role of users and academics within a particular learning environment (Jimoyiannis 2012). Perhaps more importantly, as Bhattacharya and Hartnett (2007) assert that without a central focus on reflection, the E-portfolio is in danger of becoming simply collection of information rather than a mechanism for the development of meaningful knowledge.

Secondly, the use of alternative assessment, particularly the E-portfolio, is to equip students with skills that they will use beyond graduation. However, if students cannot apply 21st century competence skills, the E-portfolio may fail to develop competent, self-directed learners and lifelong learners. On the other hand, metacognitive skills are needed for reflection, and these skills cannot be taught by means of written work only. Hence, the importance of performance-based assessment, authentic assessment and real-life situation assessment tasks are essential.

Thirdly, in an ODL environment like UNISA, students are geographically scattered which makes it difficult to participate in group work and take part in team assignments with their peers. This could hinder development in constructivism skills, constructive feedback among peers and expertise.

Fourthly, another concern is-the reliability of student work. As portfolios can be done anywhere using technology, one cannot ensure whether the students work by themselves or copy someone else's products, resulting in a possibility of plagiarism and cheating.

Fifthly, both academics and students might find E-portfolios difficult to master without training. Therefore, participants require intensive guidance and support as without training the initial process might be stressful for both academics and students, (Wetzel & Strudlers, 2006).

Lastly, scholars argue that student support in digital literacy is still lacking (Matar, Al-Al-Harithi and Systems, 2016; Goldsmith 2007. In the same vein, van Niekerk (2015) argues that, UNISA ODL serve students in Africa where in some areas, students are faced with network connectivity problems, which therefore affect their digital literacy. Thus, they lack appropriate digital literacy skills to utilise chosen platforms for learning practices. Additionally, students are faced with lack of support in their literacy skills because they are mostly alone when studying. It is important that students are supported throughout the learning process as they construct their E-portfolios so that through the process they are able to learn what is expected from them. In addition, attention should be paid to student motivational factors for successful integration of such learning practices (Tosh & Werdmuller, 2004), especially from the student point of view, and this can cause problems in their implementation due to the workload involved, and the cost-benefit ratio in terms of learning (Contreras-Higuera, Martínez-Olmo, José Rubio-Hurtado, and Vilà-Baños, 2016).

4.5   THE DESIGN AND DEVELOPMENT OF THE E-PORTFOLIO

Portfolio pedagogy can be used as an alternative method of assessment to showcases skills and achievements, and reflection and uses appropriate of communication modalities (Boulton 2014; Boulton & Hramiak 2012; FitzPatrick and Spiller, 2010). The development of the E-portfolio is regarded as a process with a series of stages, with each step having its own objectives and activities required to access the product. Throughout the process of collecting, compiling and reflecting on authentic evidence, students in their respective studies are taking ownership of their learning as they strive to produce the best possible E-portfolio.

Van Wyk (2017) suggests that numerous activities from the E-portfolios can be considered as evidence, and may include, written assignments for creative writing, a research project, reflective journals entries, podcasts, blog postings, PowerPoint presentations and digital video clippings (DVDs) and others. The E-portfolio encourages constructivist and connectivist approaches to teaching and learning and creates meaningful assessment practices for self-directed learning (Robichaux & Guarino 2012; Jimoyiannis, 2013). Therefore, during the design and development of E-portfolios, students as the learning process users is expected to store digital

resources and develop a digital archive of evidence, which is selected for a particular purpose. Generally, these E-portfolios serve to showcase best activities. Most importantly, these E-portfolios do not only demonstrate a variety of evidence-based learning (Yancey 2009), but they are the testimony for student progress across courses and modules over a period. Therefore, students motivate for the inclusion of selected activities and support such selections with critical reflections. Additionally, essential to E-portfolio practice remains the collaborative process, where students give and receive feedback, in order to present to a particular audience, a notion confirmed by Belgard (2013) who asserts that the compiling and sharing evidence in the E-portfolio empowers students to build up their collaborative skills.

As Ajoku (2015) and Becta (2007) recommend, the E-portfolio (product) celebrates learning, serves as evidence of successful personal planning, which demonstrates newly acquired skills and personal identities through assessment activities. Throughout the process of developing E-portfolios, assessment provides evidence of learning that takes place by the artefacts collected. Types of task, arranged around the themes, engage students in authentic activities, designing assessments, involving themselves in integrative tasks, learning and judging, modelling and practice, and working with peers with giving and receiving feedback (Boud 2010:253-4). Grades and marks can provide a clear indication of personal attainment, but E-portfolios show the richness of student transformation in their individual learning journeys. As a result, assessment shapes the learning process and demonstrates the learning that takes place.

Furthermore, the development of E-portfolios can increase learning motivation (Carless, 2015; Bolliger & Shepherd, 2010) and greatly facilitate the acquisition, assimilation, and accumulation of knowledge (Chang, Liang, Tseng & Tseng, 2014). In essence, this implies that each phase of the E-portfolio development process contributes to student professional development in the chosen field of study.

4.5.1   Student support in developing E-portfolios for assessment

Student support plays an essential role in student academic achievement; therefore, with E-portfolios as alternative assessment students need continuous support in

developing assessment tasks from the beginning until completion of the final product (Parker, 2017). Introducing E-portfolio requires that students be guided towards a new perspective of education, where they learn to assume more responsibility for their personal development and lifelong learning (Carl & Strydom, 2017). In view of the latter, lecturers have a primary role in supporting students academically during the development of the E-portfolio so that students can produce quality evidence. They have to find means and ways that work for them to support students in a different learning context as they develop their E-portfolios. Academic support commences with providing information regarding the processes to be followed. The literature suggests steps to follow to effectively and efficiently support students in developing a quality product. The steps include:

Firstly, introduce the students alternative assessment primarily E-portfolio. In support of understanding the process, it is advisable to provide students with information and background that clearly stipulates the purpose, learning outcomes and educational benefits of using it. Time is needed for students to develop understanding of this new assessment. Wray (2007a:1146) advises that "E-portfolios take time, are confusing to organize, and often lack a clear purpose resulting in student uncertainty and frustration." To overcome challenges, the author suggests face-to-face support centred on instructor guidance to reiterate E-portfolio purposes and to help students select artefacts (Wray,2007 b). However, this might not be easy in distance education, as students are geographically scattered (Zhang, Olfman & Ractham, 2007). Wolf, Whinery and Hagerty (1995) report that portfolio gains are most apparent when students meet with lecturers and peers to describe completion processes, artefact inclusion, rationales and development plans. In the researcher's view video conferencing, live broadcast videos interact and webinars with students, would give both students and lecturers the opportunity to meet face-to-face and interact.

Secondly, lecturers should provide information about the collection of artefacts and its processes particularly regarding ethical issues such as plagiarism, language use and copyright. This information should be clearly outlined to students to guide against such practices. Thirdly, students should be made aware of the standards and criteria set for the assessment of E-portfolios., Rubrics can be provided to students as a benchmark

to guide them during the development of their work and they can use the rubrics and marking guidelines for reflection. .

Fourthly, students should be encouraged to reflect thoughtfully and critically on their learning and knowledge construction, by goal setting and identifying their E-portfolio's strengths and weaknesses. Thus, self-assessment comes into play. In this regard, their personal reflection and evidence collection will require support (Shepherd & Hannafin, 2009; Land & Zembal-Saul, 2003). Finally, the institution has the responsibility of assisting students with ICT and administrative E-portfolio issues. The institutions that equally prioritise student support lecturers and students will benefit from E-portfolios (Beetham, 2005). Therefore, a well-planned technical implementation is crucial for the success of E-portfolios through the assistance of the IT department. For this reason and because of the large scope of this type of assessment implemented, it is strongly recommended that a directory board for the project is established. Van Niekerk, (2015) postulates that given UNISA'S size and the particular teaching and learning pedagogy and modalities applied, optimal implementation of E-portfolios requires a robust, stable, cutting-edge ICT infrastructure and platform. However, the relatively large proportion of the UNISA student community who do not have access to the required equipment and software at home are supported in the following ways:

- UNISA's multipurpose regional centres are equipped with ICT infrastructure to support those students who, due to socio-economic factors, lack the means to afford these.
- The use and management of teaching and learning tools such as Mahara should enable students to understand their role in the teaching and learning partnership.

These two aspects of academic and institutional support are crucial regarding the holistic student support for them to produce quality evidence for their E-portfolio development.

4.5.2   UNISA E-Portfolio Development as an Alternative Assessment

The uptake of the E-portfolio concept has been most common in professional degrees, thus mirroring international trends. In South Africa, E-portfolios are new in many higher education institutions, but those South African institutions that have adopted E-portfolios in are now in their third or fourth year of E-portfolio integration. The use of E-portfolio at UNISA is for teaching, learning and assessment purposes. Although the E-portfolio can be used for formative assessment (assessment for learning (AfL), summative assessment of learning (AoL), and self and peer assessment (assessment as learning (AaL), scholars of classroom-based assessment postulate that there are multi-modal evidence-based assessment practices that can be employed to assess the outcomes of E-portfolios for self-directed learning (Carless, 2015). UNISA mainly uses portfolios and E-portfolios for summative assessment replacing the venue-based assessment (mainly written examinations), as reported in *The Progress Report of the Review and Reconfiguration of the UNISA Assessment System and Practices* (UNISA Senate Report, 2014).

E-portfolio-use is considered a suitable move to pursue more creative and authentic assessment practices in an ODL environment (Van Niekerk, 2015). E-portfolios can be created using a variety of tools, both conventional and specific web tools. Currently, there are various categories of efficient E-portfolio tools and environments applicable in educational practice, namely: Learning Management Systems (LMS); Content Management Systems (CMS); Web 2.0 tools; and Hosted E-portfolio services. However, the most popular are Elgg, Mahara and Pearl. Mahara has become one of the preferred E-portfolio software packages available to institutions due to its cost-efficient open source application (Brown, Anderson, Simpson & Suddaby, 2007). It is a fully featured web application where users can create journals, upload files, embed social media resources from the web and work together with other users in groups. Established in mid-2006s, the Mahara project started as a cooperative venture funded by New Zealand's Tertiary Education Commission's E-learning Collaborative Development Fund (eCDF), involving Massey University, Auckland University of Technology, The Open Polytechnic of New Zealand, and Victoria University of Wellington (Mahara, 2006). UNISA has also chosen to use the Mahara E-portfolio tool for various reasons. Secondly, the Mahara E-portfolio system provides for multiple

submissions where the portfolio can be returned to students for correction and/or improvement after receiving feedback. Mahara was designed primarily as a learning tool owned by students, as it allows students to upload multimedia files which can be incorporated as artefacts in any internal page while being shared with other individuals, groups or communities (Hallam & Creagh, 2010). The main features of adopting Mahara as a lifelong learning and developmental tool, is that of accessibility, ownership, interoperability and transferability. Additionally, they are collaborative and communication tools included supporting peer discussions and providing an efficient environment, which promotes collaboration, self-regulation, peer and self-assessment, and supporting personal development. Students login into the myUnisa system using a student number and password to access the E-portfolio link.

Figure 4.2: Screenshot of the myUnisa E-portfolio link

After login into the E-portfolio page, students upload information and related activities). Below is a screen shot of myUnisa E-portfolio page.
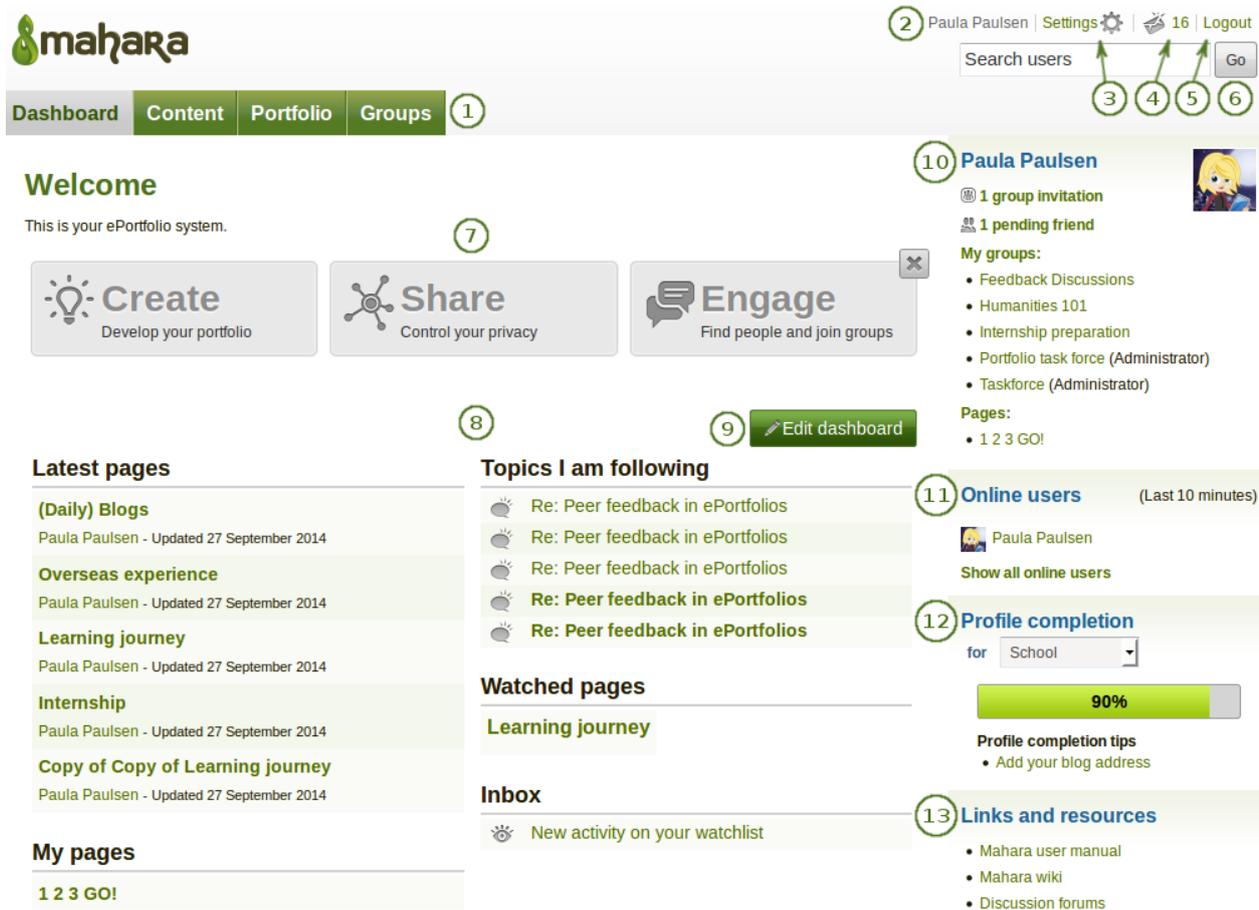
Figure 4.3: Screenshot of myUnisa E-portfolio page
(http://manual.mahara.org/en/1.10/Mahara.pdf)

4.5.3 Using E-Portfolios as Alternative Assessment Approach in Higher Education

Assessment in higher education in the 21st century has undergone a change. E-portfolios have been considered an authentic assessment for the 21st century because they provide the means to assess student ability to set own goals, think critically, solve problems and encourage students to construct 'new' knowledge (Bhagat & Huang, 2018; Lombardi, 2007). Furthermore, Green, Wyllie and Jackson (2014) and Bhattacharya and Harnett (2007) suggest that the value of E-portfolios lies not only in assessing cognitive skills, but also in providing a means to measure affective skills, evaluation of self and peers and reflection on experiences. E-portfolios have great potential for learning and they can be effective assessment tool with its work directly

related to specific well-defined standards and criteria (Baird, Gamble & Sidebotham, 2016; Yang, Tai & Lim, 2016). This reasoning is supported by research which suggests that E-portfolio assessment provides multiple benefits for both the developer (students) and the institution of learning in the form of a valid, holistic assessment and the use of relevant criteria and standards to assess higher order thinking and cognitive skills (van Tartwijk, Driessen & Badii, 2015).

E-portfolios afford students the opportunity to improve their ability to self-assess and reflect on their work with authentic evidence (Boud, 2016). E-portfolio assessment, seen as constructivist e-learning, promotes student-centred e-assessment practices and develops student self-assessment skills because as they monitor their learning process, students can identify their strengths and weaknesses, and thus work on overcoming their weaknesses (Yastıbaş, 2013). E-portfolios should include theoretical and practical applications with the criteria set for assessing the practical and theoretical applications (Carless, 2015; Wanner and Palmer, 2015). Alternative assessment practices have to be authentic, performance-based so that students become active in the learning and assessment process (Suskie, 2018; Katırcı & Satıcı, 2010). As a result, it also helps them to take part and responsibility for their learning and being aware of the progress of their learning and professional practice (Kiraly, 2014).

In their research studies, Güven & Aydoğdu, (2009) and Buzzetto-More (2006), argue that E-portfolios have demonstrated a valid way to document student progress, encourage greater student involvement in the learning process, showcase work samples, and provide learning outcomes, assessment and curriculum evaluation thus promoting and enhancing learning. The essence of E-portfolio cannot be emphasised more as Tonbul (2009) in his E-portfolio model for a university indicates, that in using E-portfolios as a teaching, learning and assessment tool, students permit students to reflect on their own learning and discover their strengths and weaknesses. Assessment results will demonstrate evidence of personal benefits to the person assessed as well as the institutional benefit that will demonstrate the effectiveness of assessment practices in the institution. Therefore, involvement of students in their learning with E-portfolio encourages self-directed learning, reflection, increasing self-awareness and motivation, promoting student-centred learning, improving

collaboration and relationships among the students and contributing to identity development. Thus, E-portfolio can be used as a tool of knowledge, ability, working and skill assessment in higher education (Powell, 2013).

4.5.4   The Importance of Assessment and Feedback

Assessment and feedback are identified as an integral part of E-portfolio development (Boud, 2016; Granberg, 2010; Challis (in Falchikov), 2005). In this regard, constructive feedback is an integral component of formative and summative assessment and is critical to student learning. Boud (2016) views the E-portfolio as providing flexibility in formative feedback while Granberg (2010) also found the blend of formative and summative feedback as part of the E-portfolio building process was a benefit rather than problematic. However, one argues that feedback can be more fruitful when all stakeholders (students as self, peers and lecturers) are involved.

However, when the lecturer is the sole driver of constructive feedback, students are unlikely to engage fully with the process; but when the feedback process is driven by the student's own critical reflection; it has a far more powerful and lasting effect. In the same light, peer-feedback, in particular, is essential and can be employed as an approach to peer-learning, which strengthens student cognitive processes as they make critical judgments of peers' e-portfolios against assessment standards (Nicol, Thomson & Breslin, 2014). Consequently, using E-portfolios could be viewed as a multimedia virtual environment where students are given the opportunity to demonstrate their learning and participate in the discourse relating to learning experiences within an online community of practice (Pitts & Ruggirello, 2012; Buzzetto-More, 2010). Within such a community, there is the potential to develop a network of evidence to demonstrate learning and growth by means of the conceptualisation of future actions based on feedback. In a sense, past, present and future actions become interconnected through the utilisation of the discursive and social spaces (Pitts & Ruggirello, 2012). E-portfolios promote feedback, reflection, and self-reflection. In summation, constructive feedback should be a continuous process throughout the formative and summative assessment to guide and support students on their academic progress (Shepherd & Bolliger, 2011; Green, Wyllie & Jackson, 2014).

4.5.4   E-Portfolio Assessment Practices

For assessment practices to be efficient and effective, cognisance is taken of good practice. Alternative assessments that are authentic like offer ways of addressing efficient and effective ways of good assessment practices that can be employed namely: reflection, sustainability and authenticity.

4.5.4.1   Reflection in assessment

In the context of education, reflection as broadly defined by Dewey (1933:9) is an "active, persistent, and earnest consideration of any belief or supposed form of knowledge in the light of the grounds that support it and further conclusions which it tends". This definition has recently been adjusted to include "reflection as an integral part of the process, strengthening the learning process by increasing understanding, inducing conceptual changes, and promoting critical assessment and knowledge transfer" (Van Merriënboer & Kirschner, 2017:143). Reflection in any assessment should increase the opportunities for self-assessment (Rowntree, 2015). With E-portfolios allowing students to collect evidence of their experience and reflect on these items as a means of facilitating this increased understanding. Reflection in higher education emphasises that the development of these abilities and attributes allows students to make direct links between the theories they are being taught and the practice of teaching in their professional careers (Ellis, 2017). The theory to practice recommend that the process of reflection particularly, when using authentic types of assessment are able to ensure that the foundation of graduates who were considered more workplace ready.

As a result, using E-portfolios the authentic processes has emerged as a way for students to record and present their learning for both assessment and future employment opportunities (Moran, Vozzo, Reid, Pietsch & Hatton, 2013). In the context of authentic learning, reflection and assessment are considered important components of learning that provide experiences that are more realistic for students. Similarly, Roberts, Farley and Gregory (2014) and Herrington and Herrington (2006) believe that by using authentic and meaningful activities together with access to expert

performance and opinion, students will be encouraged to reflect. The authors' further state that this reflective process is particularly effective when students engage in meaningful discussion with tangible outcomes like journals, portfolios and blogs. These three components are generally facilitated through E-portfolios and, more recently, E-portfolio-based learning environments (Roberts *et. al.* 2014). In using authentic assessment, Pillay (2017) suggest that it should be integrated within the learning task with opportunities that allow students to effectively organise and exhibit their knowledge during interaction with peers. The goal of authentic assessment, in this context, is to adhere to an approach that integrates the marking of both the learning process and the finished products (Mertens, 2005). Ultimately, the reflection in assessment paves the way forward for students throughout the process until it is an E-portfolio finished product.

4.5.4.2   Sustainability of assessment

The notion of sustainable assessment was developed to focus on the need for all assessment practices to equip learners for the challenges of learning and practice they will face once their current episode of learning is complete. It is defined as assessment "that meets the needs of the present and [also] prepares students to meet their own future learning needs" (Boud 2016:151). Furthermore, Boud (2016) describes sustainability of assessment as assessment that meets the needs of the present in terms of the demands of formative and summative assessment, but which also prepares students to meet their own future learning needs. There is a need for sustainable assessment, as this assessment fosters student ability to make judgements, the desire to create students as reflexive learners and the goal that assessment helps form dispositions for practice. Sustainability assessments should address the on-going education of the student in the context of lifelong learning (Boud, 2016). This means that assessment should be continuous so that strengths and weaknesses of students can be detected earlier through feedback and students with the help of peers and the lecturers can rectify what needs to be done. Mohamadi (2018) has shown how sustainable assessment can be used in the design of self-assessment techniques to prompt students learning skills. The author suggests that sustainable assessment involves the development of self-assessment through new assessment tools, such as the E-portfolio. This approach makes students aware

of their own learning needs and lecturers support these by assisting in the development of the necessary skills. Sustainable assessment can develop independent students and therefore encompasses self-assessment as a key element of its practice (Timmis, Broadfoot & Sutherland, 2016). The development of portfolios, a resource that, can take be taken into the workplace ensures that students are involved in a reflective practice (Jimoyiannis, 2013). E-portfolios thus constitute a form of "sustainable assessment" (Boud, 2010:701) as they enable students to present themselves in a number of ways, empowering them as learners. The introduction in teaching-learning processes of portfolios and projects can reinforce reliability and therefore, Jimoyiannis, (2013) suggests that the degree to which a portfolio fulfils the requirements of sustainable assessment will depend upon its design. An E-portfolio in which students are required to select and annotate evidence from practice, and reflect on the evidence, is a powerful tool for the development of reflective practice (Carless, 2015). The author further points out that only if students continue these practices could an E-portfolio be considered to have met the requirement for sustainable assessment.

4.5.4.3   Authenticity of assessment

Authentic assessment is perceived as an important aspect in alternative assessment. It is an assessment that continuously takes place throughout the learning period and is inseparable from the learning and teaching process (Ashford-Rowe, Herrington & Brown, 2014). Authenticity is identified through using problems or tasks that are realistic and use a context that resembles real life situations or simulations. Authenticity in any given assessment is connected with real world needs and is meaningful as it requires students to use competence, a combination of knowledge and skills that can be applied in professional life situations (Nkhoma & Nkhoma, 2015). It is also essential and necessary to consider the eight critical elements that determine an authentic assessment, as described by Ashford-Rowe *et al.* (2014):

- An authentic assessment should challenge students to construct and produce knowledge.

- The skills and knowledge demonstrated by students through an authentic assessment should enable them to successfully produce a performance or product (outcome).

- Authentic assessment design should support the concept that the skills, knowledge and attitude being assessed may be transferrable to other areas.

- Critical reflection, self-evaluation and self-development should be components of authentic assessment.

- The necessity of accuracy of the assessment activity in developing student intellectual inputs and evaluating how the key skills and knowledge are relevant to work-related scenarios.

- The extent to which the assessment environment and the tools like language, graphics and topics used to deliver the assessment task simulates a 'real world' environment.

- The essentiality of formally incorporating opportunities to provide feedback.

- The significance of creating opportunities for collaboration.

The E-portfolio is one of the forms of authentic assessment that has become increasingly attractive to many education institutions as it dwells on a more comprehensive insight into and interactive approach with respect to the student process of learning and development (Anker-Hansen & Andrée, 2015). The notion of authenticity in assessment is based on the idea that a more representative evaluation of student learning is based on evidence that is represented in a reflective, intentional time span rather than arbitrary points in time. As previously, discussed, established learning outcomes can be assessed by either formative or summative means through a wide range of authentic evidence documented by a student over time (Banta, Griffin, Flateby, & Kahn, 2009). E-portfolios can serve as 'containers' of authentic evidence of student work, as a catalyst for conversations among students and other stakeholders about common learning outcomes, coherence among learning processes, and professional development (Chen & Light, 2010). Figure 4.2 below depicts the importance and inter-relationship between the three concepts.
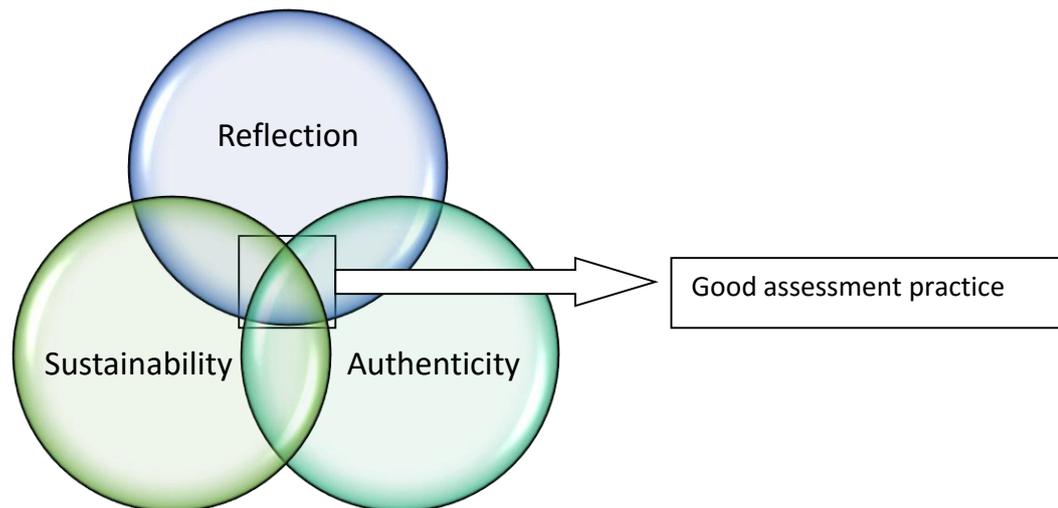
Figure 4.4: Efficient and effective ways of good E-portfolio assessment practices

4.6   INSTRUMENTS USED FOR E-PORTFOLIO ASSESSMENT OF TASKS

The use of E-portfolio as assessment strategy can be used to assess variety of knowledge, skills and values showing efforts of improvement and development by demonstrating progress over time. It is therefore essential that the assessment methods used should match the teaching and learning goals. The very first and most important part of organising E-portfolio assessment is to decide on the learning outcomes that guide the criteria and the standards set for the assessment task. These outcomes guide the lecturers as they select assessment tasks of student work for the E-portfolio. Student, in turn, need to know what to show as evidence in their E-portfolios guided by the learning outcomes and the set criteria. Therefore, different assessment strategies are used to assess students, the following, amongst others, are the tools designed for assessment of E-portfolios such as rubrics, rating scales and criteria checklists.

4.6.1   Rubrics

Portfolios are best assessed using a specially constructed rubric fit for the purpose (Bhattacharya & Hartnett 2007). A rubric is a tool used in scoring qualitative student work that includes both dimensions of performance and standards for achieving set

criteria (Jonnson & Svingby, 2007). Rubrics are assessment tools designed to facilitate the process of explaining, communicating, and assessing expectations for a particular use. Notably, while rubrics can help facilitate the grading of assignments, the key benefit of rubrics is the promotion of learning (Anderson & Mohrweis, 2008; Jonsson & Svingby, 2007). The rubric enables lecturers to assess the E-portfolio using set criteria describing the skills or outcomes, which the E-portfolio is supposed to assess. The set criteria are shared and discussed with the students giving them an additional orientation and explanation of what a particular skill or outcome means. To make it more meaningful, lecturers can strengthen the formative component by discussing the skill descriptors with the students. During collection of and reflection on evidence in the E-portfolio, and prior to E-Portfolio submission, lecturers should encourage students to evaluate their E-Portfolios using the rubric. In other words, rubrics show what i is essential and thus provide explicitness and clarity to the assessment, which lecturers and students consider positive (Jonsson, 2014; Shaw, 2007; Bissell & Lemons, 2006; Schamber & Mahoney, 2006).

The adoption of rubrics is enormously useful in setting expectations of performance and feedback in regards to the achievement of standards in teaching and education (Andrade & Du, 2005; Montgomery, 2002). Without rubrics, for students are challenged in comprehending lecturer feedback and comments. (The transparency of the standards and set criteria found in rubrics allows students to have a better understanding of the key target criteria for their performance and define specific areas for improvement (Mertler, 2001). However, the use of rubrics to communicate standards attained by students in professional education then calls for methods of assessment such as authentic assessment, which is able to capture such standards (Ghosh, Bowles, Ranmuthugala & Brooks, 2016). To this end, it must be made clear that the assessment of the E-portfolio includes different levels of assessment and therefore different rubrics or components of rubrics, such as scoring writing skills, a student journal, critical thinking, and the complete E-portfolio assessment (van Niekerk, 2015).

4.6.2 Peer and Self-Assessment with Rating Scales

Through the use of peer and self-assessment scales, students can internalise the characteristics of quality work by evaluating the work of their peers. Peer assessment requires students to provide either feedback to their peers on a product or a performance, based on the criteria provided by lecturers or developed by them with the support of the learners (Spiller, 2012). Peer assessment is used for formative purposes to encourage students to help each other plan their learning, identify their strengths and weaknesses and in turn sharpen their meta-cognitive skills. According to Boud (2010), collaborative tools like wikis and blogs can also help in peer and self-assessment; and when students are learning in an e-learning environment using LMS, they have many opportunities for peer and self- assessment.

4.6.3 Checklist with Criteria set for E-Portfolio Assessment

A checklist assessment instrument with set criteria could be used as an alternative to a 'marks range' rubric, which is not possible to set up in the E-portfolio system. Taylor (2018) argues that checklists have little statistical value; they are useful to assure that requirements have been met. Assessors score the student by providing a value within the range set on the criterion. Black and Wiliam (2018) assert that the quality of information acquired with checklists is highly dependent on the quality of the descriptors chosen for assessment. Their benefit is also dependent on direct student involvement in the assessment and understanding of the feedback provided; these checklists can also be used for self-assessment. As a result, the use of checklists can be used appropriately with the set standards and criteria.

4.7 E-PORTFOLIO 21ST CENTURY COMPETENCE LEARNING SKILLS

Modern life has undergone massive changes over the recent decades. Now it requires that graduates should be equipped with various skills as they enter the changing world. This ever-changing and challenging world requires students to go beyond the building of their knowledge capacity; they need to develop their higher-order thinking skills, critical thinking skills, research skills, communication skills, digital literacy skills and problem solving skills as well as many others. As indicated in Chapter one, the

constructivist views approach to teaching and learning requires that educators and academics change their teaching strategies and methods by shifting the emphasis from the traditional textbook-based, passive learning and rote learning to exploration, inquiry-based learning situated in real-world phenomena (Simonson, Smaldino & Zvacek, 2014). Similarly, Bada and Olusegun, (2015) assert that the constructivist theory recognises that students have to be active in the learning process, this requires that they need to be exposed to learning experiences that enable them to construct their own knowledge and promote their thinking skills. As a result, as postulated by Noddings (2018) the constructivist perception to teaching and learning in higher education institutions is under increased pressure to provide evidence of skills and competencies acquired by students. Therefore, the use of various teaching, learning and assessment methods and tools has to provide such evidence.

4.7.1   Digital Literacy Skills

Technological advancement has brought transformation in teaching and learning (Bull & Gilbert, 2012). Collins and Halverson (2018) refer to digital literacy as an individual's ability to find, evaluate, produce and communicate clear information through writing and other forms of communication on various digital platforms. In general, digital literacy frameworks may be reflected in the use of digital technology, communication tools and networks to access, manage, integrate, evaluate and create information in order to function in the information society (Pangrazio, 2016). It also includes elements of information literacy, media literacy, and visual literacy (Martin, 2005). In this era of technology, students are expected to have access to and be able to use technology to be digitally literate. The competencies include, such as using technology to improve, being familiar with technology tools, having a positive attitude towards the use of technology in their online modules, and having adequate technical, cognitive and socio-emotional skills in digital literacy. Digital literacy is a broader concept that integrates several skill-sets and related literacies such as information evaluation and knowledge gathering (Mohammadyari & Singh, 2015). Digital literacy also includes skills in critical information retrieval, data processing and the ability to take advantage of the diversity of digital media (Thorell, Fridorff-Jens, Lassen, Lange & Kayser, 2015).

In recent years, studies of digital literacy have emphasised the need of getting beyond the basic skills of using the information and digital literacy tools and resources and developing strategies for a critical and efficient use of these means (Shopova, 2014). According to Uzunboylu (2006), digital literacy refers to the knowledge and skills that all persons need for professional development and for active participation in a technologically-based society. Digital literacy displays an individual's grammar, computer, writing and typing skills on platforms, such as, social media sites and blog sites. Digital Literacy also includes other devices, such as smartphones, tablets, laptops and desktop PCs which mainly relate to the ability of users to use digital devices effectively in different domains (e.g. cognitive, social-emotional and technical) within formal and informal learning contexts (Ng, 2012; Beetham, 2005).

4.7.2   Research Skills

Research skills refer to the ability to search for, locate, extract, organise, evaluate and present information that is relevant on a particular topic. Academic research is a specific type of research with a process of detailed and methodical investigation into a particular study (Robson & McCartan, 2016). Research involves intensive search, investigation, and critical analysis, usually in response to a specific research question or hypothesis (Van Manen, 2016). In view of the latter, students in the different modules and programmes are given research assignment, projects and activities to demonstrate their skills obtained concerning the set criteria. With E-portfolios work, students are expected to complete various tasks that may require them showcasing a variety of competency skills.

4.7.3   Communication Skills and Collaboration Skills

The use of E-portfolio expects students to communicate and collaborate throughout the learning process. This communication and interaction with peers and lecturers improves their learning (Bolliger & Shepherd, 2010; Lin, 2008). In order for students to achieve their learning outcomes, they will be expected to communicate amongst themselves and collaborate as teams to work on a particular project, like a group assessment, and provide feedback amongst themselves, (Binkley, Erstad, Herman & Raizen, 2012). Barbera, (2009) concurs that interaction and communication between

learner, peers and lecturers provides opportunity for new knowledge structures within a particular social context. However, for effective collaboration, students need a range of skills to apply in specific contexts. Collaborating in these online communities of practice provides students with an authentic experience related to the selection and discussion of appropriate artefacts, but also real-time feedback and contributions from all relevant role players that contribute to the opportunity to connect, clarify and communicate as and where needed (Jimoyiannis, 2012).

4.7.4   Higher Order Thinking Skills (HOTS)

The use of E-portfolio as a teaching and learning tool can provide evidence of higher order thinking skills in the design and development of E-portfolio. Higher-order thinking is an umbrella term that encompasses multiple complex critical thinking and problem solving, (Lukitasari *et.al*, 2018; Brookhart, 2010**)** encompassing various forms of thinking such as critical, systemic, and creative thinking (Boddy, Watson, & Aubusson 2003; Resnick, 1987). Assessment is a learning activity that aims to build student thinking and scientific attitudes that encompasses both critical thinking and problem solving (Lukitasari *et.al*, 2018). Various scholars in their studies concur that E-portfolios have considerable advantages for students in developing transferable skills, mainly reflection, critical thinking, learner autonomy, professional development, and the ability to organise and self-regulate the learning process (Rodrigues, 2013).

Higher order thinking is viewed as the strategy, indicating the setting of meta-objectives; whereas critical, systemic, and creative thinking are seen as the tactics used in the activities needed to achieve the proclaimed objectives. Taking into consideration that all forms of higher order thinking skills will be too complex, this study focuses on critical thinking, in an attempt to identify whether and to what extent thinking skills can be acquired and developed while teaching and learning during the creation of the E-portfolio. As teaching and learning in the 21st century embraces constructivist theory, working in the ODL environment is crucial for students to be equipped with higher order thinking skills (HOTS). Perkins (2016) and Rofiah, Aminah and Ekawati (2013) describe higher-order thinking as the ability to link, manipulate, and transform existing knowledge and experience to think critically and creatively in deciding and solving problems in new situations, including logic and reasoning, analysis, evaluation,

creation, problem solving, and retrieval decision. HOTS is a thinking process that not only memorises, but also involves an in-depth understanding and critical thinking analysis process.

Therefore, to improve the UNISA students' higher-order thinking skills, teaching, learning and assessment activities should be designed to prioritise activities that allow students to perform a variety of activities that promote and stimulate creativity, involve decision-making and problem-solving and other relevant skills needed in this era. Higher-order thinking includes reading with understanding and identifying relevant and irrelevant material. The ability to draw the correct conclusions from the data provided and to determine inconsistencies and contradictions in data is part of higher-level thinking skills. In higher-ordered thinking, critical thinking is categorised as convergent thinking which leads to one point, whereas, creative thinking fits to divergent thinking, which disperses from one point (Johnson & Johnson, 2002). Referring to Bloom's taxonomy (Anderson, Krathwohl & Airasian, 2001), thinking skills are categorised into two groups: lower-ordered thinking which includes comprehension, knowledge, and application, and higher-order thinking which involves creativity, evaluation and analysis. In this regard, HOTS processes encompass the upper levels of Bloom's Cognitive Taxonomy (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). In explaining the three concepts of HOTS several authors outlined them as analysis, evaluation and creativity.

Analysis is the ability of the individual to determine the parts of a problem and show the relationship between the sections, see the causes of an event or give arguments that underpin a statement (Kou, Du, He & Ye, 2016). Analysis is an attempt to sort integrity into elements or parts to clear the hierarchy or composition. The process of analysis requires the identification of components and connections between parts, so the output of this learning process represents higher-order thinking, as it requires an understanding of the content and structure of the material studied (Musa, Mufti, Latif & Amin, 2011). One of the indicators for measuring higher-order thinking includes analytical skills described by Asshaari, Othman, Bahaludin, Ismail and Nopiah (2012), as one of the highest cognitive domains is the analytical ability (Branney & Priego-Hernández, 2018). Indicators for measuring analytical skills include focusing on key ideas and analysing while conducting research skills such as analysing data,

categorising, creating categories, summarising, and predicting from discussion or practicum simulation, seminars, demonstrations and workshops activities come into play and are able to deepen student learning.

HOTS can be developed during the design of E-portfolios when students are given activities that require them to conduct research about a particular concept or topic. High-level thinking skills is exercised in authentic knowledge work and participants continually raise the bar for accomplishments as they engage in complex problems and systems thinking (Scardamalia, Branfsford, Kozma & Quellmalz, 2012). In E-portfolio design and development, the student demonstrates higher order thinking by comparing, organising, critiquing and structuring the relevant information and content.

Evaluation is one of the activities where judgements are made with regard to the value of an idea, creation or method (Omar, Haris, Hassan, Arshad, Rahmat, Zainal & Zulkifli, 2012; Asshaari *et al.*, 2012). This reasoning ability is necessary for the process of thinking and drawing a conclusion in the form of knowledge.

Creativity, as a HOTS component, creates quality evidence through effective planning, designing and producing of artefacts in the E-portfolio. The use of E-portfolios encourages students to think deeply when deciding on the evidence to put in as evidence and to tap into their developing creativity skills.

4.7.5   E-Portfolios developing Critical Thinking Skills (CTS)

Critical thinking as defined by various researchers (Andolina, 2002) is described as a process through which ideas, information and its sources are evaluated and ordered coherently and sensibly then connected to other ideas and information. Similarly, Ennis (1991) defines critical thinking as a set of logical and discrete skills of thinking, focusing on deciding what to believe or do. Similarly, Topoğlu (2014) outlines critical thinking as a purposeful, conscious process to interpret and evaluate information and experiences. Popil (2011) describes critical thinkers as flexible, innovative, creative, analytical, communicators, assertive, persistent, caring, energetic, risk takers, knowledgeable, resourceful, and intuitive and have the ability to think laterally, taking all aspects of a scenario into account.

Akhoundzadeh, Ahmari Tehran, Salehi and Abedini, (2011) allude that critical thinking is purposeful, self-regulated judgement which results in interpretation, analysis, evaluation, and inference. In other words, it is a purposeful process that is used to make decisions and solve problems in different situations (Babamohammady & Khalili, 2005). Critical thinking allows individuals to make logical judgements using a course of reasoning based on classical theories, available evidence and accepted standards and criteria (Athari, Sharif, Nematbakhsh & Babamohammadi, 2009). Critical thinking naturally forces students to actively apply their minds and think deeply and creatively to solve problems with which they are faced.

The use of alternative assessment in higher education noted that it is essential that real or genuine assessment methods, called performance assessment or authentic assessment, is used to evaluate students with the aim of preparing them for the world of work (Bates, 2015). In this context, an E-portfolio, like a jigsaw, is a set of pieces (learner activities) which creates a clearer image of a student as a lifelong learner when fitting those pieces together (Rastegar, 2009). Moreover, that the use of E-portfolio tools derived from modern approaches brings in advanced approaches because contrary to paper portfolios, E-portfolios place no limitation on students, so they can save and have access to their information at any given time or place as well as updating them. Rezaei (2011:345) confirms that using "E-portfolio is considered as a learning and assessment tool that can measure both process and outcome of learning with the capacity to save, manage, correct and offer feedback on learning activities by students in a network- or computer-based digital environment".

Little research directly investigating the effect of E-portfolio on the critical thinking has been found, though research conducted by Zarei Zavaraki and Rezaei (2011) has revealed a significant difference between two groups, one of them evaluated based on E-portfolio (experimental) and the other one based on usual evaluation methods (control) with the first performing better.

Mazraeh, Manesh, and Tabasi, (2013) studied the effect of using E-portfolio on self-regulated learning strategies between university students which showed a positive effect of E-portfolio on the self-regulated learning strategies. Adopting a constructivist approach assessment emphasises deep learning (Sánchez & Soto, 2015) and as

such, the E-portfolio can improve critical thinking skills among students. Results of study performed by Chau and Cheng (2010) showed that application of the E-portfolio was more effective in promoting self-regulated learning between poorly motivated students than those who were strongly motivated. Furthermore, Cheng and Chau (2013) have found that E-portfolio-use enhances higher-order cognitive, metacognitive, self-regulated and cooperative learning skills.

In addition, the research study of Shahraki and Barghi (2017) investigated the effect of E-portfolio on evaluating students' skills of critical thinking revealed that the E-portfolio was effective in honing those skills. Results of the research showed a positive effect of E-portfolio on the critical thinking skills. It was revealed that the application of E-portfolio to teaching, learning and assessing promotes developing the university students' critical thinking skills. The results of the latter are also consistent with those of Rezaei (2011), Chau and Cheng (2010) Cheng and Chau (2013).

In conclusion, the above research studies indicate that using E-portfolio, derived from constructivism, facilitates critical thinking in education. In fact, constructivist learning theory and evaluation models, such as the E-portfolio, help students develop their thinking processes and, as such, they are able to evaluate their progress in fostering their thinking skills and critical thinking in particular. Vygostky (1981) has stated that there is no room for development of critical thinking skills in a teacher centred class where only one voice could be heard, that of a teacher. In such classes, students become passive and only receive knowledge passively and as such produces a number of consumers who have no ideas or opinions. In higher education, a move had to be made to ensure that students become actively involved. Hence, in their research, Shahraki and Barghi, (2017) have shown that the effect of using E-portfolio on critical thinking skills concluded that the E-portfolio was effective in sharpening critical skills.

Therefore, given the importance of developing critical thinking skills as one of the primary goals of higher education, it is vital for designers of teaching and learning and assessment tasks or activities to ensure that students are offered more freedom to voice their opinions for and against the various scientific issues thus allow them to be actively involved. If they are given such chance, they can understand others'

viewpoints and come up with new ideas. Applying well-established, investigative and constructivist-based assessment methods will foster critical thinking as well as student analysis, inference, evaluation, deductive and inductive reasoning skills. Students will thus be allowed to conduct research, write reports and present their work and the supports permanent learning (İzgi & Gücüm, 2012) and improves student ability of creativity. As a result, as posited by Carl and Strydom (2017:18) E-portfolios may assess student capacity to investigate a phenomenon, analyze, synthesise, organise the research materials or a certain product and develop the capacity to compare the outcomes and use the bibliography appropriately. This will be evidence of personal benefits and learning that took place.

4.9   CHAPTER CONCLUSION

The research questions in this study guided the review of literature from the previous chapters. This chapter critically reviewed the use of E-portfolio as an alternative assessment approach in an ODL environment. In this chapter, a scoping review was used to search for the publications on E-portfolio assessment approach. As this chapter concludes the literature review, several aspects of the use of E-portfolios as an alternative assessment approach were discussed. The chapter started by conceptualising E-portfolio, then outlined the features, purpose, affordances, benefits, limitations, development and importance of using E-portfolios. The use of E-portfolio in higher education offers a valuable tool for improving processes of learning and assessment and this chapter also highlighted the importance of constructive feedback in assessment particularly E-portfolio and in an ODL environment.

E-portfolios can also improve student ability to establish communication channels, and obtain feedback from assessments. It has further demonstrated that E-portfolio is suitable for ODL higher education as it is applicable using technology that connects students with the academics and peers through a variety of platforms. Finally, this chapter discussed how academics and students benefit from E-portfolio use as it extended and expands knowledge and competency skills.

CHAPTER 5
RESEARCH DESIGN AND METHODOLOGY

5.1   INTRODUCTION

Research methodology is a way to solve the research problem logically. This chapter presents an overview of the research design and methodology of the study. A detailed explanation of the philosophical paradigm and worldview foregrounding the study, the research methodology including the design, the study population and the sampling procedures are discussed. The methods of data collection and data analysis are presented in the subsequent sections. Finally, trustworthiness, validity, reliability and validity of the study are discussed, related to, and associated with, the study as well as ethical considerations.

5.2   PRAGMATISM AS THE RESEARCH PARADIGM

The choice of research methodology choice does not exist within a philosophical vacuum. Brannen (2005) considers that the choice of research method/s is based on the philosophical hypotheses (ontological and epistemological). Researchers should position themselves paradigmatically. Mertens (2005:7) defines paradigm as "a way of looking at the world". It is composed of certain philosophical assumptions that guide and direct thinking and actions. Similarly, Neuman (2006:81) views the paradigm as "a general framework for organizing theory and research that includes basic assumptions, key issues, and processes of quality research processes research and methods for seeking answers". In the same vein, Denzin and Lincoln (2008:22) describe the paradigm as "a net containing the researcher's epistemological, ontological, and methodological premises of research". All research is interpretive, it is guided by the researcher's set of beliefs and feelings about the world and how it should be understood. In view of the latter, it is important that the paradigm(s) upon which a research proposal and design is based, are fully understood and made explicit in the research itself (Neuman, 2006; Maxwell, 2005; Mertens, 2005).

This study employed a pragmatic approach to view the world. Pragmatism is not devoted to any one system of philosophy or reality (Creswell, 2011) and as such, can

be applied to provide solutions to a certain problem. Therefore, a number of paradigmatic positions are associated with the search for mixed methods research. These positions include a paradigmatic stance, a substantive theory stance, a complementary strengths stance, a multiple stance, a dialectic stance and a single paradigm stance (Creswell, 2011). Dewey (1931:22), one of the influential theorists of pragmatism, stated that "the pragmatist views the general ideas or particular conceptions resulting from research findings as bases for organising future observations and experiences, thus these consequences of actions become the vital part". As indicated by Morgan, (2007) pragmatism arises out of events, circumstances and consequences rather than predecessor conditions. Creswell (2009:10) explains that pragmatism stems from actions, situations, and consequences rather than antecedent conditions.

Pragmatism is not committed to any one system of philosophy and reality. This paradigm applies to mixed methods research in that inquirers draw liberally from both quantitative and qualitative assumptions philosophical basis for research methods, Bryman (2012), Morse (2010) and Morgan (2007) argue that pragmatism provides a philosophical basis for research that provides individual researchers freedom of choice. In this way, researchers are free to choose the methods, techniques, and procedures of research that best meet their needs and purposes. In a pragmatist view, the world is not regarded as an absolute unity. In a similar way, mixed methods researchers look to many approaches for collecting and analysing data rather than subscribing to only one way (e.g. qualitative or quantitative). The truth is what works at the time; it is not based in a duality between reality independent of the mind or within the mind. Creswell (2011) also concurs that from the viewpoint of a pragmatist, the truth is one that is generated from consequences. Therefore, pragmatist researchers are free to choose the methods or techniques that meet their needs and purpose without being loyal to any alternative paradigm or methodology.

The pragmatist researcher looks to the 'what' and 'how' of research, based on the intended consequences of where they want to go with it (Creswell, 2012). Mixed methods researchers need to establish a purpose for their mixing, a rationale for the reasons why quantitative and qualitative data need to be mixed in the first place (Johnson & Onwuegbuzie, 2007). Thus, in mixed methods research, investigators use

both quantitative and qualitative data because they work to provide the best understanding of a research problem. Thus, pragmatism is considered as the paradigm that provides the philosophical framework for mixed methods research (Teddlie & Tashakkori, 2010).

As the pragmatic view allows the combination of ways or techniques to gather data as long as the objective is being fulfilled, this research follows a mixed method methodology, which leads to the selection of data collection techniques that suit this method and the objectives to be accomplished. Numerous scholars agree that pragmatism in its simplest sense is a practical approach to a problem and has strong associations with mixed methods research (Bazeley, 2010; Tashakkori & Teddlie, 2009; Greene & Caracelli, 2003; Maxcy, 2003).

The rationale for pragmatism, as the research paradigm for this study, has been influenced by the fact that mixed methods research involves the integration of qualitative and quantitative methodologies. In addition, the pragmatic approach allows for the coexistence of both objective and subjective viewpoints as they apply to methodology (Tashakkori & Teddlie, 2010). This study adopted a pragmatic-driven philosophical worldview to explore and investigate E-portfolio as an alternative assessment approach to enhance student self-directed learning in an ODL environment.

In mixed methods research, the researcher is able to work with participants from an objective or subjective point of view, depending on whether these participants are involved in the qualitative or quantitative aspect of the study. The design of mixed methods using both qualitative and quantitative approaches, gives the researcher the opportunity to triangulate the results from the various data collection tools used in the study.

5.3   EXPLORATORY SEQUENTIAL MIXED METHODS RESEARCH DESIGN

A good research design is well planned and its components work harmoniously together to suit the study. Punch (2013:62) defines research design as "a vehicle for all the issues involved in planning and implementing a research project, from

identifying the results to reporting and publishing results". It is clear from the author's definition that a detailed plan is needed of the processes and methods to illustrate how the research is to be conducted. This research study used an exploratory mixed methods research approach to explore the use of E-portfolio as an alternative assessment approach to enhance student self-directed learning in an ODL context. An exploratory sequential mixed methods is a design in which the researcher first begins by exploring with qualitative data and analysis and then uses the findings in a second quantitative phase (Creswell, 2012). The author further explains that exploratory sequential design strategy is to develop better measurements with specific samples of populations and to see if data from a few individuals (in qualitative phase) can be generalised to a large sample of a population (in quantitative phase). For example, the researcher would first gather qualitative data through interviews and document analysis, analyse the results, develop an instrument based on the results, and then administer it to a sample of a population (Creswell, 2012). In effect, the researcher employs a three-phase procedure with the first phase as exploratory, the second as instrument development, and the third as administering the instrument to a sample of a population (Johnson & Onwuegbuzie, (2004). A number of scholars have defined mixed methods research as a type of research that uses two or more methods in a research study that yields both qualitative and quantitative data (Teddlie & Tashakkori, 2009, Greene 2007). Creswell (2009;2012:22) describes mixed methods research as "both a method and methodology for conducting research methods procedures for collecting, analysing, and mixing both quantitative and qualitative data in a single study or in a multiphase series of studies"; while Johnson and Onwuegbuzie, (2004:19) report that mixed methods research "uses a method and a philosophy that tries to fit the ideas provided by qualitative and quantitative research into a viable solution". Creswell (2009) goes on to say that the purpose of this form of research is that both qualitative and quantitative research, in combination, provides a better understanding of a research problem or issue than either the research approach alone. In mixed methods research, quantitative data is collected by using instruments, checklists and records, whereas qualitative data makes use of interviews, observations, documents, and audio-visual materials (Ivankova, Creswell & Stick, (2006).

In a qualitative study, data is analysed using text and images for coding, and theme development of related themes, while the quantitative research data is analysed statistically, to describe or compare variables in the phenomenon that is investigated (Creswell, 2011). For example, the researcher might conduct an interview with the participants (qualitative), after the interview conduct a statistical data analysis to describe or compare variables of the quantitative data set with the qualitative see if they agreed with the results. Thus, when different approaches are used to focus on the same phenomenon and they provide the same result, a high degree reliability of the study is achieved (Creswell,2013).

For the purposes of this study, mixed methods research is appropriate since it has the potential to discover what might have been missed if only a quantitative or a qualitative approach had been used (Onwuegbuzie, 2007). In addition, the two approaches complement each other and allow for a more complete analysis of the research problem (Tashakkori & Teddlie, 2003). Finally, Gray (2013:196-197) explains that mixed methods research has opportunities for the study that include; "triangulation by using different methods such as complementarity of methods as they complement each other, measure the overlapping information from each other; initiation of new perspectives and expansion as this broadens and widens the range of a study; developmental where one method uses information to development of the second".

This type of research involves collecting qualitative data, followed by quantitative data in order to explain or track the qualitative in greater depth. Creswell (2011:13) points out that mixed methods research is used to compare the results from qualitative and quantitative research.

- To use qualitative research to help explain quantitative findings.
- To explore using qualitative research and then to generalise findings to a large population using quantitative research.
- To develop an instrument because none are available or useful.
- To augment an experiment with qualitative data.

In the context of this study, the qualitative phase of this research study involved the collection of data through using semi-structured interviews and document analysis. While the quantitative phase of the study used an online questionnaire administered to students in order to triangulate the findings that emerged from the interviews with UNISA lecturers and document analysis. Furthermore, the use of mixed methods research for this study has several advantages mainly because it offers the potential for generating new ways of understanding the complexities and contexts of the problem investigated and the addition of the quantitative phase refined the original qualitative data (Johnson & Onwuegbuzie, 2007).

This exploratory sequential mixed method design aimed to investigate and explore the use of E-portfolio assessment with qualitative data collection followed by use of the qualitative findings to design a quantitative instrument, to administer to a sample from a population. Results of both analysed qualitative and quantitative data were compared and merged through the triangulation approach to produce meaningful findings. Figure 5.1 below depicts the research design and methodological processes followed in this study.
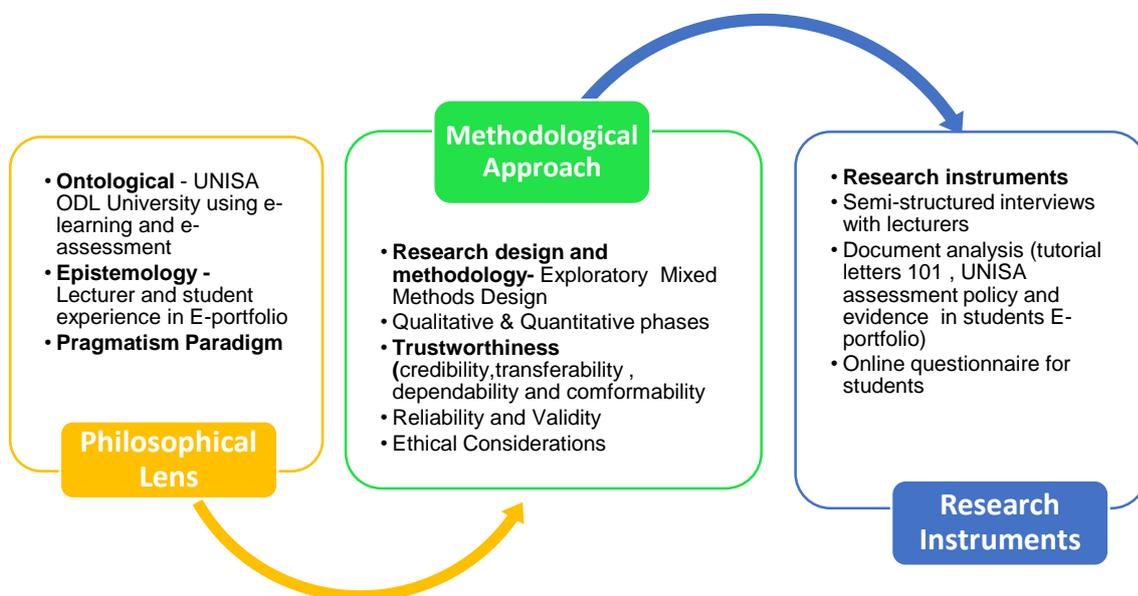
Figure 5.1: The research and methodology process

(Nkalane, 2018)

5.4   POPULATION AND SAMPLE OF THE STUDY

The population of this study comprised students and lecturers of UNISA as an ODL University. The students and lecturers were purposively sampled, which means that the sample was selected in a deliberate manner in order to increase the chance of getting the most relevant and plentiful data in an area of study (Yin, 2011). The participants were purposively sampled based on their potential to provide rich and relevant information (Etikan, Musa & Alkassim, 2016); particularly as participant, qualities included knowledge, skills and experience in the ODL institution, which could provide in-depth information about the topic under investigation. In addition, convenience sampling allowed the researcher to select the participants based on their willingness and availability to participate in the study at a given time or when they were easily accessible during data collection (Creswell, 2011).

5.4.1   The Study Sample

The population of this study compromised of students from the three colleges namely, Agriculture and Environmental Sciences (n= 13), Education (n=70) and Human Sciences (n=34). Although UNISA has eight colleges, the research focused developing a population from colleges implementing E-portfolio as a teaching, learning and assessment tool, in the particular modules. A sampled of hundred and seventeen (n=117) students were purposively selected from the three colleges participated in the quantitative phase of the study. Permission to conduct the research was sought from the College of Education's Ethics Research committee. On obtaining the approval from CEDU Ethics Committee, the researcher then requested permission to conduct research with UNISA staff, students and documents. Permission was granted by the Research Permission Sub-Committee (RPSC) of the Senate Research Innovation, Postgraduate Degrees and Commercialisation Committee (SRIPCC). Thereafter invitations were emailed to the sampled student and lecturers as well as consent forms.

5.4.2   The Sample Procedure

In this exploratory sequential mixed methods research study, conducted in the 2017 and 2018 academic years, the researcher took into account sample design and sample size for both the qualitative and quantitative aspects. The study began with reflexive bracketing, referred to as the process by which the researcher brackets or sets aside personal experiences to understand those of the participants (Kvale, 1996). Bracketing typically refers to a researcher's identification of vested interests, personal experience, cultural factors and possible assumptions that could influence the way he or she views the study's data and mitigates possible biases and/or subjectivity (Kvale, 1996). This is in line with Moustakas' (1994:35) claim that the researchers can "primarily investigate an organisation, institution or educational process through the experiences of the individuals, who make up, participate in the organisation, or are involved in it, but should not be limited by the researcher's own experiences".

In this context, the researcher, as a lecturer in the institution, made sure that she set aside her personal experiences so as not to influence the participant nor their ideas or thoughts as they answered interview questions. To address this challenge, I made it clear to research participants that there was no pressure or obligation to participate in the research if they were not comfortable, and even if they had agreed to participate, they could withdraw at any given time without reproach.

The research participants, chosen because they had knowledge and were involved in the phenomenon under investigation (Creswell, 2013) and as such, for a particular purpose that is of interest for a specific study (Booth, Colombo & Williams, 2008; Denzin & Lincoln, 2000). The following inclusion criteria assisted in the selection of participants:

- Nine lecturers (n=6) with experience of teaching and assessing students, using E-portfolio assessment strategy. These are primary lecturers involved in E-portfolio use in their respective modules.

- Lecturers prepared to participate in the interview processes, which included follow-up interviews enabling the researcher to gain perspective on the phenomenon under investigation.
- Students (n=117) registered in the following modules (CUDAEE, SDEC00N, SDBIOLJ, INTMAEU, HSE3704 and ANH301A) as E-portfolio modules.

The criteria used to select participants allowed the researcher to find a defined group, whose participation was relevant and meaningful to the research problem and the objectives. The students and lecturers were informed about the research online via email, which provided the information sheet with regard to the tasks and responsibilities of each participant and consent forms, which were to be signed and returned.

5.5   DATA COLLECTION INSTRUMENTS

This section describes the data collection instruments selected and justified in their suitability for this research study. Merriam and Tisdell (2016) state that the goal of the data collection phase is to gather enough information from multiple sources to create rich, thick descriptions, and to ensure that sufficient data is collected to reach saturation. The data collection instruments included both qualitative instruments such as semi-structured interviews and document analysis and a quantitative instrument such as an online questionnaire. The next section will elaborate on the process followed for the qualitative phase.

5.5.1   Data collection process: Phase one qualitative phase

The first phase of the data collection process was qualitatively collected with semi-structured interviews conducted with primary lecturers, and document analysis with relevant documents such as tutorial letters 101, student E-portfolio documents of the identified modules as well as the UNISA Assessment Policy.

5.5.1.1　Semi-structured interviews with primary lecturers

In this qualitative phase, lecturers were interviewed individually regarding their use, experiences and perception regarding the use of E-portfolio for assessment purposes. Interviews were conducted through an open discussion between the interviewees and the researcher.

Interviews are favourite methods of data collection regularly adopted in most qualitative research in social sciences, declared a primary data collection technique widely used over the academic world. An interview can be described as a significant conversation between two parties, which are the interviewer (normally a researcher or co-researcher), and the interviewee or respondent (Creswell, 2011) and may be structured, semi-structured or informal. The main purpose of interviewing participants in this study was to explore and investigate respondent opinion, agreement, disagreement or even suggestion on certain issues in the research topics and took the form of a semi-structured interview.

Meho (2006) asserts that semi-structured interviews are quite flexible where the researcher could prepare pre-determined questions, while having the possibility of changing and modifying the order or the wording of the questions during the course of the interview. An interview schedule is usually designed with specific questions in mind to elicit the same information and to provide guidelines for the interviewer.

The semi-structured interview was used in this study. An interview schedule (*cf.* Appendix G), consisting of a specific set of open-ended questions was used to allow the participants to express their thoughts during the interviews; however, specific information was required but with a semi-structured format, the researcher was able to probe for more clarity on the answers and respond to the situation with follow-up questions and additional questions, often allowing a new point of view to emerge (Bryman, 2015). Although the interviewing process may be time consuming and the interviewees may get bored, the chance of data richness is high.

The interviews were recorded with the purpose of providing a precise record to obtain specific details from the participants, to be able to listen and check them several times

for participants to verify for precise comments. The duration of the recording time ranged from 35 to 45 minutes. Two or three days were required for transcription and review of each interview before storing on a CD and an electronic folder. Audacity software and a backup portable audio recorder were used for recording the interviews. Using the correct equipment to record the interview allowed the researcher to be more focused during the interview. Audio recording "frees you from having to write everything down, so you can concentrate on the social interpersonal nature of the interview process and respond fully to the interviewee" (Simons, 2009:52). However, notes taken during the interview alerted the researcher to important issues that might need further elaboration, rather than cutting the participants off in the midst of their talk. Although a reflexive journal was used to record all information about the events that happened in the field, personal reflections in relation to the study.

After transcription of interviews, follow up interviews were conducted to confirm that the information transcribed was correct and that the context remained true. After completion of the interview sessions, the researcher transcribed the interviews into a Microsoft Word document using voice recognition software. After transcription of interviews, follow up interviews were conducted to confirm that the information transcribed was correct and that the context remained true.

5.5.1.2   Document analysis

Secondly, document analysis was conducted providing insight and background information about the University's E-portfolio-use as an alternative assessment approach towards self-directed learning. According to De Vos *et al.* (2011) various kinds of documents can be used as sources of data for the study. Yin (2011) defined document analysis as a non-obtrusive means of analysis that provides insight as a communication device to corroborate findings from other data collection points. It is a systematic procedure for reviewing or evaluating documents both printed and electronic (computer-based and Internet-transmitted) material (Bowen, 2009). Document analysis is often used in combination with other qualitative research methods as a means of triangulation using a combination of methodologies in the study of the same phenomenon (Corbin & Strauss, 2008).

In the researcher's view, the latter scholars affirm that like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding and develop empirical knowledge. The qualitative researcher is expected to draw upon multiple (at least two) sources of evidence; that is, to seek convergence and corroboration using different data sources and methods.

In this study, document analysis was conducted with the following documents, namely, tutorial letters 101 *(cf.* Appendix M), student E-portfolios (which are examinations and kept at the University as evidence for audit purposes and cannot be attached as an appendix) and UNISA's Assessment Policy *(cf.* Appendix L2). The Assessment Policy, used by the participants when designing the E-portfolios and the student E-portfolios with the tutorial letters, were seen as an appropriate method of data collection to elicit a more comprehensive understanding of alternative assessment strategies.

Before the analysis of documents, the researcher requested permission from the primary lecturers and the examination department for access to student E-portfolios together with the module tutorial letter 101 and the UNISA Assessment Policy. Firstly, the tutorial letter 101 is part of the University's tutorial programme, containing information that guides students through the study. Students are advised to keep it at hand when working through the study material as it provides valuable information regarding the module, mainly for preparing the formative and summative assessments tasks leading to the development of an E-portfolio. Secondly, analysing E-portfolios illustrated the types of assessments administered to students, particularly highlighting whether student learning toward self-directed was being enhanced with the development of HOTS as key 21st century skills. E-portfolio document data was gathered without the direct involvement of research participants; it was unobtrusive because their collection did not interfere with the ongoing events of everyday life (Hatch, 2002). By examining the E-portfolios, the researcher managed to gather evidence of the authenticity assessments tasks implemented in the various E-portfolio modules. Thirdly, the UNISA Assessment Policy provided information on the expected assessment processes and procedures; this analysis ascertained if alternative assessment processes and procedures were being incorporated into the design and development of assessment principles and processes thereof. Ultimately, these

documents provided insight into how E-portfolio, as alternative assessment approach, was being used.

5.5.1.3 Analysis of Qualitative Data

Nieuwenhuis (2010:99) points out that "qualitative data analysis is established on an interpretivist epistemology that targets construction of knowledge by understanding the phenomenon through analysing participants created knowledge of understanding the situation, including their attitudes, values and beliefs and experiences". In this study, the researcher had to interpret the interviewees (participants) creation of knowledge of understanding the situation including their attitudes, values, beliefs and experiences. The analysis of qualitative data used two data collection instruments separately and used the findings of the interviews and document analysis.

- **Semi-structured interview data analysis**

Creswell (2011) states that data analysis in qualitative research is done by arranging details of the case by making clear specifications of facts or as McIntosh and Morse (2015) explains, analysis means the resolution of a complex whole into parts, while it is also viewed as attributing meaning to the words. Denzin and Lincoln, (2008: 180) argue that qualitative data analysis contains "three linked sub-processes, namely: data reduction, data display and conclusion drawing or verification". According to Cohen, Mannion and Morrison (2007), qualitative data analysis involves organising, accounting for and explaining the data, in short, making sense of the data in terms of participant definitions of the situation, noting patterns, themes, categories and regulations.

Bertram and Christiansen (2014) posit that an inductive approach works from specific observations to broader generalisations and theories. In this qualitative research phase, the researcher followed an inductive approach when analysing the data, which began immediately after data collection.

Taking the above into account, this study made use of the constant comparison analysis developed by Glaser and Strauss (1967), in analysing the data collected

during the semi-structured interviews. Though this type of analysis was first used in grounded theory research, Strauss and Corbin (1998) also established that constant comparison analysis is characterised by three major stages. During the first stage, called 'open coding', the data collected is chunked into small units and the researcher attaches a descriptor or code to each of the chunked units. The second stage, 'axial coding', follows, where codes are grouped into categories. This may simply be grouping of like terms where all the codes that have some similarities are put together into a single category. The third and final stage, 'selective coding', comes in when the researcher systematically develops one or more themes out of the categories that express each of the groups.

Applying the process of constant comparison analysis in this study, the researcher carefully listened to the audio recordings several times after each participant interview (Denzin and Lincoln, 2008) to verify the transcriptions and to become familiar with the content. At the first stage or open coding, the researcher examined the data, compared it and then grouped together small units of meaning from the transcriptions and gave each a code. Though some of the units were similar or identical, the researcher still coded them separately, as outlined by Glaser and Strauss. In the second stage or axial coding, the data were put together again but grouped together in new ways, making connections between categories. The third stage or selective coding entailed the process of selecting the core category and relating it to other categories, ensuring that there is a strong relationship between them. This stage also gives an indication of categories that might need refinement through further data collection or during the next iteration of data collection. The core category was based on the use of E-portfolio as an alternative assessment leading to the development of a framework that would guide lecturers in assessment (*cf.* Figure 8.2). The broad categories under which all the themes for interviews were grouped were: lecturers and students experiences in using E-portfolio as an alternative assessment tool; development and enhancement of student learning in the twenty first century competency skills particularly (higher order thinking skills (Hots), critical thinking skills (CTS) and self-directed learning skills (SDL), student support in developing E-portfolio for assessment, E-portfolio issues and challenges. Figure 5.2 illustrates the stages followed in constant comparison analysis.

Stage1 (open coding)

-data chunked into small units

-descriptors or codes attached to each unit

Stage 2 (axial coding)

-codes grouped into categories

Stage 3 (selective coding)

-one or more themes developed that express content of each group
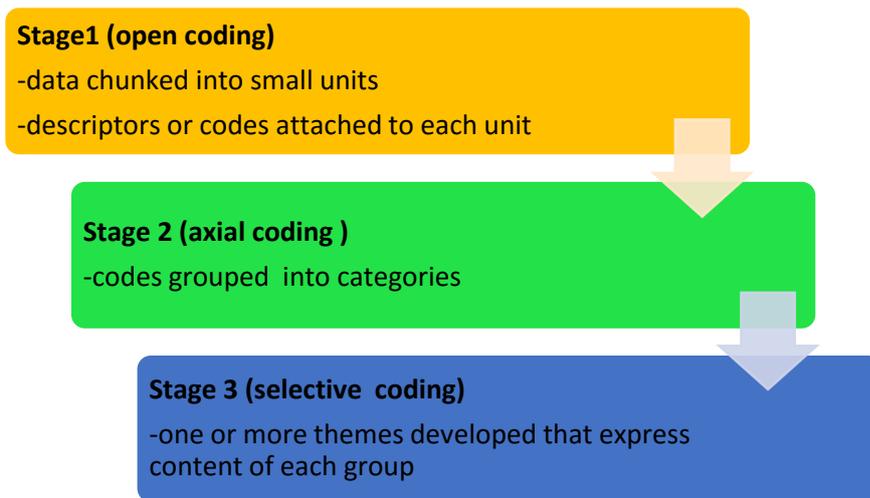
Figure 5.2: Constant Comparison Analysis

Source: Adapted from Glaser and Strauss (1967)

The constant comparative method guided the data analysis, which was based on an inductive approach geared to identifying patterns and discovering theoretical properties in the data in a back-and-forth interplay with the data (Glaser & Strauss, 1967). The researcher constantly checked and rechecked the elemental codes and concepts. The researcher scrutinised and compared data with data and with codes in order to organise ideas and pinpoint concepts that seemed to cluster together. Codes were clustered into substantive categories, and these category codes were compared across interview transcripts.

- **Document analysis data analysis**

Content analysis of documents can be a very reliable source of information as official documents prepared by the institution provide insight and background information (Owen, 2014), and in this study, about E-portfolio alternative assessment at the University. As most of these documents are prepared by professionals and contain valuable information and insights, document analysis is cost effective (Cohen, Manion & Morrison, 2007). The following documents were selected for analysis: Tutorial letters 101, UNISA Assessment Policy and student E-portfolios. These documents were thoroughly read, examined and analysed (*cf.*6.4), an iterative process which combined elements of content analysis and thematic content analysis. Content analysis is the process of organising information into categories related to the central questions of

the research (Bowen, 2009) while thematic analysis is a form of pattern recognition within the data, with emerging themes becoming the categories for analysis (Fereday & Muir-Cochrane, 2006).

Leedy and Ormrod (2005:142) assert that through the content analysis technique, the researcher identifies relevant materials, identifies examinable aspects of the materials, breaks down materials into smaller clusters, and finally examines the materials for relevant information related to the identified aspects. By systematically labelling the content of a set of texts, patterns of continuous meanings of content within texts are analysed. In this research, the process of document analysis involved a careful, more focused re-reading and review of the data, with the researcher taking a closer look at the selected data and then began with the coding process. The initial coding of the content of the documents was based on three groups of search terms, namely: Background information regarding the use of e-Portfolio in the module tutorial letter 101, Content in the E-portfolio documents and Evidence of higher order thinking skills (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLs)

This process necessitated the organisation of chunks of meaning, where the researcher observed recurrent themes and patterns. The evident responses were coded, arranged and organised into the identified themes and classified into different categories. The codes used in interview transcripts were applied to the content of document analysis and these codes and the themes were generated to integrate data gathered. A comprehensive process of data coding and identification of themes was done in order to develop themes, categories and or sub-themes.

The researcher applied a deductive approach with thematic analysis, which is permissible when research has pre-determined objectives that need to be investigated and explored (Creswell ,2011; Teddlie & Tashakkori, 2010; Namey ,Guest, Thairu, and Johnson, 2007; Ritchie & Spencer, 2004). The figure below depicts the steps followed:
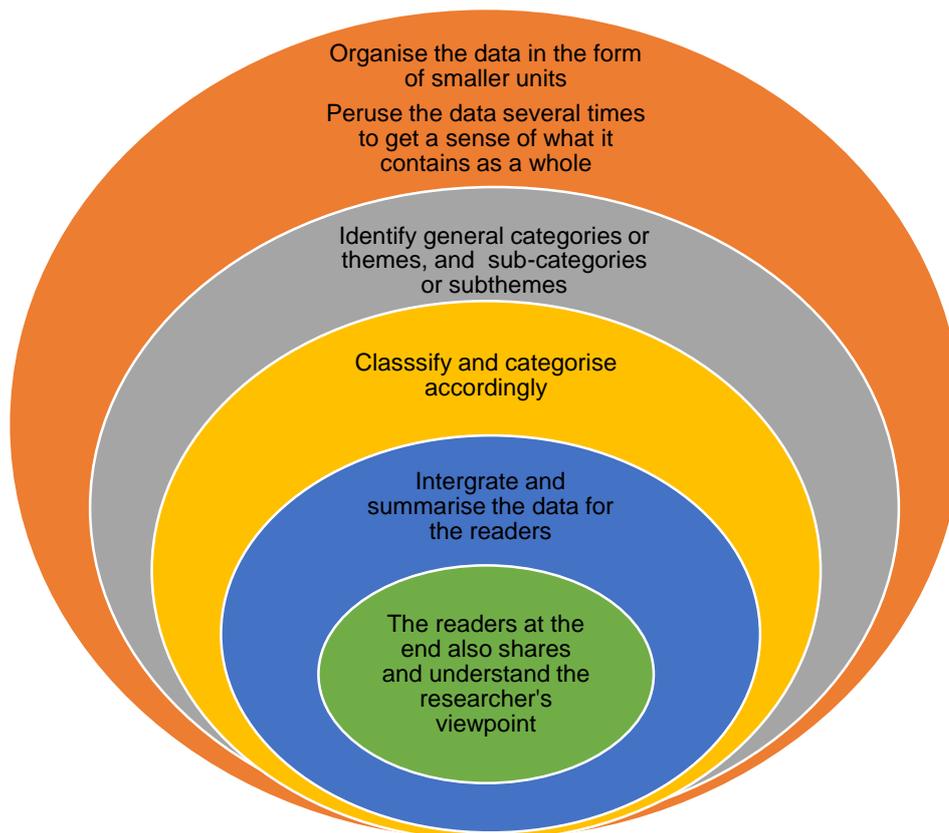
Figure 5.3: Steps in Document Analysis (Creswell, 2011)

5.5.2 Data Collection process: Phase two quantitative phase

The second phase of the data collection process was quantitatively collected with online questionnaires being developed from the results of the qualitative data and then being administered to students electronically.

There are many ways to get information about and from people and a questionnaire is one of the methods used. A questionnaire is a research tool by which respondents are requested to answer the same set of questions in a predetermined order (Plug, Meyer, Louw and Gouws cited in Kotze, 1999). A good questionnaire should be well organised and clear. One of the advantages of the questionnaire is that they can be answered in participants' own space and time, because they are not seen as tests for assessment (Ganga & Maphalala, 2015) and are thus non-threatening.

5.5.2.1 Data collection using online self-designed questionnaire

The online questionnaire was adopted in this study because it is relatively economical, asks the same questions and guarantees the anonymity of the participant. A questionnaire can be a self-designed tool that someone fills out alone or with assistance and can be paper-based or online. The respondent can complete the questionnaire privately at home or in a central location, at a community centre or at the office, and the completed questionnaire can be returned by post, electronic mail or online application. A questionnaire aims to discover information that includes biographical information in which the respondents answer questions on personal issues important to the researcher, and in the main section, respondents answer questions directed at the study being investigated (Johnson & Christensen, 2008; Punch, 2013).

In this second phase of data collection, an online questionnaire was used to understand student experience of E-portfolio-use as an alternative assessment approach to enhance self-directed learning in an ODL. The self-designed questionnaire was designed based on the scoping review of relevant literature to answer the research questions and consists of Section A requiring biographical data, and Section B, divided into sections, comprising questions on how E-portfolio enhances high order thinking skills (HOTS), critical thinking skills and self-directed learning skills (SDLs), then lastly open-ended questions about challenges and constraints experienced by students. Section B of the online questionnaire is answered on a four-point Likert scale (*cf.* Appendix H).

After revisions, the questionnaire was submitted to the UNISA ICT consultant to create a lime survey link for the students to access the questionnaire (*cf.*6.5.1). This questionnaire was sent to students via an online link using student email addresses (that is, @mylife.UNISA.ac.za) which meant that ODL students were able to access and answer the questionnaires wherever they were online. They were given a specific timeframe in which to complete the questionnaire.

- **Questionnaire distribution and collection**

An electronic questionnaire can be designed to filter and screen participant responses, and checking for input error, range and skip patterns can be incorporated, preventing significant typing and data format error. The only potential bias regarding an electronic questionnaire is that it is restricted to those participants who have access to a computer and the Internet (Kazi & Khalid, 2012). The questionnaires were distributed using an online method, *www.limequestionnaire.org.* The questionnaire was open to access after all students had sent their consent forms and the questionnaire was online for three months. Primary lecturers of the modules concerned sent weekly notifications to the myUnisa announcement, reminding their students to complete the online questionnaire, which would take approximately 20-25 minutes to complete.

Students were also encouraged to use the teacher centre computer laboratories in the various provinces and regional offices tele-centres, which were open Mondays to Fridays from 08h00–16h00. A lab technician was appointed to monitor the computer usage in case there was a student who was less skilled in operating the computer and the application. To prevent fraud or fake user, this link was only accessible from the campus network. The Internet Protocol (IP) address was monitored by admin to ensure the response was obtained from an on-campus machine. A lime questionnaire link was created with the assistance from the ICT department, then send directly to students using their university *mylife* email addresses. This process ensured that the online questionnaire was only distributed to students who were registered for the modules involved and using E-portfolio as an assessment strategy.

By using the online questionnaire, the researcher was interested in understanding student experiences regarding the use of the E-portfolio as an alternative tool for assessment. A friendly reminder was sent twice before the end of the month via email and the announcement forum on myUnisa for students. A total of hundred and seventeen online questionnaires were sent to students (Appendix H). From the online questionnaires received, only fifty-six were fully completed and sixty-one incomplete. A return rate of 47.8% (56/117) of the completed online questionnaire was used to compute the statistical data.

5.4.2.2 Data Analysis of the self-designed questionnaire

The researcher, with the support of the ICT department, analysed the collected quantitative data through descriptive and inferential statistics to ensure relativity and reliability. The researcher listed all variables that were to be measured, and scrutinised the distribution of data in order to determine if it is normal or non-normal. It is important that the researcher used the most fitting techniques to analyse data in order to ensure accuracy of the findings. For this reason, graphs and tables were created in order to obtain an immediate image of data diffusion, which enabled the researcher to easily identify relativity and contingency in the collected data (Walker & Maddan, 2012).

The researcher analysed collected quantitative data through tables and graphs (*cf.* Chapter 6) before translating the analysed data into descriptive and inferential statistics in order to ensure relativity (Grant, Sen & Spring, 2013). For the inferential statistics, t-test, ANOVA and correlations were computed and displayed in the form of tables (*cf.* 6.4.2). Hence, the use of graphs and tables assisted in obtaining an immediate image of data diffusion, which enabled the researcher to identify relativity and contingency in the collected data (Australian Bureau of Statistics, 2010:11; Walker & Maddan, 2012:57).

To sum up, Table 5.1 below depicts a summary of the research design adopted in this study, illustrating the two phases, the action, procedures and the end-product.

Table 5.1 :Summary of research design for the study

PHASE	ACTION	PROCEDURES	PRODUCT
Phase 1 Qualitative Phase	Interview Protocol	Identify the lecturers regarding using E-portfolio as an assess-ment tool	A list of lecturers in the university using E-portfolio tools in their modules
	Qualitative Data Collection	Interviews with the lecturers offering modules involved in e-assessments (E-portfolio)	Interview transcripts
	Qualitative Data Collection	Document analysis of E-portfolio artefacts	Tutorial letters, Students E-portfolio and UNISA assessment policy

	Qualitative Data Analysis	Transcribe interviews, code data and develop thematic analyses	Thematic analysis
Integration	Integration of Qualitative and Quantitative Results	Interpret results and explain qualitative and quantitative data	Discussion, implications, conclusions and future research
Phase 2 Quantitative Phase	Quantitative Data Collection	Collect results of online questionnaire	Results of the online questionnaire
	Quantitative Data Collection	Use SPSS to conduct linear regression to analyse data	Descriptive Statistics

(Nkalane, 2018)

5.5 TRUSTWORTHINESS OF QUALITATIVE RESEARCH INSTRUMENT

In the qualitative research phase of this study, trustworthiness is essential because it allows researchers to describe how they will insure it in the study. Maxwell, (2005) argues that in considering trustworthiness of the study in any qualitative study, it is important to determine if the study is credible and accurate and to determine if it is useful to those involved. To ensure trustworthiness of the data, the researcher conducted this investigation in an ethical manner and used data triangulation as much as possible. Guba and Lincoln (2000) identified four criteria to ensure trustworthiness in qualitative research, which includes credibility, transferability, dependability, and confirmability. For the qualitative phase of this study, to achieve trustworthiness, the notions of credibility, confirmability, transferability, dependability adhered to ethical considerations.

5.5.1 Credibility

Credibility in qualitative research is defined as the extent to which data collection and data analysis are believable and trustworthy. Lincoln and Guba, (1985) point out that credibility refers to the extent to which a study's results represent the meaning of the research participants. It is said that a study is credible when it presents faithful descriptions, and when readers or other researchers, confronted with the same experience, can recognise it. As a result, the interview discussions were audio-recorded to allow participants to crosscheck the transcripts to confirm the information.

Similarly, Lincoln and Guba (2000:143), argue that credibility was used to "determine the extent to which research participants are properly identified and described". Furthermore, Denzin and Lincoln (2008) point out that credibility evaluates whether or not the representation of data matches the opinions of the participants. If the findings hold true, qualitative research is seen to be valid for the researcher but not necessarily to others due to the possibility of multiple realities. It is the reader's responsibility to judge the degree of the credibility based on their understanding of the study. According to Graneheim and Lundman (2004:582), "credibility questions involve the strength of the conclusions reached in the study, based on its design and execution". In this sense, credibility includes accurate precise descriptions or interpretations of human experience that those who share it would immediately recognise the descriptions. A qualitative researcher establishes rigour of the inquiry by adopting credibility strategies namely: prolonged and varied field experience, time sampling, reflexivity (field journal), triangulation, member checking, peer examination, interview technique, establishing authority of researcher and structural coherence (Graneheim & Lundman, 2004; Lincoln & Guba, 1985). For the study to be credible, the researcher held frequent meetings with the supervisor, a professor in curriculum and instructional studies, in order to broaden the vision of the study. The supervisor of this study served as a 'peer debriefer' who brought and contributed experience to the research so that flaws in the approach, bias and preferences that could compromise the credibility of the research findings, were identified and eliminated. According to Guba (1981:85), peer debriefing "provides inquirers with the opportunity to test their growing insights and to expose themselves to searching questions". In view of this, the researcher, during the research process, received support from the supervisor, who was always willing to provide scholarly guidance.

5.3.2   Confirmability

Confirmability refers to the degree to which the results of an inquiry could be confirmed or corroborated by other researchers (Baxter & Eyles,1997). Confirmability ensures the adequacy of information reported from the research question, for data collection protocol, raw data, through different stages of the data analysis, up to the interpretation of results. Confirmability confirms, as far as possible, that findings are the result of the participants' experiences and ideas rather than the researcher's characteristics and

preferences. For this study, to obtain confirmability, the researcher ensured that personal preferences and biases did not influence the study's findings. Although the researcher is a lecturer, the interviews were used to obtain as much data from the participants, and ultimately the findings were guided by the data collected and not the researcher's own opinions. In addition, confirmability was ensured through the use of a reflexive journal that the researcher used to record all information about the events that happened in the field, personal reflections in relation to the study, such as the 'ah' moment or phenomenon that arose during the investigation. Furthermore, a detailed description of the research methods allowed scrutiny of the integrity of the results. Lastly, the thesis was submitted to the Turnitin Originality Report System to ensure that it exceeded the international benchmark in terms of originality and to ensure that plagiarism was avoided (Appendix C).

5.5.3   Dependability

Lincoln and Guba (1985) use the concept of dependability, claimed to parallel the idea of reliability in quantitative research. Dependability occurs when the researcher reports in detail on the processes of the research, affording a future researcher the opportunity to repeat the work. This type of detailed report allows the reader to gain a thorough knowledge of the effectiveness of the methods used and of the findings described. Reliability means that if the research were to be conducted again, then similar results would be produced. Reliability relates to validity just as dependability relates to credibility in that research could be seen as dependable (or reliable in quantitative terms) but produce unreliable credible (or valid) results. It is clear that if the research does produce credible results, then it is more likely that the research is dependable (or reliable).

The researcher ensured dependability of the findings of the qualitative phase of data collection by describing in-detail the research methods used for conducting the study (Tobin & Begley, 2004). The research design and its implementation were thoroughly checked to account for the research process by providing detailed information on how the fieldwork was carried out and the ethical considerations adhered to as part of the fieldwork. The researcher also conducted checks to ensure the effectiveness of the methods used in the field and their related challenges (Bowen, 2009). Apart from the

description of the sample selection and the data collection processes, the use of both the Likert scale questionnaire, the semi-structured interviews together with the analysis of documents serve as a major platform to ensure the dependability of the study.

5.5.4   Transferability

Transferability implies that the results of the research can be transferred to other contexts and situations beyond the scope or boundaries of the actual study context (Bitsch, 2005; Tobin & Begley, 2004). Transferability is equivalent to external validity, that is, the extent to which findings can be generalised. Generalisability refers to the extent to which the narrative of a particular situation or population can be extended to other people, times or context other than those directly studied (Creswell, 2011). According to Bitsch (2005:85), "the researcher facilitates the transferability judgment by a potential user through 'thick description' and purposeful sampling". In this regard, the researcher provided a detailed description of the enquiry and participants were selected purposively. Tashakkori and Teddlie (2010) argue that transferability is considered a major challenge in qualitative research due to the researcher's subjectivity as a key instrument, and poses a threat to valid inferences in its traditional thinking about research data.

To ensure transferability, qualitative researchers need to focus on two strategies. The first is through thick description which "enables judgments about how well the research context fits other contexts, thick descriptive data, i.e. a rich and extensive set of details concerning methodology and context, should be included in the research report" (Teddlie & Yu, 2007:112). Thick description means that the researcher should provide a complete and purposeful account of the context, participants, and research design so that the reader can make their own decisions about transferability (Lincoln & Guba, 1985). The second strategy involves purposeful sampling, where participants are selected because they best represent the research design, limitations and delimitations (Lincoln & Guba, 1985). Purposive sampling is the technique mainly used in naturalistic inquiry studies, and is defined "as selecting units (e.g. individuals, groups of individuals, or institutions) based on specific purposes associated with answering a

research study's questions" (Teddlie & Yu, 2007:77). This assists the researcher on focusing on key informants, who are particularly knowledgeable of the issues under investigation (Schutt, 2006), because purposive sampling allows decisions to be made about the selection of participants (Ary, Jacobs, Razavieh, & Sorensen, 2010; Bernard, 2000).

To achieve a high degree of transferability in this research study, the researcher provided a detailed description of the context in which the study was undertaken. Therefore, it was imperative to document and justify the methodological approach, and then describe in detail the critical processes and procedures that helped construct, shape, connect and relate the meanings associated with the phenomena being investigated (Cohen, Manion, & Morrison, 2011).

In accordance with the principles outlined above, the researcher provided detailed information on the following aspects:

- the name of the university and continent where the research was conducted,
- the restriction of the type of participants who were selected for the qualitative phases of the data collection,
- data collection methods employed in the research,
- the number and length of data collection sessions, and lastly,
- the time period over which data was collected.

The rationale for providing the detailed information is that readers of a study seek to compare what is done in the study with other studies and not the researcher, hence the need to provide all the necessary information related to the current research. In order to ensure transferability, the researcher undertook a scoping review of E-portfolio-use in South Africa and globally (*cf.* Chapters 3 and 4) to better understand the studies conducted on the phenomenon and future research that may be conducted on the same phenomenon.

5.5.5   Validity of the instruments used in this study

Validity is in many aspects, the most important criterion of research and refers to the integrity of the conclusions that are generated from research (Bryman, 2012). A research instrument is valid if it measures what it is supposed to measure (Cohen *et al.*, 2007). Leedy and Ormond (2005:92) argue that the validity of the instrument lies in its capacity to measure what it is intended to measure. The earlier view of what validity is has changed over time; consequently, with Cohen *et al.* (2007) admitting that validity has taken many forms recently and that 100 percent validity cannot be achieved. As a result, they report that the validity of the quantitative data might be improved through careful sampling, appropriate instrumentation and appropriate statistical treatments of the data.

To ensure this study's validity, stipulations by Cohen *et al.* (2007) were adhered to. The first step in ensuring the validity of this study was to conduct a pilot test. Bell (2008) explains that the purpose of the pilot study is to remove any 'errors' in the instruments so that respondents in the main study do not have trouble in completing them. Thus, a pilot study was conducted using the questionnaire (Appendix H) with a quota sample with similar characteristics as the actual study. The essence of the pilot study was to allow the researcher to verify the wording and sequence of questions, the length of the questionnaire, clarity of instructions, and effectiveness of the cover letter. It also enabled the researcher to correct any inconsistencies and inaccuracies in the instrument.

The first step was to elicit the services of the two experienced academics within the university, who have been involved in the various colleges. One academic is a professor, involved in other alternative assessment methods, while the second academic was senior lecturer, involved in the use of E-portfolio but was not part of this study. Although the academics were satisfied with the design and content of the questionnaire, they offered feedback about the wording and clarity of instructions of the questionnaire, the length and completion time of the questionnaire, recommending some changes to wording. After revision of the questionnaire, the researcher randomly selected twenty (20) students who did not form part of the study for piloting the questionnaire. After a week, there was an 80 percent response rate. According to the

standard established by Krejcie and Morgan (1970), if 80 percent of the questionnaires are returned, the questionnaire can be regarded as valid.

The responses from the piloted questionnaires indicated that the closed-ended questions were easily understood and answered, probably because of answering on the Likert scale. Even though the questionnaire had been peer reviewed and discussed with the supervisor, it seemed as though the open-ended questions were challenging as respondents could not answer them adequately and the answers they provided needed further probing. As a result, it became necessary to remove questions, and although they were deleted from the questionnaire, they had been included in the semi-structured interviews with lecturers.

5.5.6   Reliability of the self-designed questionnaire

Reliability refers a research instrument that is free from error and consistency in its measurement over time and across situations (Leedy & Ormrod, 2005; Zikmund, 2003). This means that if people were to complete the questionnaire several times, their score should remain consistent. An instrument can be reliable without being valid, but it cannot be valid unless it is reliable. Scholars such as Bryman (2012), Gray (2004) and Cohen *et al.* (2007) argue that a questionnaire has to fulfil the following considerations for it to be reliable:

- The extent to which results are consistent over time,
- An accurate representation of the total population under study,
- If the results of a study can be reproduced under similar methodology, and
- The degree of consistency the instrument displays in measuring that which it is supposed to measure.

Taking the above into consideration, the researcher ensured that the instrument (online questionnaire) used in the data collection phase was reliable by first ensuring its validity and that the online questionnaire was the right instrument to be utilised for data collection.

The questionnaire data were analysed using a Statistical Package for Social Sciences (SPSS) program (version 23) to compute descriptive data through cross tabulations, histograms, graphs and pie charts. The overall reliability of the online questionnaire was computed, using a reliability test (Cronbach Alpha coefficient).

Table 5.2: Score measurement for reliability test

Score of measurement	Reliability criterion
>0.90	Very high reliable
0.80 -0.89	Highly reliable
0.70-0.79	Reliable
0.60 -0.69	Marginally/minimally reliable
< 0.60	Unacceptable low reliable

Source: George Mallery (2003)

Table 5.3: Reliability test (Cronbach's alpha coefficient)

Construct	Cronbach's Alpha (α = 0.7)
HOTS	α < 0.89
CTS	α < 0.86
SDLs	α < 0.82
Self-designed questionnaire	α < 0.81

(Nkalane, 2018)

The results as illustrated above, indicated that all scores of the three constructs (HOTS CTS and SDL) were acceptable, according to George and Mallery (2003), with the exception of the interdependent self-concept. This demonstrated the internal consistency of the items representing the constructs above. The reliability test, the Cronbach's alpha coefficient, was computed and the self-designed questionnaire was overall highly reliable at α < 0.81.

5.6   TRIANGULATION OF DATA COLLECTION

Triangulation is used for multiple data generation methods to support and enhance the validity and trustworthiness of research findings (Oates, 2010) and to bring together various data sources or perspectives (Creswell, 2009). Data from both the qualitative and quantitative methods went through a process of triangulation to seek conformance and divergences. Triangulation through the various modalities of data collection methods (that is, semi-structured interviews, online questionnaire and documents analysis) was used to establish multiple angles and determine consistencies/ inconsistencies of findings (Yin, 2011).

Additionally, the convergence of data formats illuminated findings through greater context. For example, during the semi-structured interviews and document analysis, the researcher documented lecturer references to artefacts in the E-portfolios (that is, writing, photos and hard copies) as the tools used to enhance and support the teaching and learning process in response to the reform. Analysis of the documents acquired from the various primary lecturers in their different use of E-portfolio as an assessment strategy was obtained from them. The documents were provided to the researcher during the interviewer meeting included the tutorial letter 101, the policies were requested and downloaded from the UNIS intranet while the students were requested from the examination depart archives through the permission of the lecturer, an email was sent to lecturer requesting their permission to peruse the E-portfolio documents. The findings from the various tools used assisted in finding 'match patterns' between the case and existing literature.

Additionally, findings from the multiple rounds of individual interviews to capture the nature of lived experiences and the how E-portfolio-use for assessment has impacted the assessment practices in ODL institution. Figure 5.4 below depicts the triangulation process in this study.
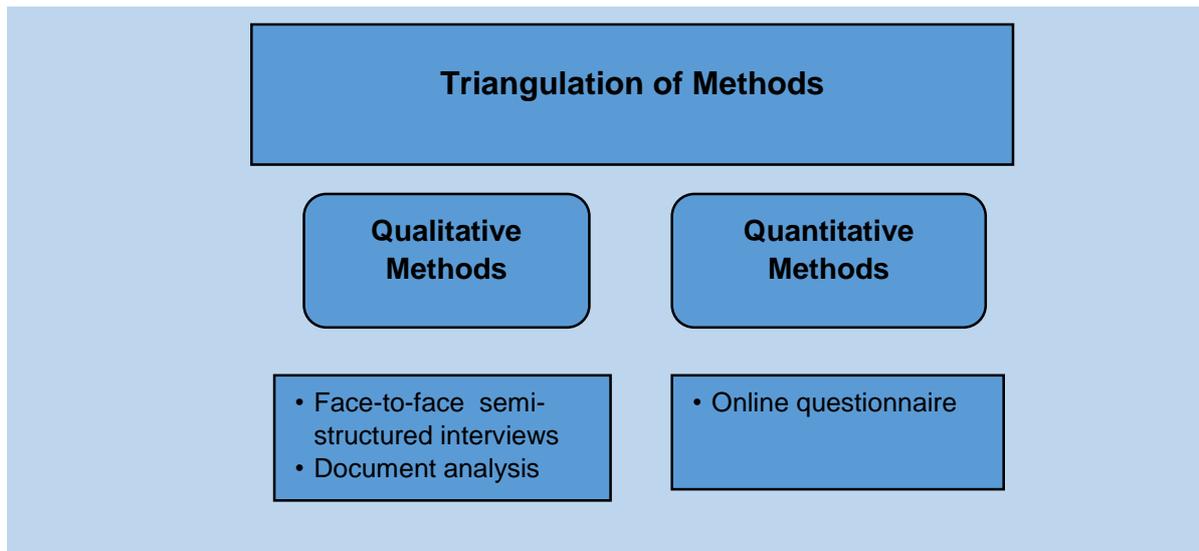
Figure 5.4: The triangulation approach underpinning the data analysis, self-designed diagram

5.7   ETHICAL CONSIDERATIONS

In research that involves people, certain issues need to be taken into consideration before commencing any work or study. Therefore, ethical consideration is one of the issues that needs to be considered, as this concerns the role of the researcher, the role of the participants, and the relationship between the researcher and participants (Cohen *et.al*,2011:66) contends that, "the key to all ethical guidelines is the need to ensure that physical and psychological well-being for research participants is not adversely affected by the research". Therefore, it is vital that the researcher explicitly informs the participants about their involvement in the study without hiding any truth. The participants should clearly understand the risks (if any), contribution to be made and how long it will take to engage with the study. On the other hand, privacy and confidentiality as well as anonymity should be clearly conveyed to participants.

In this study, the participants (students and lecturers) involved were over 18 years old, so parental consent was not necessary therefore, consent was required only from students and lecturers. After reading and understanding the requirements of ethical approval for this research, the researcher applied for the ethical permission to conduct research in February/March 2018 to the Research Ethics Committee of the College of

Education (CEDU). On approval from the CEDU Research Ethics Committee to conduct research, the researcher applied for permission to the UNISA's Research Permission Sub-Committee (RPSC) to conduct research with university data, staff (lecturers) and students respectively (Appendix B). The approval certificate was granted in May 2018 (*cf.* Appendix A). The researcher commenced with data collection in June 2018 with semi-structured interviews with primary lecturers of the identified modules. In doing so, the researcher adhered to the ethical conduct as expected.

5.8 CHAPTER CONCLUSION

This chapter answered the question posed on the processes of research paradigm, research design and methodology of this study. The chosen methods are currently in existence in the research world and are considered relevant and appropriate for this study. The sequential exploratory mixed methods approach was adopted as supported by the pragmatist worldview that combined qualitative and qualitative techniques to achieve the research goal. The data collection methods employed included semi-structured interviews with participants purposively selected and document analysis of the selected documents and the online questionnaire of this study. The criteria for inclusion and exclusion were presented for data collection, description of sample and methods for data analysis and interpretation. Several approaches, including ethical considerations were taken into account to ensure the trustworthiness of the study. The presentation, analysis and interpretation of results from this exploratory-mixed methods research study used was presented in an in-depth manner in the next chapter.

CHAPTER 6
DATA PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

6.1   INTRODUCTION

The objective of this exploratory mixed method design was to explore the use of E-portfolio as an alternative assessment approach in an ODL institution. Fieldwork was conducted in two specific phases. In the first qualitative phase of the data collection processes, semi-structured interviews and document analysis were utilised to collect data. Semi-structured interviews were held with participants and specific themes and sub-themes emerged from the data collected (*cf.*6.3.1). Document analysis followed the semi-structured interviews (*cf.*6.4.1). Thematic content analysis was employed to analyse the data that involved analysing transcripts of the semi-structured interviews, identifying themes and gathering of themes. Thematic and content analysis process followed by analysing the content of the various documents (tutorial letter 101, evidence of authentic assessment in student E-portfolios and the UNISA Assessment Policy) and to validate the use of E-portfolio alternative assessment. For the thematic analysis, an E-portfolio checklist (*cf.* Appendix C) was used to evaluate the relevance of evidence produced according to themes and sub-themes. The second phase of the data collection process was quantitative in nature (*cf.*6.5.1), with an online self-designed questionnaire sent to students. A link was created for students (registered in the identified modules) to complete the online questionnaire. Descriptive and inferential statics analysis was computed with data emanating from this questionnaire. The results are subsequently discussed in Chapter 7.

6.2   DESCRIPTION OF THE SAMPLE: QUALITATIVE DATA ANALYSIS

The initial study population comprised of nine individuals (primary lecturers) involved in the E-portfolio teaching, learning and assessment. Some of these lecturers were involved with the pilot project initiated by the university in 2013, whilst others took over the modules from the lecturers no longer teach either the modules or at the University. Of the nine individual lecturers, two lecturers indicated that they were no longer using the E-portfolio tool in their modules due to challenges they cited when invited to participate in the interviews; however, they did not agree to be interviewed. A further

lecturer did not respond to the invitation. Therefore, the remaining six invited participants completed the interview process.

6.3 DATA PRESENTATION OF QUALITATIVE PHASE

The data collected in this phase derived from two phases, semi-structured interviews and document analysis. The interview schedule, with pre-determined questions (*cf.* Appendix A), was used to engage with participants in order to get more in-depth information. The interview questions were categorised as follows: contextualisation, use and purpose of E-portfolio assessment approach, quality evidence produced in student E-portfolios; development of 21st century skills, student support during the development of the E-portfolio and finally, their challenges and constraints in using the E-portfolio. After completion of the interview sessions, the researcher transcribed the interviews into a Microsoft Word document using voice audio recorder. The data was coded and analysed for significant themes. The specific methods of collection and codification utilised during this phase of the study is described in detail in Chapter five. The data collected from the interviews were triangulated with data from the document analysis and the responses from the questionnaires.

6.3 QUALITATIVE DATA ANALYSIS: THEMES EMERGING FROM THE DATA

Qualitative data, by its very nature, is more open to ambiguity and require the identification of emergent key themes for it to be organised, collated and interpreted (Burton, Brundrett & Jones, 2014). Qualitative data was collected and analysed to gain more in-depth information regarding E-portfolio as an alternative assessment to enhance self-directed in an ODL environment and to answer the main research question: ***How can a framework be designed to guide lecturers on how to assess the E-portfolio as an alternative assessment tool in an ODL context?***

In the analysis process, themes were identified, analysed and reported. This means that the researcher interpreted her findings in terms of the lived experiences of the participants, their experience of E-portfolio as an alternative assessment towards self-directed learning, their understanding, development and enhancement of HOTS, CTS

and SDL, and finally academic and institutional support of students in the production of quality evidence in E-portfolios. The themes identified aimed at answering each of the research questions.

Using the constant comparison analysis process, as developed by (Glaser & Strauss, 1967), themes, in line with the research questions, were developed. Thereafter, relationships between the identified themes were identified and grouped based on similarity in content, which also helped in developing patterns. The responses from both methods of data collection together with information gleaned from the literature review helped in answering the research questions of this study. The research questions, themes and sub-themes used in the analysis represented by Figure 6.1

Research Questions

- How do lecturers experience the use of E-portfolio as an alternative assessment strategy in an ODL context?
- How do students experience the use of E-portfolio as an alternative assessment strategy towards self-directed learning?
- How does the E-portfolio, as an alternative assessment approach, support student learning in an ODL environment?
- How does the E-portfolio equip students with higher order thinking (HOTS), critical thinking skills (CTS) and self-directed learning (SDL) skills in an ODL environment?

Semi-structured interview questions

1) Briefly explain your understanding of E-portfolios use in your module

2) What is the purpose of the student electronic portfolio in your module?

3) Why did you decide to introduce electronic portfolios to students for your module?

4) Please explain the structure of the e-portfolio for your module.

5) In your opinion, is there evidence of student learning achievement with regards skills with reference to:

6) How do you motivate and support your student during process of E-portfolio design and development?

7) How do you make sure that your students retain and make use of what they learn, better?

8) How do you assess using E-portfolios in your module?

9) What experiences can you share regarding the use of E-portfolio use?

Themes emerging from the data

1) Lecturer understanding of the E-portfolio as an alternative assessment tool

2) Development and enhancement of student learning

3) Student support, in developing E-portfolio for assessment

4) E-portfolio issues and challenges

Categories of Sub themes (Patterns)

1) The use and purpose of E-portfolio as an assessment tool
2) Education value of an E-portfolio as an assessment tool
3) E-portfolio as constructivist assessment tool enhancing student centeredness practices
4) Creating opportunities for collaboration among students
5) Assessment of HOTS
6) Enhancement of CTS
7) Enhancement of SDL
8) Academic support in producing evidence for the E-portfolio
9) Institutional support (ICT department)
10) Lack of digital literacies
11) Learning management system is non-synchronised for Mahara E-portfolio
12) UNISA's policies dealing with alternative assessment
13) Lack technical assistance

Figure 6.1: Constant comparison analysis

(Source: Adapted from Glasser and Strauss (1967)

The figure above depicts the themes that emerged from the discussions with lecturers; it became essential to integrate the themes with the aim of the study, which was to **design a framework to guide the assessment of E-portfolio as an alternative assessment approach for an ODL context**. Figure 6.2 shows the patterns of integrated and identified from the themes.
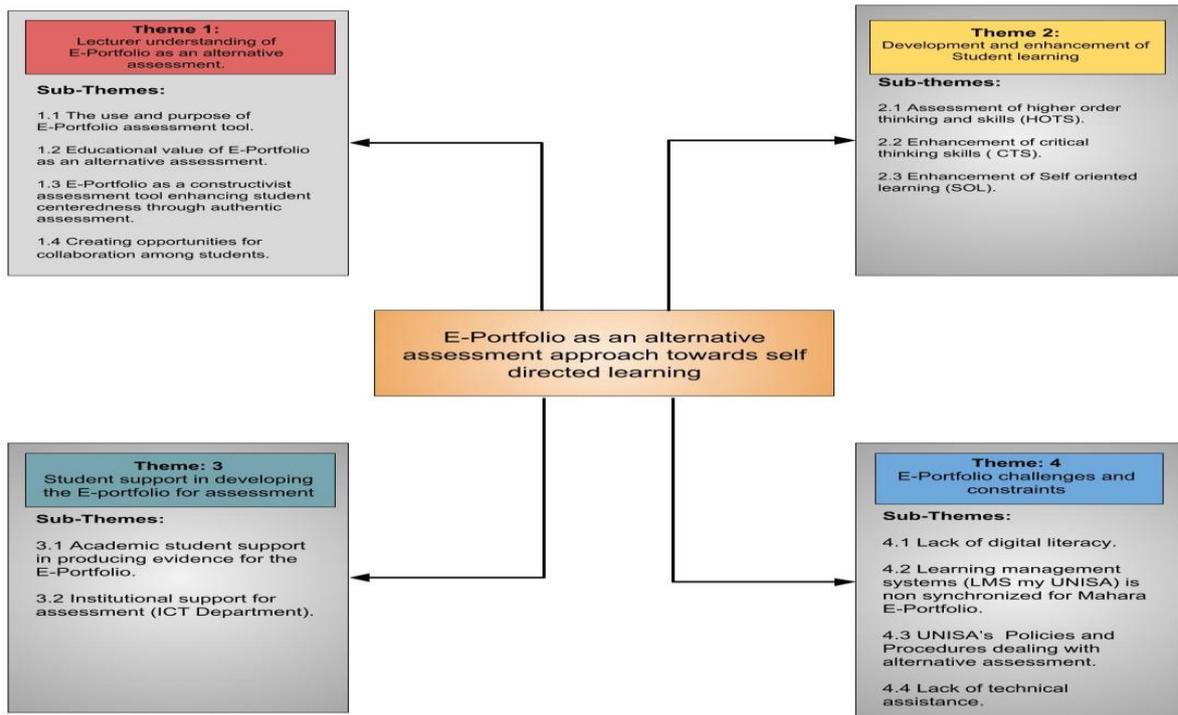
Figure 6.2:   Integration between themes and patterns (Nkalane, 2018)

Figure 6.2 has indicated the integration between the aims of the study and the themes and patterns that emanated from the data collected from the semi structured interviews. To paint a clearer picture of events, the themes and patterns together with literature gleaned from chapters two to four were used to further explore and dig deeper into use of E-portfolios use in ODL.

6.3.1 Themes and sub-themes that emerged from the semi-structured interviews

6.3.1.1 THEME 1: Lecturer Understanding of E-portfolio as an Alternative Assessment Tool

The first interview question focused on the lecturers' understanding, use and purpose of E-portfolio. The overall participants understanding and purpose of using E-portfolios was outlined during the interview. The participants alluded to the fact that the use of E-portfolio as an alternative assessment has changed the way assessment is conducted in their modules. This is further elaborated in the following themes that emerged.

Sub-theme 1.1: The use and purpose of E-portfolio assessment tool.

It is assumed that lecturers have an understanding of the use and purpose of alternative assessment in their modules. However, the lecturers understanding of an E-portfolio was conceptualised around the best pieces of student work in which understanding of learning outcomes, goals, and objectives intended in the module content is manifested in electronic form. Participants described the E-portfolio as an alternate type of assessment, displaying the work of students, which demonstrates their learning through unique collection of artefacts and evidence. The findings of the study revealed that the lecturers understood the use of alternative assessment in their modules and clearly spelled out the use, purpose of E-portfolio.

> *The way I understand an E-portfolio is basically for a student over time to be able to compile his whole portfolio, so work as he goes electronically, it can be marked electronically and they actually build it on myUnisa on the E-portfolio system and then at the end of the day, when the student is complete everything is there and they submit it electronically.* (Participant JO2, interview, 24 May 2018)

In addition, participants mentioned that the E-portfolio allows students to demonstrate different types of evidence that can be included in the E-portfolio. They emphasised that the student E-portfolio can be used to highlight their competencies through the assessment tasks that meet the set criteria.

> *In my view an E-portfolio is where specific artefacts need to be included and where students need to show they have met these standards through their artefacts and what they can do based on such artefacts. The students in my module demonstrate their competency in their specialised field.* (Participant NP05, interview, 18 May 2018)

Some of the lecturers confirmed that they had started with hardcopy printed portfolios as a summative assessment, while some had moved from a venue based examination to use of the E-portfolio as an alternative assessment. These lecturers find that the use of alternative assessment, particularly E-portfolio, puts theory into practice through different formative and summative assessment practices that are prepared by students to showcase their learning.

Sub-theme 1.2: Educational value of an E-portfolio as alternative assessment

In light of the education value of the E-portfolio, it serves different purposes in education. The E-portfolio can demonstrate application of theory through the practice in the assessment tasks completed by students. The participants referred to the E-portfolio assessment tool as a beneficial and valuable instrument to use. The participants pointed out that the alternative assessment brings into their modules more affordances and opportunities for creativity than the traditional assessment. The lecturers stated that when they used venue-based examinations as their summative mode of assessment, student learning was not sufficiently demonstrated as it mainly focused on assessing knowledge without application of real-life situations. The E-portfolio, as an alternative assessment, can display the student knowledge, skills, and

values learnt in the module and serve as evidence of continuing professional development.

> *The activities that my students complete [provide as evidence] in the E-portfolio they [are] developed and designed over a period. I have also noticed that unlike the end of semester exams …... alternative assessment provide continuous learning with [equip them with skills].* (Participant PK06, interview, 12 May 2018)

Lecturers emphasised that E-portfolios are authentic in that they centre on real-life situations, allowing students to demonstrate real learning in their different professions. Although in this context the E-portfolio is mostly used as summative tool, lecturers also highlighted the importance of the on-going learning process throughout the design and development of an E-portfolio. Initially, lecturers were trained on how to use E-portfolio for teaching and learning. Even though the some lecturers were, for a number of reasons, compelled to use the E-portfolio, and others were novices, during in the process of using the E-portfolio, they realised its value.

> *I have inherited this module from the previous lecturer, through trial and error and through practice, I realised that this type of assessment is more advantageous to my students than once off examination, I had to do authentic assessment tasks.* (Participant MM04, interview, 14 June 2018).

Furthermore, the findings of this study revealed that E-portfolio offered constructivist assessments wherein students are involved in their learning throughout. A significant number of participants acknowledged the fact that the E-portfolio tool can expose students and the lecturers to various assessment methods and empower students with knowledge in various ways. Students become involved in the assessment process, therefore have the understating of the assessment processes, standards and criteria set, as well as developing technical skills through an electronic assessment.

> *Some of the students could not use the computer but interaction with other students and practice opened their eyes and increased the broader technology learning.* (Participant MM01, interview, 28 May 2018)
>
> *I can see the positive side of this system in terms of improving the student's ability to use the internet to search for information and putting those useful resources in their work, I agree that this system could enhance the student's skills in operating the computer and its application .*(Participant PK06, interview, 12 May 2018)

Both participants were positive about the development of student learning, in not only content knowledge but also skills and competencies, particularly technical skills needed for the 21st century.

Participants continue to highlight the value of the use of the E-portfolio expressing how feedback and reflection as well as access to resources are used as tools to support their students.

> *Since I started using the E-portfolio for teaching in my module, I realised that it supports the reflection of knowledge and skills throughout the module. From the student's result, I can see the improvement of students' work every time they get feedback .This is happening with the aids of extra resources from websites, instructor's comments and peer assistance.* (Participant MM04, interview, 18 June 2018)

Based on the above extracts, it appears that the move to an alternative assessment such as the E-portfolio has been beneficial as the result, where assessment is continuous, authentic and creative, and has a positive effect on student learning. As such, it seems that lectures would like to continue using the E-portfolio as a way of

assessing their students, seeing this alternative assessment as one of value in enhancing student learning.

Sub-theme 1.3: E-portfolio as a constructivist assessment tool enhancing student-centeredness through authentic assessment practices

In this sub-theme, lecturers emphasised the use of the E-portfolio as it enhances student-centered learning through authentic assessments practices. In using the E-portfolio, lecturers expose students to constructivist and authentic learning approaches. This implies that students are actively involved in their learning by creating knowledge, using authentic learning through real-life situations or simulations and role-plays. A significant number of participants revealed that they use different assessment tasks, methods and techniques in their modules in order to expose students to various learning opportunities. The lecturers explained that student-centeredness is displayed as one of the benefits of E-portfolio-use as student get involved in the whole process of assessment and are able to make sense of the instructions given to produce good quality assessment tasks. This is confirmed by the fact that the theory learnt is being practiced through different assessment tasks expected in their E-portfolio. This authentic learning at higher education level is vital, as students need to learn important skills for use beyond graduation.

My students are active participants in their studies they do the work, ask questions, research and plan and organise themselves in their learning. The assessment feedback also helps them to become active by working constantly on improving themselves and [they] are motivated by what they can do best. (Participant GM03, interview, 16 June 2018).

The participants agree that alternative assessment provides their students with the responsibility of being actively involved and taking charge of their learning.

> *…the theory that I teach in my module, students are able to demonstrate their understanding through practical experience. So they showcase in their portfolios* (Participant GM03, interview, 16 June 2018)

Participant GM03 did point out that even with a module such as theory; there can be a practical application through a variety of tasks showcased in the E-portfolio.

The participants pointed out that students are actively involved and they are able to take charge of their learning, seeking information that will inform assessment tasks they have to complete, which confirms their involvement in their learning.

> *In my module I have realised that my students are able to take charge of their learning go out there seek information, create knowledge from what they learn, mainly because my assessment tasks expect such from to initiate.* (Participant MM04, interview, 18 June 2018)

Participant responses confirm the importance of a constructivist approach to learning as the assessments are authentic and encourage student-centred creation of knowledge and development of skills and competencies through the assessment activities as they design and develop their E-portfolios.

Sub-theme 1.4: Creating opportunities for collaboration among students

In the context of UNISA as an ODL institution, by creating the online platforms students are given an opportunity to create, share and collaborate among themselves, a difficulty in that often students are geographical separated and rarely meet face-to-face. The E-portfolio encourages students to interact electronically when working on

their E-portfolio, giving opportunities for peer feedback and reflection on their work. Learning from each other as peers is an alternate way of learning and highlights student-centred learning.

The findings of this study have revealed that the students are no longer isolated but can connect with other students through the various electronic platforms. This means that students are able to work together on various assessment tasks that require group work and peer assessment. However, in this study participants confirmed that students were willing to work together even outside the online platforms but used social media like WhatsApp to engage in discussions about their work as groups or to communication with the lecturers to comment on questions posed regarding a particular assessment activity. However, initially, not many students participated which affected their task outcome. However, the alternative assessment ensured that:

…. they are forced to work in groups in the sense that some of the activities will tell them to form groups of four and complete the table in relation to a research activity, or and when forming the groups… ask for group members from there, so that they then can collaborate, form WhatsApp groups and complete that particular activity. (Participant NP05, Interview, 25 May 2018)

Even though some student were hesitant about working on the E-portfolio platform, they found ways to collaborate with each using other myUnisa tools and in so doing, found the value of group and peer learning.

My students started without knowing one another but after starting the groups through communication on MyUnisa platform, they were able to form groups in other social networks. (Participant JO02, interview, 24 May 2018)

Collaboration among students creates opportunities for them to share ideas, peer review and provide feedback with the MyUnisa tool assisting in bridging the gap between students and lecturers.

6.3.1.2 THEME 2: Development and Enhancement of Student Learning

According to the UNISA assessment policy (UNISA Assessment Policy, 2013) most of the summative assessments are conducted through traditional assessment of a venue-based summative examination, where students are expected to write examination at various convenient examination centre. The venue based examination was content knowledge based where students would memorise facts with little real life application and was results driven. However, the use of alternative assessment practices yielded different results. The participants explained that various skills are developed through E-portfolio-use. The following sub-themes emerged during the interviews with participants.

Sub-theme: 2.1 Assessment of Higher Order Thinking Skills (HOTS)

Modern life has undergone massive changes over the recent decades. Now it requires particular skills to live and work in this society, like higher-order thinking caused by social, educational, economic and cultural complexities. The participants during the interview revealed that they used to design assessment tasks based on the content of the module. However, the use of E-portfolio compelled them to change the assessment instructions and questions into authentic tasks mirroring real-life situations. They further alluded that with an alternative assessment, learning takes place throughout the process of designing and developing the E-portfolios. This learning includes the development higher order thinking, where students are required to handle a new situation and through analysis, synthesis and evaluation. The assessment activities required in the development of the E-portfolio, covered the range of lower order thinking and higher order thinking skills, working towards a holistic assessment.

Therefore, unlike traditional assessment through venue-based examinations focusing on memorisation of content knowledge, improvement is seen in their learning via

assessment of modules using the E-portfolio. During interviews, several participants pointed out that the assessment tasks and activities required students to sharpen their way of answering questions and develop better reporting of their findings.

> *Through use of E-portfolio I will set tasks that make the [students] think deep[ly], do some research through the internet, especially when they are working on a project creativity is expected. Although students [do] need more time throughout duration to be exposed to more activities* (Participant GM03, interview, 16 June 2018)

Participants highlighted that they ensure that they develop assessment tasks that require students to analyse, creatively construct knowledge and evaluate their work.

> *As I assess, evaluate identify higher level thinking where students are able to analyse, evaluate, creativity from the assessment activities completed by students.* (Participant NP05, interview, 18 May 2018)

The participant below is one of the few who pointed out the importance of developing HOTS in teaching and learning. This is done through creative assessment tasks, which require students to systematic work through the task and demonstrate their creativity, innovation and higher order thinking.

> *Through E-portfolio teaching, students design and plan projects to improve students' higher-level thinking ability. In designing the project, students continue to conduct literature review to collect project information. Analytical activities are conducted through discussion among students. In preparing the schedule of*

> *activities, students must plan every stage of the project very*
> *well. (Participant MM01, 28 May 2018).*

The pedagogical rationale is that in this digital age, learning cannot only be theory-based but practical through authentic assessments. Therefore, the knowledge, skills, and values are acquired and learnt through practice and guidance to develop real expertise. Interviews with the participants revealed that by developing tasks requiring higher order thinking, student HOTS have improved ensuring deep learning in how to solve problems by analysing, creating knowledge and evaluating in developing E-portfolio throughout their learning press.

Sub-theme 2.2: Enhancement of Critical thinking skills (CTS)

As the practice of teaching and learning uses assessment to demonstrate learning, it is imperative that assessment tasks encourage students to think deeply. The participants indicated that they provide assessment activities in order to develop critical thinking skills, which incorporate comprehension, application, analysis, synthesis and evaluation of knowledge. Assessment tasks are designed to require students to think about relevant connections when designing quality evidence for their E-portfolio, select the best artefacts, analyse and evaluate during the development of the E-portfolio. A significant number of participants confirmed that E-portfolio-use learning enhances critical thinking skills.

> *…the topic, they have to deduct the information and use it in the*
> *sense that they will be able to answer that particular activity in the*
> *portfolio. So critical thinking, problem solving, it is instilled.*
> (Participant PK06, interview, 12 May 2018)

Students are given tasks, which necessitate applying thinking answer questions and demonstrate learning. This could be understanding and explain ideas and concepts, applying information in a new situation, drawing connections among ideas, justifying

a position or making a decision based on evidence or producing original work with new knowledge. As a result, E-portfolio strengthens the components of thinking, develops skills and promotes self-motivation through interaction and meaningful learning, raising self-awareness and conducting self-assessment.

Sub-theme 2.3: Enhancement of Self-Directed Learning (SDL) (Personalised Learning)

One of the goals of the current research was to explore the enhancement of self-directed learning through using E-portfolio. SDL equips students with skills to set up learning goals and become independent and lifelong learners beyond completion of their studies. The use of E-portfolio is effective in sharpening self-directed learning skills as is demonstrated through independence, self-control, time management and motivation throughout the student learning process.

> *My students are able to plan, organise their learning especially based on their time management and other responsibilities they have, because most of my students are working while studying, so for them managing their studies is of importance for them to achieve their goals.* (Participant NP05, interview, 25 May 2018)

Students, particularly those who are full-time workers, part-time, distance learners and are working in an online environment have to take charge of their learning by being motivated and in control of their learning. One important aspect is accessing the internet to conduct research in order to complete the assessment tasks.

> *So they are learning and with the content, the way the content is designed in a way that they are forced to get into the internet, they are given links to go and get the content there, because there are no prescribed books. So they have to surf the net for the relevant*

content to answer the activities in the portfolio. (Participant PK 06, interview, 18 May 2018)

The interviews with participants reveal that self-directed learning needs to be emphasised to ODL students. Students need to be self-motivated and take control of their learning, plan their time, organise their learning by developing independence but also the skills of collaborating with peers in order to counteract the circumstances facing them as ODL students.

6.3.1.3   THEME 3: Student Support in Developing the E-portfolio for Assessment

Student support plays an integral part in ODL particularly with the E-portfolio being a relatively new innovative assessment tool. Introducing the E-portfolio requires that students to be guided towards a new perspective of education, where they learn to assume more responsibility for their personal development and lifelong learning. The lecturers have a primary role in supporting students during the development of the E-portfolio so that they produce quality evidence. Lecturers have to find the means that works for them to support students in their different context as they develop their E-portfolios, while the institution has the responsibility of assisting students on ICT and administrative E-portfolio issues. These two aspects are crucial because they support the qualitative development of E-portfolio.

Sub-theme: 3.1 Academic student support in producing evidence for the E-portfolio

Academic support is key throughout the process of E-portfolio development. The lecturers have revealed that they provide support to their students, as they are work on their E-portfolio. Various ways of providing support are firstly, the guidelines outlined in tutorial letter 101 provided to students throughout their assessment tasks. These guidelines clarify all aspects of the submission of the E-portfolio for assessment from the start, including learning outcomes, assessment standards, and criteria for assessment in a rubric, due dates, expectations, content, selection and reflection.

> *….it is crucial especially when in the tutorial letter of the module I had to provide clear guidelines….* (Participant NP05, interview, 25 May 2018).

Secondly, vital support takes place through the provision feedback to students.

> *…through feedback, that takes place in dialogues, group discussions, and written comments. It shows students where they stand, where one could go and how to continue. (*Participant MM01, interview, 24 May 2018)

Lecturer MM04 indicated that she provides support through live broadcasts where she interacted with students discussing and explaining what the module entails and how the E-portfolio should be developed and designed to ensure student success. The live broadcast is an extra form of support, which meant that the lecturer was personally able to give clarity the module and its contents.

> *I interacted with my students through live broadcasts… I explained how the portfolio is going about, you have to, how to compile your portfolio, and how it has to be structured and developed.* (Participant NP05, Interview, 25 May 2018)
> *….Ehh…to support to my students and I even interact with them in the discussion forum, every week* (Participant GM03, interview, 16 June 2018)

Academic support plays a key role in helping students to produce quality evidence in their E-portfolio through the support from lecturers. This helps the student acquire and develop those crucial skills while creating and producing quality evidence in their E-portfolios.

Sub-theme: 3.2 Institutional support assessment (ICT department)

Support is crucial in developing E-portfolio and therefore student cannot only rely on the lecturers. The lecturers indicated in the interviews that some students register for courses with UNISA but are not fully equipped with relevant skills in terms of using ICT or technology. The study revealed students get little support from ICT to deal with challenges encountered when developing their E-portfolios. Added to this problem, in many cases, lecturers themselves are not technology savvy and are unable to assist students with technical problems.

> *… some of them get difficulties like they said they are computer illiterate, they don't know how to get to the portfolios, the welcoming page will tell them how to, but they will still phone to verify when they are in front of their computers to see, how do I get this portfolio because it is an additional learning material, it is not under the official study material. So there is a lot of technical support that is needed.* (Participant GM03, interview, 16 June 2018).

Furthermore, the lecturers highlighted that they also struggle with system failures and find it difficult to get help from the people responsible for ICT support. It seems as if the lecturers themselves need to take responsibility for developing ICT-appropriate skills in order to ensure that the E-portfolio assessment tool runs smoothly.

> *…. but the institution support really is very weak, because someone who is supposed to help us, to assist us with this E-portfolio, you will run after him. You will never get him, you don't know what to do, because, there is someone who is responsible for helping us with ICT challenges, but he is not willing to do that, I still remember, I have send several e-mails to him and I made even the physical contact with him to come to my office, at least for thirty minutes to come and show me how I can go about this,*

> *but he never did that, so that is why I say, I have to go to the CPD*
> *training, just to gain the knowledge on how to go about this.*
> (Participant NP05, Interview, 25 May 2018).

In addition to on-campus support, the institution provides support by deploying well-capacitated human resources (on-site administrators) at the telecentre to provide support to UNISA students in various regional offices and teachers centres. Deployed on-site administrators ensure that effective and efficient services in various regional offices offer assistance with regard to the information communication and technology (ICT) use. Their role is to support students to access connectivity, video conference, internet, online access resourced by Vodacom service provider. Students are advised to use the link: http://digitalclassroom.co.za/digital classroom/centres. These telecentres are used to improve the quality of teaching, learning and research, to rural student communities by extending student online access and support through ICT infrastructure. The institution, through the ICT, uploads all study material for student to be able to access tutorial letters on myUnisa online. However, participants highlighted that a relatively large proportion of the UNISA student community cannot access regional offices with telecentres, as a result for support regarding computers and internet connectivity to access their MyUnisa.

6.3.1.4   THEME 4: E-portfolio Challenges and Constraints

Various issues and challenges emerged from the interviews when participants were asked about their experiences in using the E-portfolio tool for assessment. The participants highlighted challenges and constraints experienced when implementing E-portfolio for assessment. The following sub-themes emerged:

Sub-theme 4.1: Lack of digital literacy

Technology has changed the way we live, teach and learn, and as a result, even the way we conduct of assessment. With the widespread use of technologies and digital media in educational systems, citizens and workers must be able to create, evaluate, and effectively utilise information, media, and technology and ensure digital inclusion

and empowerment in 21st century communities. However, with some of today's millennials there is still a lack of digital literacy skills as individual students have different background regarding technology use. The participants stated although UNISA tends to attract young adult learners, amongst them there are those who are digital natives who can use technology and some are digital strangers. These digital strangers are students, who rarely use technology, have never exposed to it, or have had no access to ICTs whilst growing-up or at school. In addition, both these types of students, particularly those based in remote areas across the country, are challenged by network connectivity and therefore find E-portfolio- use a disadvantage to their academic progress. As a result, it becomes challenging to work on E-portfolio with ease and some end up not being able to submit because challenges faced.

However, it seems that the same students are able to use the Internet for to access social media with applications such as Facebook, Twitter, Instagram, and WhatsApp. Although some students experience challenges such as technology resources like computers and laptops many lecturers encourage their students to use technology. Participant MM04 stated, "I encourage my students to use technology effectively for their education" (Interview, MM04, 18, June 2018). The interviews with lecturers revealed that with time, students come to realise the need to learn how to use technology effectively for learning purposes. This study has revealed that even though lecturers are willing to move to alternative online assessments, the lack of digital literacy is a challenge and serves to confirm the central position that lack of technology and its accompanying skills affects student-learning practices.

> *They do both, like I said we are trying to go over, but there are still students, they don't have computers, they don't have internet connections. UNISA wants to go fully online, but it is not that easy.* (JO02, interview, 24 May 2018)

It is worth noting that in first world countries, students are fully exposed to digital literacy like E-portfolios, in the early ages of their education and develop the necessary technology skills as they progress. The study has revealed that participants believe

that student, E-portfolio-use is difficult for undergraduate students in South Africa, since they were not exposed to technology-based assessment like E-portfolio tool during their primary and secondary school. Therefore, participants pointed out those undergraduate students are not ready for E-portfolio-use as this is a new innovative assessment to which they need to become accustomed in time.

> I still do not think that my students (undergraduates) will be in a position to work with an E-portfolio …. *there will [is] little time for them to still have to master the skills and time to generate and maintain an E-portfolio.* Participant PK06, interview, 12 May 2018).

Some of the lecturers expressed that for some students, technology-use (E-portfolio) is new to them but further highlighted that if the E-portfolio can be more interactive from the beginning, for students to work on the E-portfolio site throughout their learning process, practice throughout the learning process will be helpful. The recommendation is that the more practice with E-portfolio the student is involved in the quicker, they will be able to get used to it.

> *As an ODL student lecturer, and myself I enjoyed the development and maintenance of an E-portfolio. I found it very interesting and challenging. However, I must add that I look at these possibilities as an academic and having a very close relationship with many of my students as a work integrated learning WIL mentor. E-portfolio is still too new a technology for most of my students.* Participant MM04, interview, 18 June 2018)

Some lecturers indicated their challenges with digital literacy skills as they had previously never offered online teaching and learning. Some have had to take over modules from other lecturers without a proper introduction or induction into the E-portfolio teaching context and have had to learn from their peer lecturers.

> *…. so he was the one who was giving me guidance until at least I do have a light in this E-portfolio. I went down to the ICT, trying to tell them that I don't know this E-portfolio…(Participant MM04, interview, 18 June 2018)*

Most participants emphasised the importance of student digital literacy. In particular, in the ODL context the use of alternative assessment is relevant for many reasons, as indicated in the literature review, and cannot be disregarded as a tool to enhance alternative assessment and thus student learning. However, findings indicate that lecturers still find E-portfolio-use complex and not user-friendly for students.

Sub-theme 4.2: Learning Management System (LMS MyUnisa) is non-synchronised for Mahara E-portfolio

The LMS gives students access to the site for a certain task and period, for instance during a course. The lecturer manages the LMS and decides how and when students use it. The E-portfolio is used for interaction regarding student work. An E-portfolio is not only for loading of files (Assignments); students need to create an interactive presence on Mahara, which has links to social networks, videos, photos and text-based documents. It seems however, that the LMS MyUnisa is not synchronised for the activities, tasks, assignments and projects that students have to complete for the portfolio. Lecturers pointed out that they were trained to use Mahara as an E-portfolio but still experience challenges when they assess student evidence in the E-portfolio platform.

With an E-portfolio, students can be asked to do a certain task, but they administer their E-portfolios themselves and can also use them for other purposes. The UNISA E-portfolio therefore disadvantages students and lecturers because it is not synchronised for activities, tasks, assignments and projects that students have to complete for the portfolio.

> *The E-portfolio that we use in my module is not according to the E-portfolio that I understand, like the one UNISA Training Department showed us on how to use the Mahara E-portfolio. The Mahara E-portfolio was an interactive portfolio where students could write information, answering maybe questions that were send to all the students according to the tutorial letter assignments and so forth, and the student could work at different paces.* (Participant MM04, interview, 18 June 2018).

During the interviews, several lecturers highlighted the fact that they experience challenges with regard to non-compliance and non-synchronisation of the E-portfolio. Therefore, lecturers revert to MyUnisa tools like e-discussion forums to teach and interact with students related to their assessment tasks.

> *I use E-portfolio for both teaching and assessment, the learning part mostly is where they use the peer review on the discussion forums and I also participate with them on the discussion forums, but it is activities related to the content of the module and the assessment part is the product, which they submit to their lecturer.* (Participant GM03, interview, 16 June 2018)

The participant shared the same sentiments regarding the UNISA E-portfolio system because it is not interactive and the students cannot on work on it.

The learning management system (LMS), which gives students access to the site for a certain task and period, for instance during a course, plays an important role in assisting students acquire and develop skills through constant use of the E-portfolio.

Sub-theme 4.3: UNISA's policies and procedures dealing with alternative assessment

The purposes of UNISA Assessment Policy (UNISA Assessment Policy, 2013) is to guide all assessment practices at UNISA, ensure that all assessment practices are aligned to the national higher education legislative and policy environment and ensure that assessment is an integrated process within the learning experience. Therefore, all processes and procedures of assessment are guide by this policy. It was recommended during the review and reconfiguration of UNISA assessment practices, that the policy need to be amended to cater for the introduction of alternative assessment. This amendment meant that the assessment policy is should give clear guidelines on the processes and procedures related to alternative assessment issues.

> *The digital portfolio we used to be not a true E-portfolio in the true sense of the word and meaning. We needed something [E-portfolio site], which was easier to manage, was cheaper for students and which still provided us with sufficient information and evidence of WIL experiences and learning. Besides, I do not think that all my students would have had the capacity or connectivity to manage an online E-portfolio.* (Participant NP05, interview, 18 May 2018).

However, it seems that the assessment policy does not adequately cover online assessment processes and procedures.

> *In terms of assessment I use the assessment policy, but it is not specific to online assessment as such and then on guidelines as to how to go about assessing them online.* (Participant MM01, interview, 28 May 2018).

Although the alternative assessment project began in 2013, participants have stated that they do not have a policy that effectively guides them regarding alternative assessment. A strong policy is crucial in this sense and the need to further amend the

policy was emphasised, particularly as it has never been finalised. Policies are very important to ensure standardisation, consistency and uniformity in processes and procedures of alternative assessment across the University. A significant number of participants raised concerns on this matter as an urgent need to finalise the process and procedures.

> *One of the most urgent matters for attention is the drafting and approval of policies and procedures dealing with alternative assessments. In cases where the policies are not in place, implementation becomes impossible and it cannot withstand scrutiny. In fact, if these are implemented without the proper policies and procedures being in place, the university is at risk of incurring an audit finding. (*Participant JO02, interview, 24 May 2018).

Participant PK06 had more to say on the topic of policy development.

> *It was agreed upon during the planning of introducing alternatives assessment that policies should be drafted and approved before the implementation of alternative assessment in 2015. To this end, the Task Team has scheduled a workshop with all academics involved in the project. It is envisioned that the basic parameters and procedures for every type of alternative assessment will be decided on.* (Participant PK06, interview, 12 May 2018)

From what the participants have pointed out there is a lack of consistency and standardisation in terms of how they operate their E-portfolio, with lecturers using the methodology and criteria that works best. Some lecturers indicated during the interviews that at some point they decided themselves to use the MyUnisa for interacting with students and among students themselves. This indicates the

importance of processes and procedures that need to be outlined for all participating in the alternative assessment. Policy implementation informs practice developed from the theory, which ensures that learning takes place. Therefore, lack of assessment policy hampers teaching, learning, and the use of the good assessment practices, which could improve student-learning outcomes.

Sub-theme 4.4: Lack of technical assistance

During the initial introduction of alternative assessment project, the ICT department was included as supporting personnel to assist lecturers and students with E-portfolio-related challenges. The teaching and learning pedagogy and modalities acknowledged that optimal implementation of the E-portfolio requires a robust, stable, cutting-edge ICT infrastructure and platform. However, the findings revealed that there is lack of technical assistance to support lecturers for them to be able to work with students inside the portfolio

> *I went down to the ICT, trying to tell them that I don't know this E-portfolio, can you just give me time, just to show me, just to guide me how to work on this, you know what, it was a struggle because we kept on setting the appointments no one came to us, until I sat down, last year, I told myself that I am going to do this and I will get it right.* (Participant NP05, interview, 18 May 2018)

Lecturers pointed out that, as they inherited the modules from the previous lecturers, they were left in the dark without proper hand-over of the modules and without training and development. They had to learn how to navigate the E-portfolio themselves. A lecturer mentioned that she had attended the continuous professional development workshops that had helped to a certain extent but, because continued for a limited time, did not fully equip the lecturer with the necessary skills. As indicated in the theme of student support, this lack of support hinders the successful use of E-portfolio, as lecturers are concerned about ongoing support from ICT needed, due to network

challenges; the E-portfolio site and a less interactive E-portfolio site (*cf.* 6.3.1.3 Sub-theme 3.2).

6.4 THEMES AND SUB-THEMES EMERGING FROM THE DOCUMENT ANALYSIS

In the qualitative phase of data collection, several documents were analysed to explore information related to E-portfolio use, particularly the assessment processes. This was done using Creswell's steps of document analysis (Creswell, 2011). Several themes and sub-themes explained in this part of the qualitative approach. The following documents were analysed namely: six tutorial letters 101, six student E-portfolios with evidence and the official UNISA assessment policy. This section presents the following themes and sub-themes that emerged from the document analysis phase. The three types of selected documents were chosen as they could provide ample data in the context within which research participants operate.

6.4.1 THEME 1: Tutorial Letter as a Guiding Tool for E-portfolio Development

The use and purpose of the E-portfolio must be clearly outlined so that students understand what is expected in preparation for when the E-portfolio is used for assessment purposes. This implies that relevant information should be communicated to students regarding the requirements of its use and purpose. The tutorial letters are UNISA's way of communicating with students about teaching, learning and assessment. The lecturers use several tutorial letters to convey information regarding module throughout the year. The information that is conveyed to students should be relevant and clearly spelled out with the aim of reaching learning outcomes.

This tutorial letter 101 (UNISA's official document) was analysed as it was first one issued to students and provided information needed for functionality of E-portfolio throughout the study duration. It is worth noting that other tutorial letters were sent throughout the study as additional information or amendment of, as needed to be conveyed to students. The following themes emerged during the document analysis process.

Sub-theme 1.1: Relevant information for use and purpose of the E-portfolio as stated in Tutorial letter 101

Tutorial letter 101 informed the students about the alternative assessment, particularly E-portfolio since this might be a relatively new assessment tool. During the analysis process of the tutorial letter 101, the findings revealed that the background information regarding the use of E-portfolio as a teaching, learning and assessment tool has relevant information that provided clear guidelines. However, the tutorial letter from various modules provided different information as lecturers decided on the information to be contained in the tutorial letter.

For example, tutorial letter 101 SDEC00N (2018:3) explained alternative assessment, particularly E-portfolio, while other modules did not. The findings revealed that alternative assessment, mainly E-portfolio, is only mentioned at a later stage when students are introduced to E-portfolio as their last non-venue based summative assessment. The extract from the tutorial letters below confirms the information explaining that the E-portfolio is part of the student teaching, learning and assessment tool.

This module introduces you to the concept alternative assessment. Alternative assessment is used to encourage your involvement in the assessment process and interaction with other students, lecturers and the school community at large. In this module you must compile an E-portfolio of your activities throughout the year. In the E-portfolio your progress, achievements, developmental strengths, and areas for continued improvement will be included and assessed.

The E-portfolio requires you to demonstrate your understanding of the subject and pedagogical content knowledge and the application thereof. In distance education, there are not many opportunities for lecturers and students to get together for practical lesson demonstrations. The lecturer for SDEC00N will mainly rely on the assessment of your submitted written activities

Another tutorial letter spelt out the assessment plan for the year. For example, tutorial letter 101 for module code SDEC00N (SDEC00N Tutorial letter 101/0/2018:8) outlined the assessment plan, clearly giving a description of the task, then information regarding the percentage weight, unique numbers, mark allocation and due dates for the assignments (see Table 6.1).

Table 6.1: Assessment Plan for the Year (SDEC00N Tutorial letter 101/0/2018:8)

Assignmen t	Description Of Activity	Weight %	Unique No.	Mark Allocation	Due Date
01	Short Questions about Economics. COMPULSORY	50	829621	100	30 April 2018
02	Short Questions and Grade 10 Lesson Plan. COMPULSORY	50	876775	100	30 June 2018
03	Final Examination E-portfolio	100		250	31 October 2018

Another tutorial letter 101 included the assessment rubric with criteria (Table 6.2). For example, module CUDAAEE tutorial letter 101 gave the assessment criteria and standards set, (CUDAAEE Tutorial letter 101/0/2018). The criteria served as guide to inform students about what is expected of them in the assessment tasks. It was observed in the analysis that other tutorial letters did indicate the assessment criteria for assessing tasks.

Table 6.2: Assessment Rubric with criteria

Assessment grid for CUDAAEE Assignment 01 of 2018 – Unique Number 741281			Marks
Write an essay on 4 models for planning learning programmes for adults	0–9 The interactive model is described inadequately and a vague or no explanation is presented as to how the model can be applied practically. The response is not structured and presented as is required at postgraduate level.	10–20 The interactive model is succinctly described and a clear explanation is given on how the model can be applied practically. The response is structured and presented as is required at postgraduate level.	20

Assessment grid for CUDAAEE Assignment 01 of 2018 – Unique Number 741281			Marks
	0–9 Tyler's model is described inadequately and a vague or no explanation is presented as to how the model can be applied practically. The response is not structured and presented as is required at postgraduate level.	10–20 Tyler's model is succinctly described and a clear explanation is given on how the model can be applied practically. The response is structured and presented as is required at postgraduate level.	20
	0–9 Knowles's model is described inadequately and a vague or no explanation is presented as to how the model can be applied practically. The response is not structured and presented as is required at post-graduate level.	10–20 Knowles' model is succinctly described and a clear explanation is given on how the model can be applied practically. The response is structured and presented as is required at post-graduate level.	20
	0–9 Barr & Keating's model is described inadequately and a vague or no explanation is presented as to how the model can be applied practically. The response is not structured and presented as is required at postgraduate level.	10–20 Barr & Keating's model is succinctly described and a clear explanation is given on how the model can be applied practically. The response is structured and presented as is required at postgraduate level.	20
Compare and contrast the four models by reflecting on the similarities, differences, strengths and weaknesses	0–9 The comparison does not accurately reflect similarities, differences, strengths and weaknesses among the four models described in a) above. The following aspect needs urgent revision: Similarities Differences Strengths Weaknesses The response is not structured and presented as is required at postgraduate level.	10–20 The comparison accurately reflects similarities, differences, strengths and weaknesses among the four models described in a) above. The following aspects need some revision: Similarities Differences Strengths Weaknesses None The response is structured and presented as is required at postgraduate level.	15
	Presentation: Note that up to an additional 5 marks can be awarded or subtracted in this regard – use of headings and sub-headings; proper		5

Assessment grid for CUDAAEE Assignment 01 of 2018 – Unique Number 741281		Marks
	referencing in text using the Harvard method; list of references according to the Harvard method.	
	Date:	**Assessor: TOTAL**	**100**

The analysis of the tutorial letters confirmed participant responses regarding the tutorial letter relevance to the assessment processes and procedures. The findings revealed that lecturers use tutorial letters to communicate relevant information to their students; however, different approaches were observed as information differed with some tutorial letters while including relevant information while others have omitted it.

Sub-theme 1.2: Relevance of assessment tasks to context

The assessment tasks outlined in the tutorial letters are seen to be authentic and relevant to future situations. Lecturers were preparing their students for their different careers or professional fields in the workplace, which require relating and applying their knowledge to real-life situations. For example, in an extract from tutorial letters (CUDAAEE Tutorial letter, 2018:12), students are reminded about the importance of contextualising the assessment into their different fields.

> *Give the practical examples of the implementation in your context, in other words, related to the situation and field of study/subject in which you are/would be designing learning programmes and assessments*. (CUDAAEE Tutorial letter, 2018:12)

The use of E-portfolio tool should demonstrate that evidence of learning that took place. Therefore relevant assessment tasks should be employed for students to show their understanding of the learning content related to their professional development.

Sub-theme 1.3: Guidance on the developing E-portfolio for assessment

Tutorial letters 101 explained that the E-portfolio is a non-venue based examination. However, some modules include the formative assessment in the E-portfolio, while in some modules only the assessment tasks provided in the E-portfolio are regarded as the final summative non-venue based assessment.

The findings emerging from the document analysis reiterated participant interview responses in that guidance through the instructions in the tutorial letters is given to students when developing their E-portfolios. For example the, INTMAEU, Tutorial letter 101/0/2018, offers student step-by-step instructions on how to develop an E-portfolio.. In this tutorial letter (Table 6.3), instructions are given as well as information in the form of links to support the students:

Table 6.3: Guidelines to develop an E-portfolio

Resources for using the E-portfolio Mahara
https://www.youtube.com/watch?v=O-gK-n45YXY https://youtu.be/o3Vv-bjf694 https://youtu.be/KOFSrV3QOWM?list=PLxEsMPV549kiS-I623W4WRPg5SJ1Fw12
https://youtu.be/mIhMgIDGAYI?list=PLxEsMPV549kiS-I623W4WRPg5SJ1Fw12 http://manual.mahara.org/en/1.10/
Instructions for E- portfolios on Mahara
1. Remember that you have to create an E-portfolio on Mahara; therefore, it is important to use evidence to create these documents.
2. Please use **only PDF files i**n Mahara.
3. Evidence to be uploaded to your E-portfolio, Mahara during the whole year (INTMAEU, Tutorial letter 101/0/2018: 19)

The instructions guiding the creation of E-portfolio on the Mahara site assist the student in navigating the process of E-portfolio development. However, in contrast, some of tutorial letters do not give such clear guidelines only providing minimal information to students on how to create and develop an E-portfolio. Lecturers, during the interviews, revealed that they are challenged by the Mahara E-portfolio. To meet this obstacle, some have developed alternative ways to access E-portfolio, with some mentioning that they often have to settle for Dropboxes and online submissions called the Jrouter marking tool.

THEME 2: Evidence produced in the Student E-portfolio

The E-portfolio module aimed at equipping students with knowledge, skills and techniques necessary to enable them to make full use of what technology has to offer in higher education and training. The knowledge and skills acquired by the students are necessary for the 21st century; it prepares them for the world of work beyond their graduation. In this regard, assessment has to be in line with the principles of assessment, taking into consideration the alignment of learning outcomes and learning activities or tasks while integrating learning activities with practice-based contexts that relate to real-life situations. In the same vein, assessment knowledge and skills should develop student ability to take responsibility for their own learning, encourage collaboration, support student learning, and most importantly, assessment has to be valid and reliable. E-portfolio is one of the tools that can demonstrate and support assessment principles in the content in the E-portfolio documents. The following sub-themes emerged from the documents analysis.

Sub-theme 2.1: Evidence of developing higher order thinking skills

The E-portfolio development process consists of purpose, content and process whereby students provide evidence of learning interaction through the selection of artefacts and consequent reflections on the choice and reason for inclusion in the portfolio. The E-portfolio module at UNISA is a formative assessment tool leading to summative assessment as a non-venue-based examination module. At the end of the study period, students will have developed an E-portfolio on the Mahara site, to serve as the summative assessment. The E-portfolio provides students with the opportunity to develop skills related to digital literacy, higher order thinking skills, critical thinking skills and self-directed learning.

The E-portfolio has different dimensions and is an interactive learning tool for creating personal, professional and institutional creativity. Also important is the approach the student uses in the format of the portfolio, the choice of sequencing activities and resources, the specific guidelines provided and applied by the educational institution, the assessment rubric, and the collaborative aspects, which include peer conversations and subsequent editing and reworking of the portfolio. Student E-

portfolios demonstrated the tasks, outlined in the tutorial, that they were instructed to complete. As indicated in the tutorial letters 101 (INTMAEU, CUDAAEE, SDEC00N), student were required to complete the following task:

Table 6.4: Structure for writing a reflective journal

Reflective Journal on INTMAEU during 2018
Reflect on what happened during the assignment process. If you are new to reflective writing you might find it helpful to have a structure for your writing. This can help you to make a start, and you might then discard it later as your experience in this area grows. Knott and Scragg (2013) offer a very useful structure for writing a reflective journal, which can be helpful for people who are unsure about what to write:

Stage 1 – Reflecting

Here, the suggestion is that you focus on an issue or a concern that you have in relation to your practice and development. Like Bolton (2014), they advise you to write freely and spontaneously in order to capture your thoughts and feelings.

Stage 2 – Analyse

This is the most complex of the stages and involves responding to the following key questions:
- What is happening?
- What assumptions am I making?
- What does all of this show about my underlying beliefs?
- Are there alternative ways of looking at this, if so what are they? (E.g. from the perspective of someone else – a colleague, the client, a manager).

Stage 3 – Action
The focus here is on the action you could take following the analysis. Again, the authors suggest considering some key questions:
- What action could I take?
- How can I learn from this experience?
- How might I respond if this situation occurred again?
- What can I learn from this experience regarding my beliefs about myself?

a. Invite at least three (3) of your fellow students whom you trust to evaluate and peer review your work on Mahara and to supply you with a report on your work for further improvement.
b. Submit this peer review report on Mahara as well. i.e Technical presentation of the assignment

Lastly, but most importantly, submit your E-portfolio for assessment so that the lecturer could access the E-portfolio and mark it in time.

Writing up the reflective journal required that students reflected upon what they had learned in the module, which includes reflecting on the process and outcomes of their learning in a particular period. In the above learning activity, students are expected to write a reflection, analyse and explain how they will take action based on their analysis. This learning activity encourages students to think deeper learning and critical reflection on knowledge gained as they progressed. With the main key concepts of HOTS, analysis, synthesis and evaluation, being assessed in this learning

activity, this indicated that lecturers did not aim the activity at lower order thinking skills.

The learning activity above required that students take control of their learning deciding which facts to use for reflection, reporting on what they have learnt in the module and what still needs to be learnt, demonstrating self-directed learning. In Step 2, the students are requested to analyse what was happening by reflecting on an issue, the assumptions they were making and their underlying beliefs; abstract but reflective work was required in the application of their higher thinking skills.

Furthermore, students were requested to demonstrate their development of higher order thinking skills firstly, in reflecting on how they would resolve the issue through action, whether they would follow the same path again and lessons learnt from the experience. The final steps, Step 3 (a, b) focused on sharing, peer reviewing and report writing. The learning activity requested that students invite fellow students to evaluate their work on Mahara and then report on their work offering suggestions for further improvement.

A last activity for this particular module to complete for their E-portfolio is outlined below:

Create a Wiki on student support in online learning (INTMAEU, 2018)

The tasks above required students to use digital literacy skills to demonstrate their higher order thinking skills by creating a wiki, a form of social media platform. This task required students to operate at highest level of Revised Bloom's Taxonomy (Krathwohl & Anderson, 2010) in the creating of a new or original work.

Sub-theme 2.3: Evidence of Self-Directed Learning (SDL) enhancement

UNISA and other ODL institutions share the aim of producing well-grounded graduates equipped with relevant knowledge and skills to become competent in their careers. Self-directed learning (SDL) is an umbrella term for various learning processes related to goal-directed, self-controlled learning behaviour. The evidence emerging from the analysis of the E-portfolios has shown the responsibility of the students to drive their own learning. This includes the planning; the organising and completion of their work, which demonstrated their self-motivation and competence in this regard. The students are self-regulated, control their learning as they work towards the set criteria The E-portfolio documents reveal students are independent and take ownership of their E-portfolio designs. Furthermore, collaboration and integration with others students in group work was demonstrated mainly in assessment activities that require students to work in pairs or groups, most importantly giving constructive feedback through peer assessment, and in some cases where group assessment is applied. For example, one task in the INTMAEU module requested students to:

> *…ensure that you have invited me as a friend, and very importantly, share the work you have done on the E-portfolio with lecturer, to enable me to see your work and to credit you for the hard work on the E-portfolio. (*INTMAEU tutorial letter 101)

Lastly, the findings reveal that reflective practices informs students of what learning took place, especially indicating the learning that was acquired and developed in the learning process; but reflective practices also indicate the learning outcomes that still need to be achieved..

THEME 3: UNISA Assessment Policy on Alternative Assessment Processes and Procedures

The researcher analysed the UNISA *Assessment Policy* (2015) regarding the assessment processes. The purposes of this policy are to guide all assessment

practices at UNISA. The policy ensures that all assessment practices are aligned to the national higher education legislative and that the policy frameworks are in order ensure that assessment is an integrated process within the learning experience. University. However, the participant highlighted that: The Assessment Policy does not guide them regarding the alternative assessment process and procedures, it covers the general view of the about processes and procedures. The Assessment Policy process and procedures (Section 4.3) explains non-venue based examinations which gives guidance on procedures of the portfolio/project examination, oral examination, WIL examination (work integrated and work simulated experiences) and practical examination. With reference to the issues and challenges raised by the participants during the interview, policy review was one of the points raised by lecturers as it seems that a policy guiding E-portfolio use as an alternative assessment has not yet been included (*cf.* 6.3.1.4 sub-theme 4.3). The policy does not provide clear processes and procedure about online assessment, particularly alternative assessments that are technology-based. Findings from the document analysis indicates that lecturers in various modules use assessment processes and procedures that works best for them, even though some lecturers had attended training on how to conduct teaching, learning and assessment using E-portfolio. The use of E-portfolios in the different modules varies, which confirms different standards, consistency and lack of uniformity regarding the development of the E-portfolio site.

6.5   CONCLUDING REMARKS

In this section, the study reflected on issues of the lecturers (as participants) with regard to their experience in the use of E-portfolio as an alternative assessment approach towards self-directed learning. Furthermore, there has been reflection on issues and challenges related to development and design of E-portfolio for assessment. To gain more insight into the participant's experiences documents were analysed to validate their interpretations thereof. For this reason, and wherever possible, reference has been done to show integration between the interviews and information received from the documents as they were analysed.

6.6   QUANTITATIVE DATA ANALYSIS

The quantitative analyses conducted in the second phase, included students enrolled in the identified modules: SDECOON, HSE3704, INTMAEU, CUDAEE, ANH301A, and SDBIOLJ. An online questionnaire was sent to 1177 students, registered for these modules, to complete. Only ten percent of the total was needed for data collection (n=117). However only fifty-six (n=56) questionnaires were returned, completed and validated with a return rate of 48%. The reliability test, the Cronbach's alpha coefficient was computed and the self-designed questionnaire was overall highly reliable at α < 0.81(*cf.*Table 5.3).

6.6.1   Section A: Biographical data

The biographical data of students who responded to the questionnaire is presented in Figure 6.3.
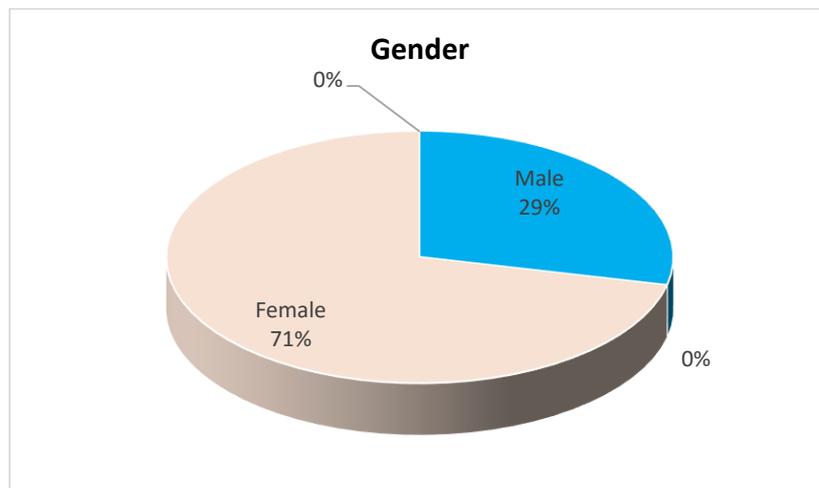
Figure 6.3: Gender

Female students comprise 71% of the student population responding to the questionnaire, while only 29% of the male students responded. This could indicate that more female students are enrolled for modules using the E-portfolio assessment; but it could also mean that more females responded to the online questionnaire.

6.6.2   Year of study

Figure 6.4 indicates the year of study, in which the student was involved in E-portfolio-use as an alternative assessment.
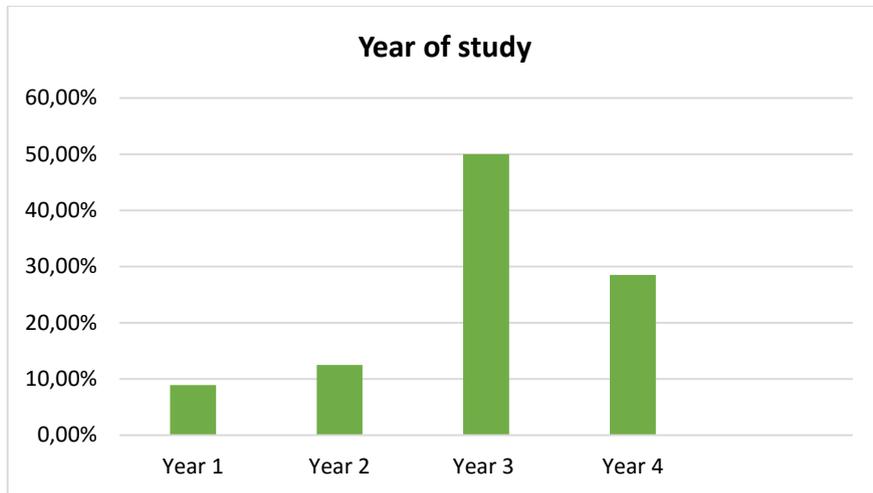
Figure 6.4: Year of study

This graph indicates that the greatest response to the questionnaire came from Year 3 students (50%). Year 1 students were not responsive with only 8, 90% responding.

6.6.3   Student response rate per college

Figure 6.5 presents the response rate of students per college in the university.
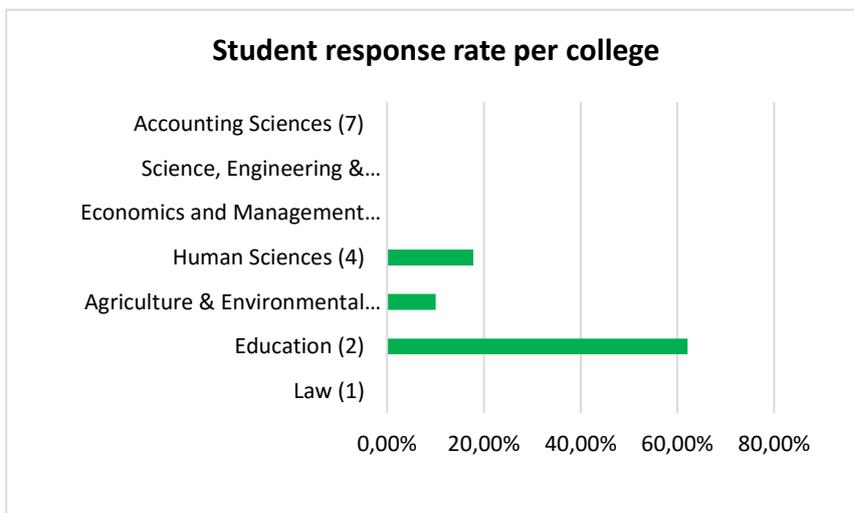
Figure 6.5: Student response rate per college

This figure indicates that more students in the College of Education (62.10%) responded to the questionnaire than students in the other colleges. The poorest responses came from the Human Sciences (17.85%), Agriculture, and Environmental Sciences (10.05%), with no students from Accounting Science, Science, Engineering and ???, Economics and Management and Law responsing.

6.7 STUDENT MODULE REGISTRATION

Students registered in modules selected for this study using E-portfolio are represented in Figure 6.6.
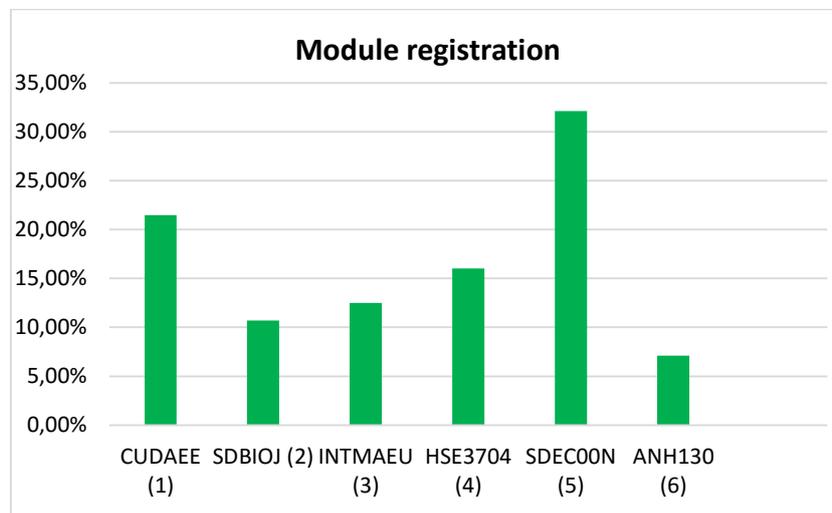
Figure 6.6: Module registration

This figure shows that the greatest response came from students registered in the module SDEC00N (32.10%). The poorest return (7.1%) came from students registered for the ANH130 module.

6.7.1 Section B: E-Portfolio Enhances high order thinking skills (HOTS), Critical Thinking Skills (CTS) and Self-Directed Learning skills (SDL)

Section B of the questionnaire dealt with three sub-themes: Higher Order Thinking Skills (HOTS), Critical Thinking Skills (CTS) and Self-Directed Learning Skills (SDL). The students completed the online questionnaire to establish if they were able to

demonstrate if alternative assessment through E-portfolio-use enhanced the development of 21st century skills.

6.7.2   E-Portfolio-use enhances High Order Thinking Skills (HOTS)

To what extent do you agree that the E-Portfolio enhanced your higher order thinking skills?

This section required students to establish if the assessment tasks designed by lecturers, as an alternative assessment, enhanced their higher order thinking. This section encompasses a number of sub-sections to reach a conclusion about the main question

Figure 6.7 presents student perception on creating quality evidence (through effective planning, designing and producing) for their E-portfolio
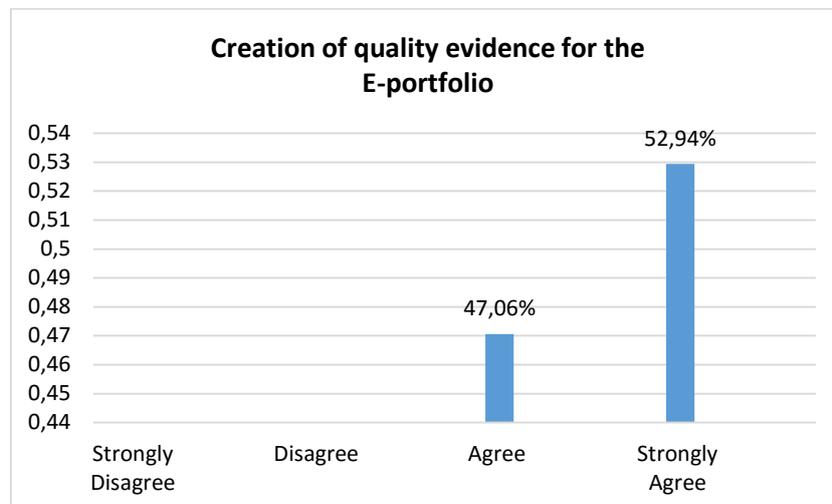
Figure 6.7: Creation of quality evidence for the E-portfolio

Some 53.85% respondents strongly agreed and 46.15% agreed that they were able to produce quality evidence in their E-portfolio for assessment.

Evaluating the quality of evidence through checking, critiquing, judging and reviewing activities during the development of the E-portfolio is presented in Figure 6.8.
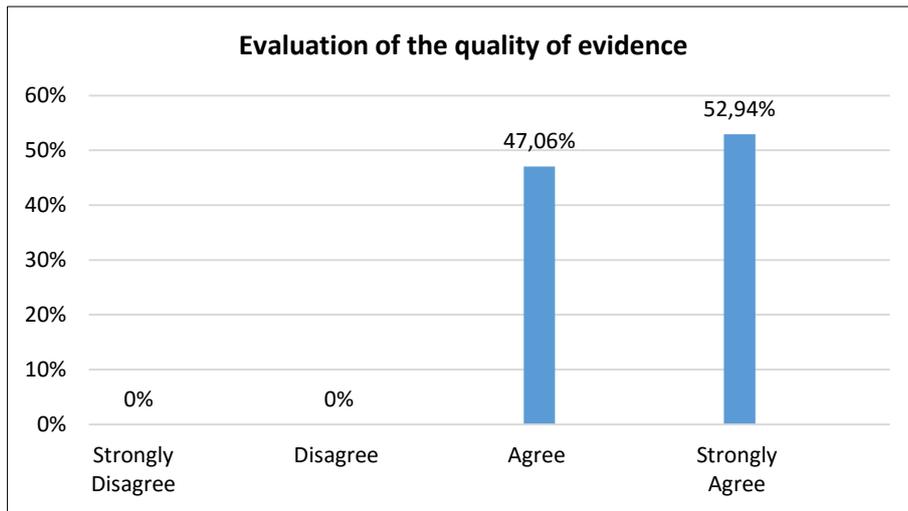
Figure 6.8: Evaluation of the quality of evidence in the E-portfolio

The majority (52.94%) responded that they strongly agree with 47.06% agreeing that they are able evaluate the quality of evidence for their e-Portfolio. This indicates that the majority of respondents feel that they are able to evaluate their E-portfolio evidence by checking, critiquing judging and reviewing assessment tasks selected for assessment.

Figure 6.9 reports on student perceptions of whether they are able to analyse the quality of evidence produced in the E-portfolio applying the skills of comparing, organising critiquing and structuring.
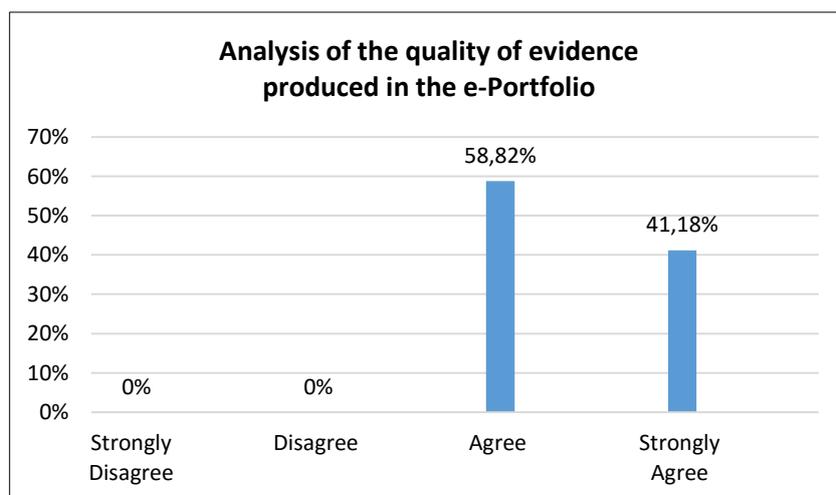
Figure 6.9: Analysis of the quality of evidence produced in the E-portfolio

Figure 6.9 shows that 58.82% of respondents agree that they are able to analyse the quality of evidence produced in their E-portfolio, with 41.18% strongly agreeing. This result shows that student perception is that they have developed the skill of analysing the quality of evidence contained in their E-portfolio.

Students were asked to evaluate whether they felt that they are able to apply knowledge and skills when developing evidence for the E-portfolio through the use of specific criteria.
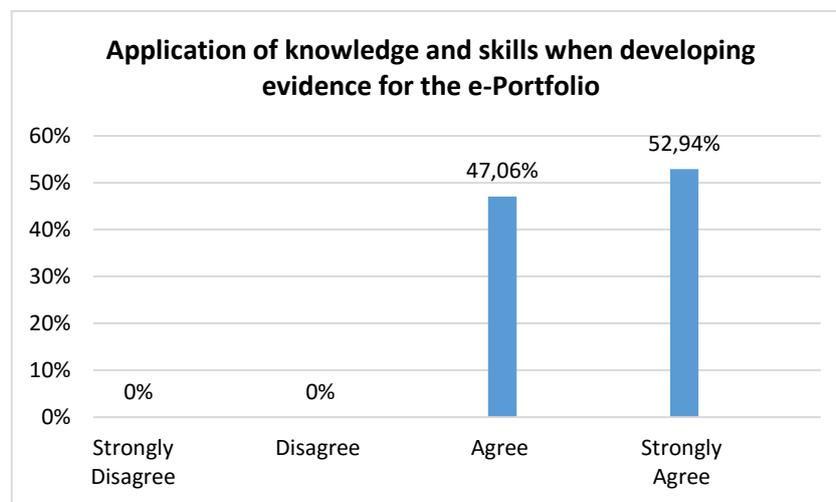
Figure 6.10: Application of knowledge and skills when developing evidence for the E-portfolio

Figure 6.10 indicates that the majority of respondents (52.94%) strongly agree, with 47.05% agreeing that they can apply knowledge and skills acquired throughout their learning when developing their E-portfolio for assessment. This result illustrates that the introduction of alternative assessment where assessment of students is more authentic and have developed their ability to apply knowledge and skills acquired

Student perceptions of the development of their understanding of evidence produced during the development of E-portfolios, pertaining to the skills of comparing, interpretation, summarising and explanation is reported in Figure 6.11.
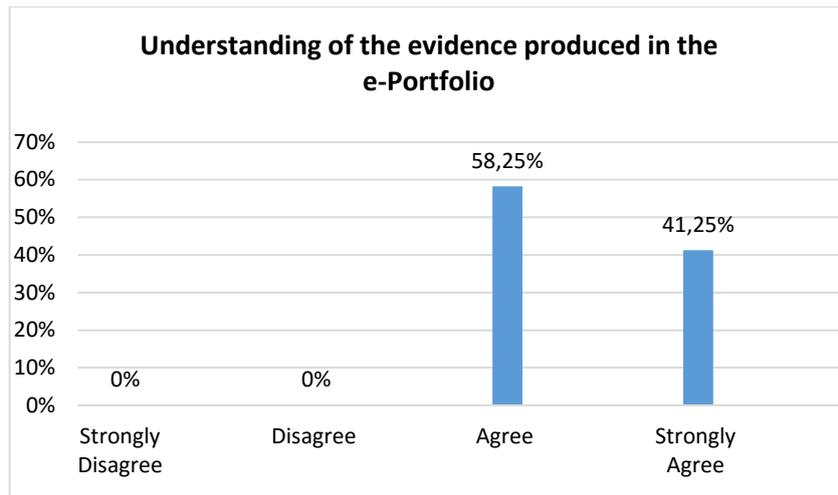
Figure 6.11: Understanding of the evidence produced in the E-portfolio

The data from Figure 6.11 shows that 58.25 % of respondents, who form the majority of responses, agree that their understanding of evidence had developed, with a further 41.25% of respondents strongly agreeing.

Remembering the quality evidence in the E-portfolio by applying the skills of recognising, listing, identifying, describing and finding, is reported on in Figure 6.12.
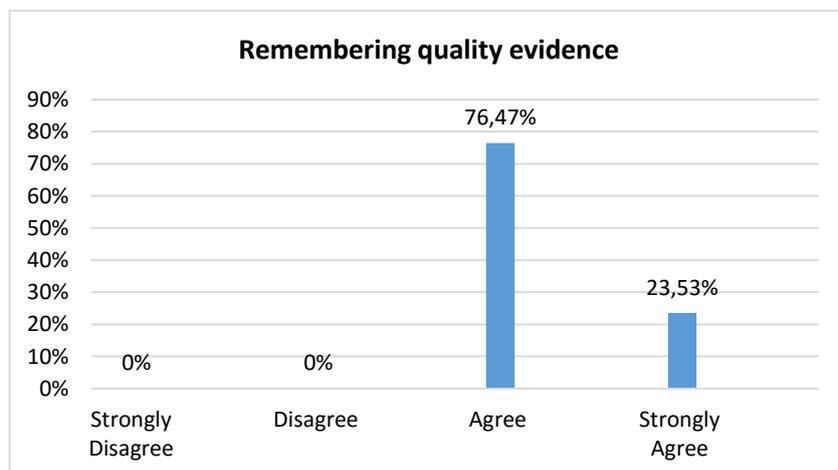
Figure 6.12: Remembering quality evidence for the E-portfolio

Figure 6.12 shows that 72.47% of respondents agree largely that, they do remember evidence or content-knowledge produced in their E-portfolios by recognising, listing, identifying, describing and finding concepts, with 23.53% strongly agreeing. This evidence indicates that the majority of the respondents agree and confirm that

evidence in the development of an E-Portfolio assists them in remembering the content required and produced demonstrating competency in their learning.

To sum up, Table 6.5 presents the results of the four-point Likert Scale, indicating student perceptions of whether during the creation of the E-portfolio, their higher order thinking skills were enhanced.

Table 6.5 E-portfolio enhances high order thinking skills (HOTS)

	Four point Likert scale (Percentage %)				Descriptive Statistics	
To what extend do you agree that the e-portfolio enhance your **higher order thinking skills.**	Strongly disagree	Disagree	Agree	Strongly agree	Mean scores	Standard Deviation
Q1. I can **create** quality evidence (through effective planning, designing and producing) for my e-Portfolio	0%	0%	41.18%	52.94%	3.638	0.232
Q2 I can **evaluate** the quality of evidence (through checking ,critiquing , judging and reviewing my activities) for my e-portfolio	0%	0%	44.06%	55.94%	3.740	0.317
Q3 I can **analyse** the quality of evidence produced (by comparing , organising, critiquing and structuring) my e-Portfolio	0%	0%	53.82%	46.18%	3.667	0.303
Q4 I can **apply** knowledge and skills when developing evidence (by carrying out criteria expected) for my e-Portfolio.	0%	0%	40.06%	59.94%	3.808	0.392
Q.5 I can clearly **understand** (by comparing , interpreting ,summarising and explaining) the evidence produced in my e-Portfolio.	0%	0%	58.25%	41.18%	3.640	0.436
Q6 I am able to **remember** (by recognising, listing , identifying , describing and finding) quality evidence for my e-Portfolio.	0%	0%	71.47	28.53%	2.470	0.352

Table 6.5 shows that respondents strongly agree that they are capable of creating (52.94%), evaluating (52.94%) and applying (52.94%) higher order thinking skills (HOTS) when designing and producing evidence for the E-portfolio. It can be deduced that in the development of the e-Portfolio, as an alternative assessment, student perceptions were that their higher order thinking skills were enhanced.

6.7.3 E-Portfolio enhances my Critical Thinking Skills (CTS)

To what extent do you agree that the E-portfolio enhances your critical thinking skills.

In this section, the students were requested to establish if the assessment tasks designed by lecturers, as an alternative assessment, enhanced their critical thinking skills as one of the of 21st century skills. This section, utilising various key concepts of Bloom's taxonomy in determining attainment of such skills, encompasses a number of sub-sections to reach a conclusion about the main question

Figure 6.13 reports on student perceptions of whether they are able to think deeply in order to make relevant connections.
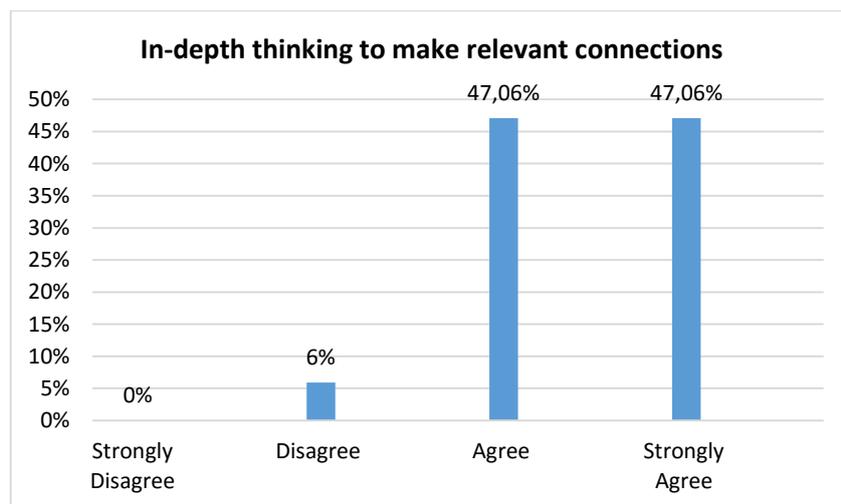
Figure 6.13: In-depth thinking to make relevant connections when designing quality evidence for the E-portfolio

Figure 6.13 highlight that 47.06% of respondents strongly agree and 47.06% of responders agree that they are able to think deeply making use of relevant connections when designing their E-portfolio in order to produce quality evidence. Only 6% felt that they could not think deeply when designing their E-portfolios. This confirms that respondents perceive that they have developed the ability to think deeply when creating good quality evidence in their E-portfolios.

The 21st Century skill of communication where thoughts, questions, ideas and solutions are shared, is a vital skill required for success in society and the workplace. Students develop this skill during the alternative assessment by communicating, debating and networking online with lecturers and peers.
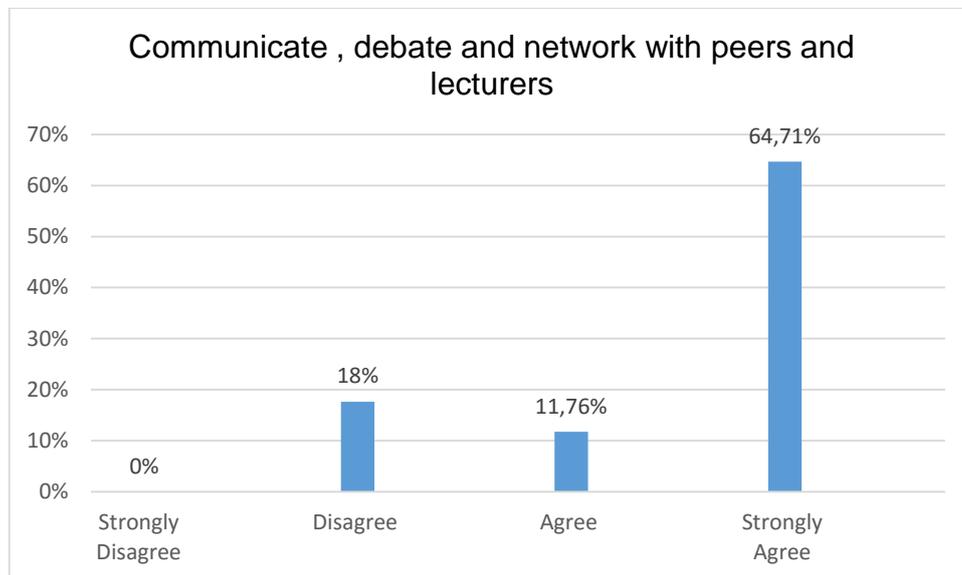
Figure 6.14 Communicate, debate and network with my peers and lecturers effectively.

According to the above figure, most of the respondents (64.71%) strongly agree that they communicated, debate and network effectively with their peers and lecturers during their studies mainly when developing their E-portfolio. Some 11.76% agreed with only 18% disagreeing, feeling that they are not really able to communicate, debate and network with peers and lecturers. This shows that even though a large number of respondents strongly agree that their communication skills through debating and networking have improved, there are students who find themselves unable to access the opportunity to communicate and interact effectively.

Figure 6.15 illustrates student perceptions of their ability to integrate critical thinking skills within and across subject content area
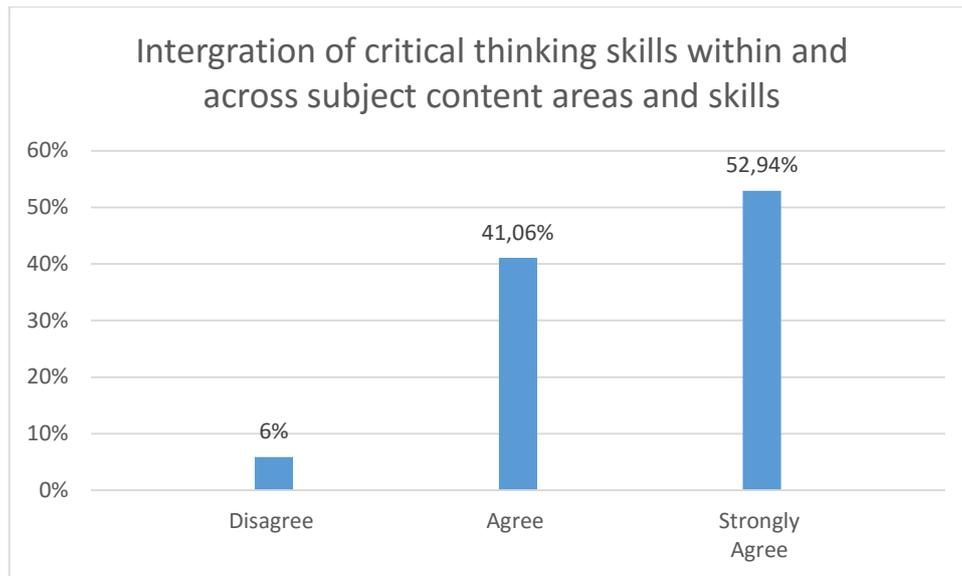
Figure 6.15: Integration of critical thinking skills within and across subject content areas.

This figure shows that just over half (52.94%) of the respondents strongly agree that using E-portfolio for assessment brings about effective integration of critical skills, while 41.06% of responders agree. In contrast, only 6% disagree. This shows that majority of students are aware of the importance of critical thinking and that they are able to transfer and thus apply the skills to all content subject areas and assessments. It is imperative that in the development of assessments, consideration is given to the use of critical thinking skills in order for students to develop the ability to think deeply and critically.

Figure 6.17 presents the results for the student perception of their ability to analyse, reason and evaluate the assessment tasks developed in the E-portfolio.

Analyse, reason and evaluate E-portfolio
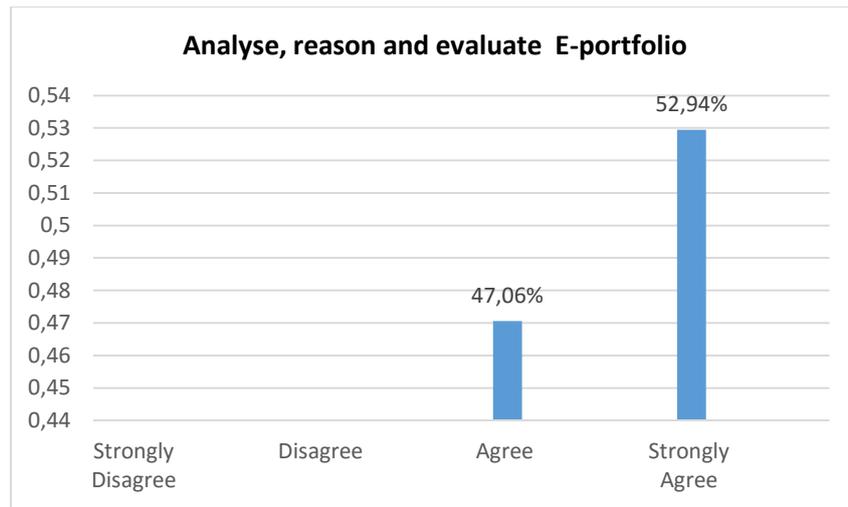
Figure 6.17: Analyse, reason and evaluate my assessment tasks produced for the -portfolio

Over half (52.94%) the respondents strongly agree, with 47.06% agreeing, that through the process of alternative assessment with creation of their E-portfolios, they have developed the skill of analysing, reasoning and evaluating. This means that student have developed skills which enables them to offer feedback to peers and in turn, apply feedback from peers and lecturers in the revision of their work. Transferability of skills is vital, and this figure reports on student perceptions of their ability to use their critical thinking skills in other subject content areas and apply it to practice.

Use critical thinking skills in subject content areas and apply to practice
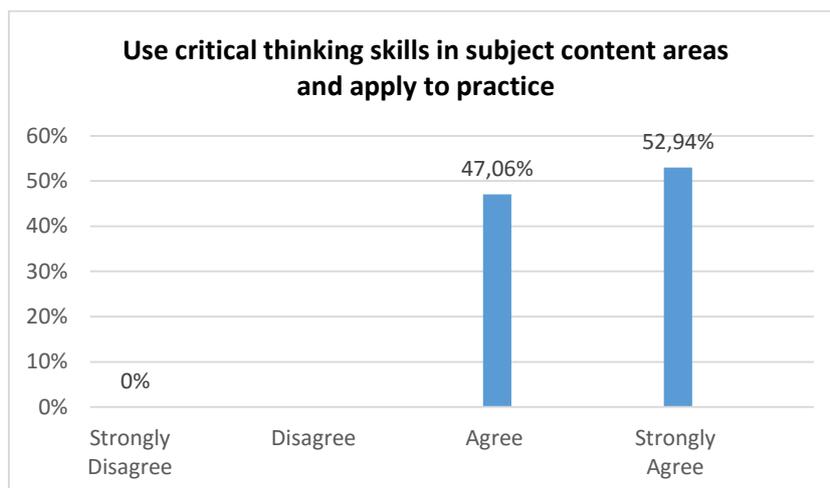
Figure 6.18: Usage of critical skills in subject content areas and application to practice

Figure 6.18 shows that 52.94% of respondents reported in strong agreement, with 47.06% agreeing to being able to use their critical thinking skills subject content area and apply it to their practice. This question was asked more than once to probe and gain a better understanding of the use and application of critical thinking skills.

Understanding instructions to assessment tasks is critical to successful completion. Figure 6.19: presents student perceptions of whether they are able to understand instructions.
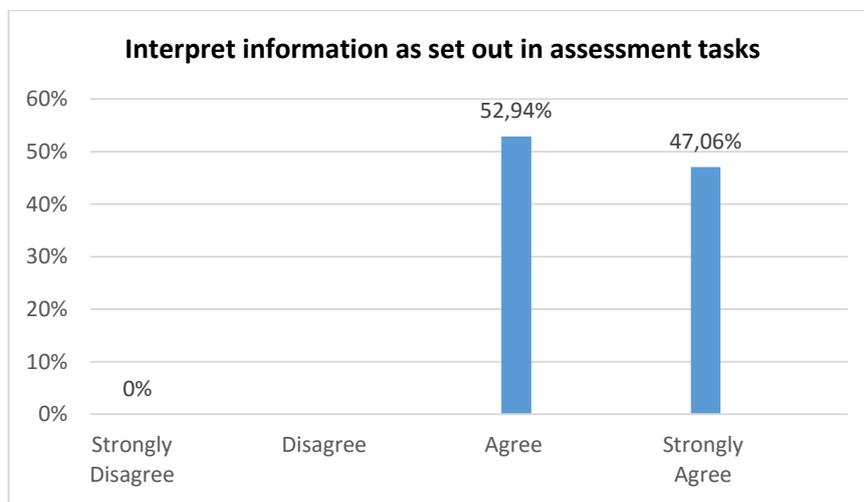
Figure 6.19 Interpret information as set out in the assessment tasks

The above figure shows that a slight (52.94%) majority with less than half (47.06%) strongly agreeing that they have the ability to understand information set out in assessment tasks and are thus able to interpret instructions for the E-portfolio assessment tasks set out by lecturers.

Reflection is considered one of those important practices which students need to develop. Figure 6.20 presents student perceptions of their reflective practice.
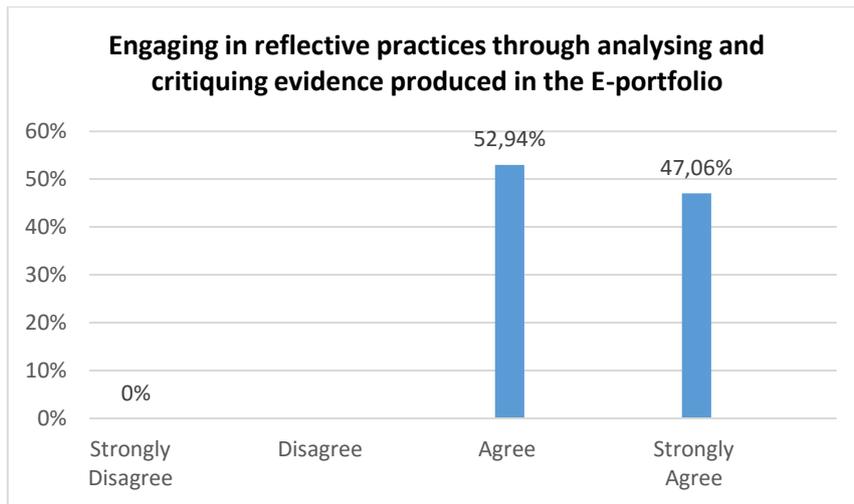
Figure 6.20: Engaging in reflective practices through analysing and critiquing evidence produced in the e-Portfolio

While 47.06% strongly agree that they are able to engage in reflective practices through analysing and critiquing evidence produced in their E-portfolios, a majority of 52.94% agree. It seems that students are embracing the skills that they have acquired during the development of the E-portfolio, as they are able to display what they have learnt and in addition, are able to reflect on their learning, as well as analyse and critique the evidence produced in the E-portfolio.

Figure 6.21 reveals student perceptions of their developing creative skills which indicate an ability to try new approaches and be innovative and inventive.
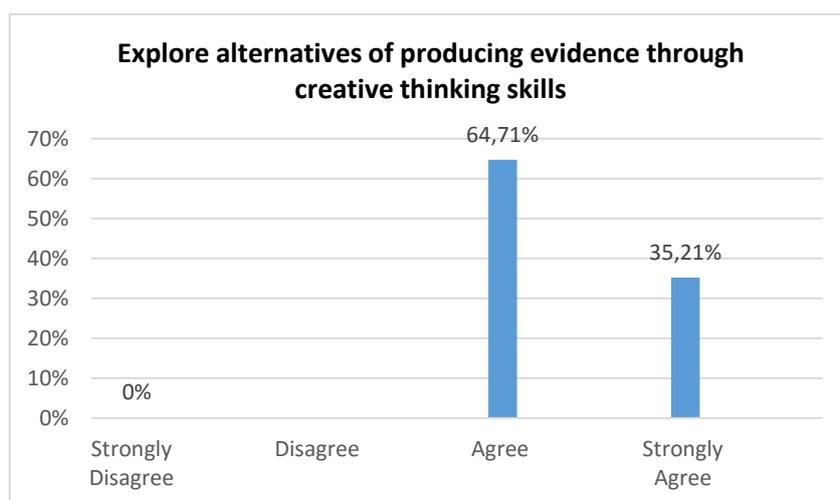
Figure 6.21: Explore alternatives to producing evidence through creative thinking skills

The above figure shows that the majority (64.71%) of respondents agree that they are capable of applying their creativity to search for and explore alternative evidence to produce quality evidence in the E-portfolios, Some 35.21% strongly agree that they know how to tap into their creativity in order to produce evidence This shows that students perceive that they are able to apply their critical thinking skills in their exploration of alternative sources for the most appropriate artefacts for inclusion in the E-portfolios.

With the overabundance of information freely accessible, students need to develop the ability to question whether the information is credible, accurate and relevant. Figure 6.15 presents student perceptions of their questioning ability.
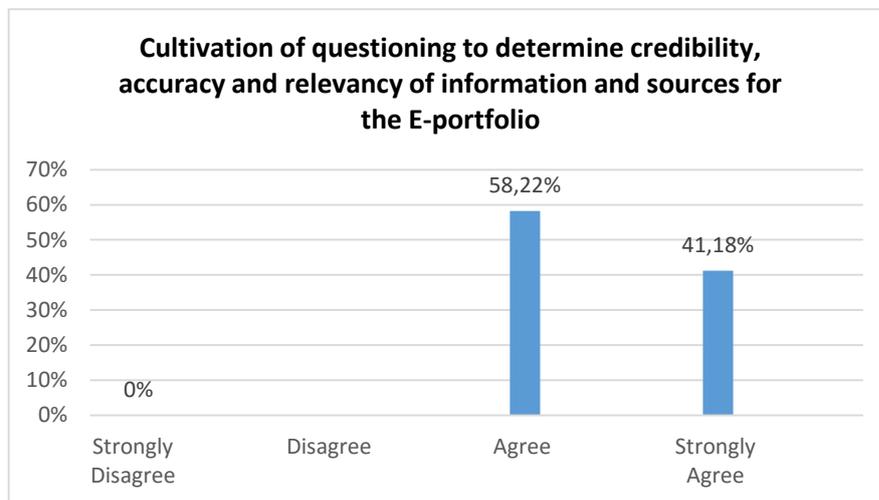
Figure 6.22: Cultivation of questioning to determine credibility, accuracy and relevancy of information and sources for the E-portfolio

The results indicate that 58.22% of respondents agree, 41.18% strongly agreeing, that they question sources to determine credibility, accuracy and relevancy of the accessed information to be used in the E-portfolio, with.

This demonstrates that students are discerning and realise that, as there is more information readily accessible as previously, they need to determine which information can be trusted. As such, to complete assessment tasks requires students to ensure that the information in the E-portfolio is credible, accurate and relevant.

Figure 6.23 is a further probe into understanding if students can generate and evaluate the content of their assessment tasks.

Generate and evaluate options prior to making decisions in assessment tasks
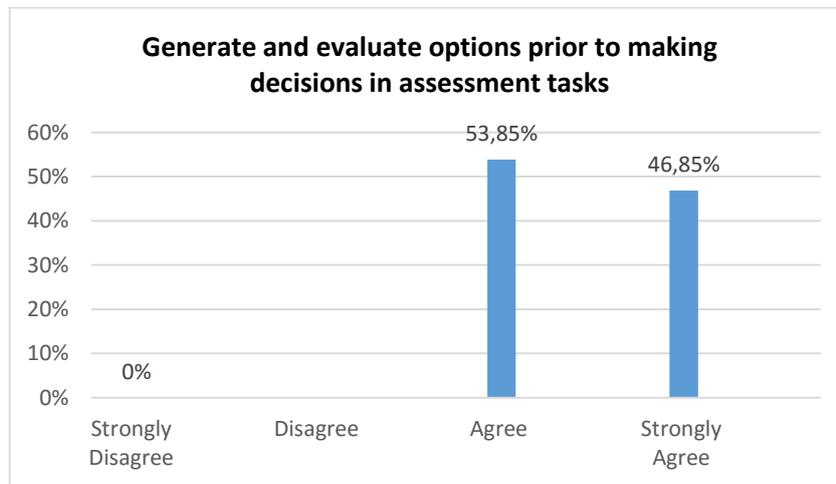
Figure 6.23 Generate and evaluate options prior to making decisions in assessment tasks

Figure 6.23 shows that 46.85% strongly agree, with a majority of 53.85% of respondents agreeing that they are able to generate and evaluate options about information and artefacts prior to making informed decisions in finalising their E-portfolios.

As previously stated, communication is a vital 21st Century skill which is further enhanced through a vast array of technology. Figure 6.24 illustrates the percentage of students who connect and communicate using an online platform.

Connect and communicate with peers and lecturers using myUnisa as an online platform
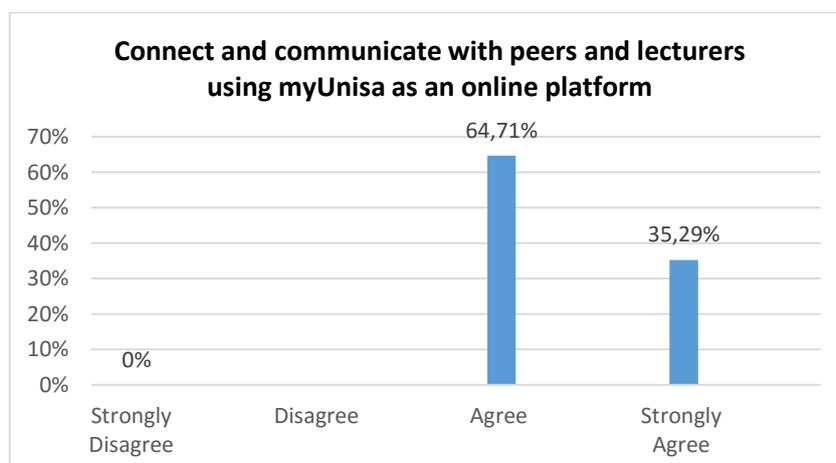
Figure 6.24: Communication with peers and lecturers using myUnisa as an online platform

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The above figure shows that 35.29% strongly agree and 64.71% agree that they connect and communicate with their peers and lecturers using myUnisa as an online platform in the form of instant messages, emails, announcements, webinars, e-Discussion forums and blogs during the development of their E-portfolios.

Following on from the above graph and results, Figure 6.25 illustrates the percentage of students who connect and communicate using social media.
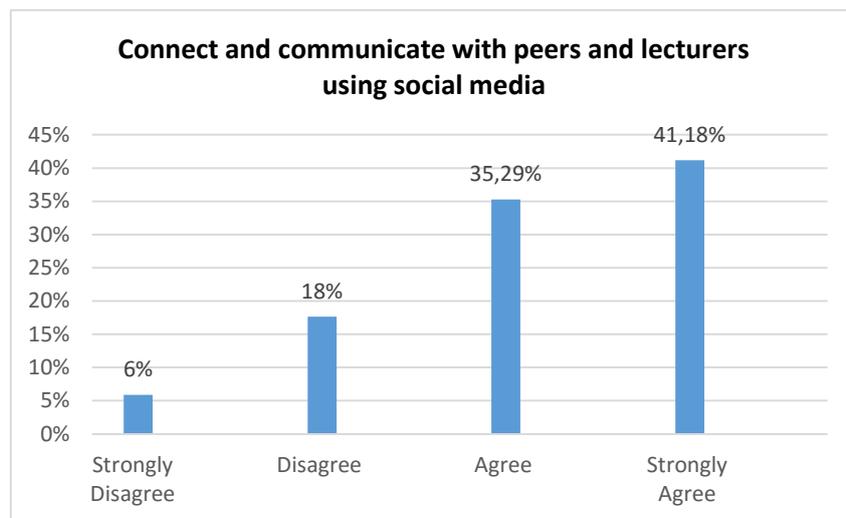
Figure 6.25: Connect and communicate with peers and lecturers using social media platform on issues relating to the E-portfolio.

Only 35.29% of respondents agree, with 41.18 % strongly agreeing that they connect and communicate with my peers and lecturers using social media platform such as Facebook, WhatsApp, WeChat to discuss issues relating to the E-portfolio. Some students, it seems, do not use social media for study-related issues with18% disagreeing and 6% strongly disagreeing.

To sum up this section, Table 6.6 presents the results of the four-point Likert Scale, indicating student perceptions of whether during the creation of the E-portfolio; their critical thinking skills were enhanced.

Table 6.6: E-portfolio enhances student critical thinking skills (CTS)

To what extend do you agree that the e-portfolio enhances your critical thinking skills	Four point Likert scale (Percentage %)				Descriptive Statistics	
	Strongly disagree	Disagree	Agree	Strongly agree	Mean scores	Standard Deviation
Q.1 I can think deeply to make relevant connections when designing quality evidence for my e-Portfolio	0%	5.88%	47.06%	47.06%%	2.94	0.016
Q.2 I can communicate , debate and network with my peers and lecturers effectively.	0%	17.65 %	11.76%	64.71%	3.020	0.036
Q.3 I can integrate critical thinking skills within and across subject content areas and skills .	0%	0%	51.18%	42.94%	3.108	0.629
Q.4 I can analyse ,reason and evaluate my assessment tasks produced for my e-portfolio.	0%	0%	41.18%	52.94%	3.608	0.769
Q.5 I can use my critical skills to practice and apply subject content successfully.	0%	0%	46.06%	53.94%	3.678	0.469
Q.6 I can interpret information as set out in my assessment tasks beyond surface learning.	0%	0%	52.94%	47.06%	3.008	0.169
Q.7 I can engage in reflective practices through analysing and critiquing evidence produced in my portfolio	0%	0%	51.94%	48.06%	3.108	0.879
Q.8 I can explore alternatives to producing evidence through my creative thinking skills	0%	0%	64.71%	35.21%	3.024	0.443
Q.9 I can consistently cultivate a sense of questioning towards credibility , accuracy and relevancy of information and sources to be used in my e-portfolio	0%	0%	58.82%	41.18%	3.301	0.698
Q.10 I can generate and evaluate options prior to making decisions in my assessment tasks	0%	0%	53.85%	46.15%	3.036	0.634
Q.11 I connect and communicate with my peers and lecturers using myUnisa as an online platform (instant messages, emails, announcements, webinars, e-Discussion forums and blogs)	0%	0%	67.71%	32.29%	3.044	0.044
Q.12 I connect and communicate with my peers and lecturers using social media platform (Facebook, WhatsApp, WeChat) on issues relating to my e-Portfolio.	5.88%	17.65%	35.29%	41.18%	2.57	0.642

Table 6.6 shows that respondents strongly agreed (64.71%) that they can communicate, debate and network with peers and lecturers effectively. Furthermore,

students agree (64.71%) that they can explore alternatives to producing evidence through creative thinking skills.

However, only 35.29% strongly indicated that they connect and communicate with peers and lecturers using myUnisa as an online platform using instant messages, emails, announcements, webinars, e-Discussion forums and blogs.

This section dealt with the development of critical thinking skills and confirms that students are expected to think deeply using various concepts of CTS to create quality evidence in their E-portfolio. To assist them, students are encouraged to network, share ideas, collaborate with peers to expand their knowledge, and explore ideas with peers. Thus, they are trained to become critical thinkers in their studies and beyond graduation.

6.7.4 E-Portfolio enhances Self-Directed Learning skills (SDLs):

To what extent do the E-portfolio activities in my module enhance my self-directed learning.

This section required students to determine the extent to which self-directed learning (SDL) has enhanced learning and whether personalised learning took place. This section which allowed students to share their experiences of taking control of their learning, creating their own knowledge and sharing ideas, encompasses a number of sub-sections to reach a conclusion about the main question.

Student perception of whether they were able to make the move from *what* to learn to *how* to learn is presented in Figure 6.26.
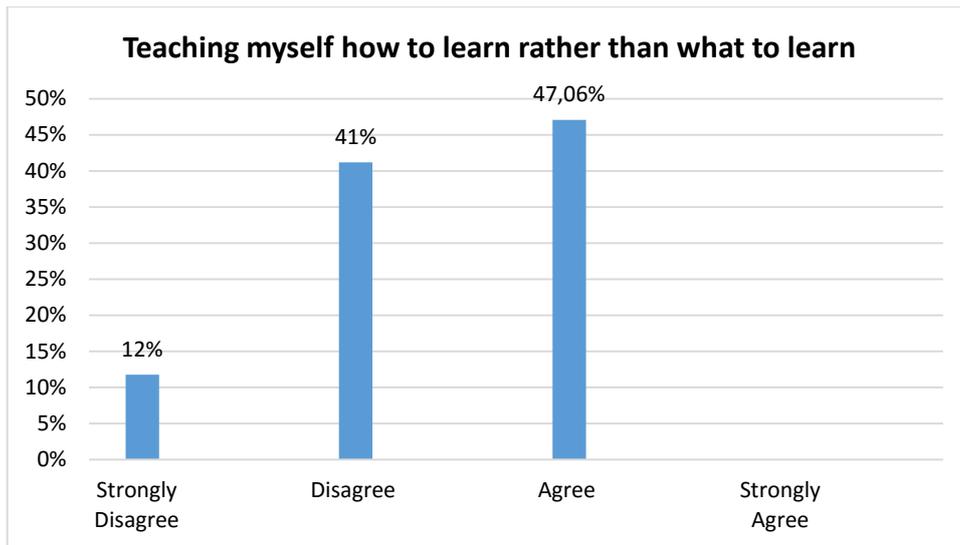
Figure 6.26: Teaching oneself how to learn rather than what to learn

The above figure indicates that less than half (47.06%) of the respondents agreed that they were able to teach themselves how to learn. On the negative side, 41% disagreed, while 12 % strongly disagreed that they found difficulty in making the move from what to learn by teaching themselves how to learn. This demonstrates that students are challenged in making the move from what to learn to teaching themselves how to learn.

Figure 6.27 illustrates student perceptions of opportunities to teach themselves, through self-directed learning, essential skills such as higher order thinking and critical learning skills.
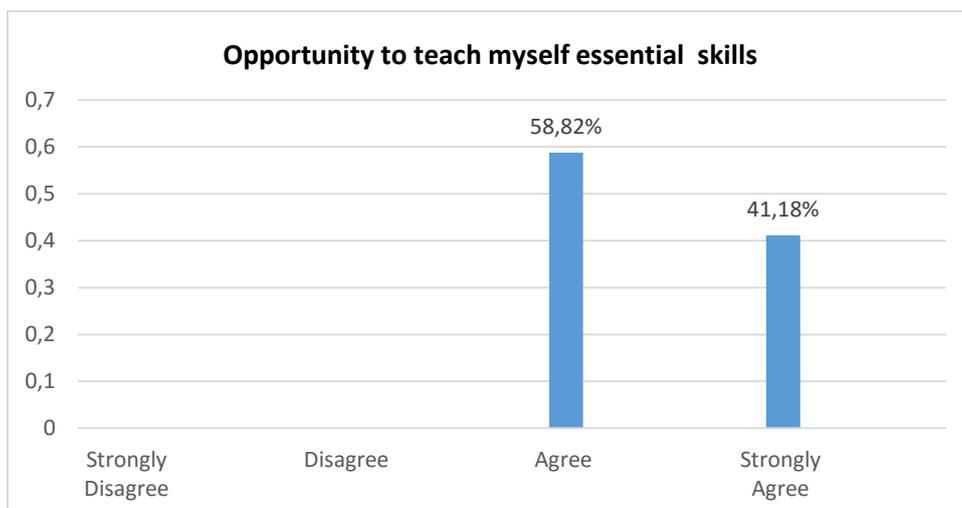
Figure 6.27: Teach oneself the most essential skills (HOTS and CTS)

The above figure shows that a majority of 58.82% of respondents agree, with 41.18% strongly agreeing, that self-directed learning offers students the opportunity to become involved in their learning by developing the essential skills such as higher order thinking and critical learning skills, needed in their professions.

Application of various skills such as research skills, self-management skills, social skills and communication skills through compiling evidence is presented in Figure 6.28.
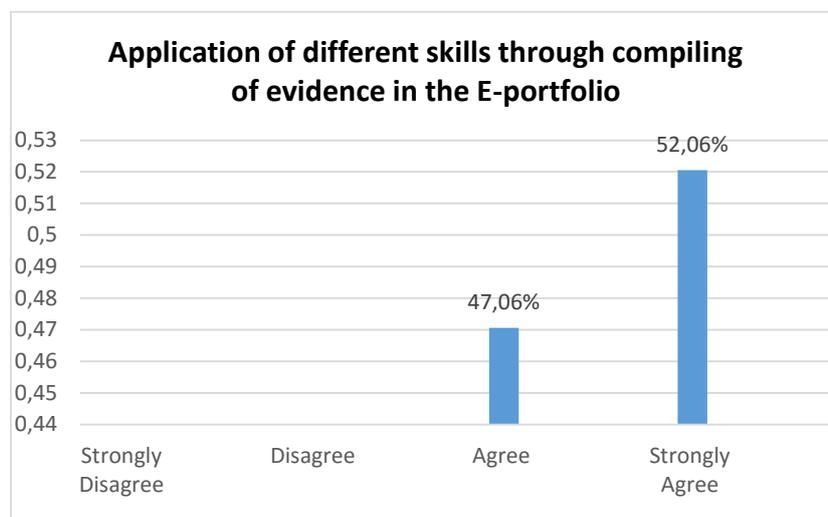
Figure 6.28: Application of different skills

Some 52.06% of respondents strongly agree, while 47.04% agree that self-directed learning, through the compiling of evidence in the E-portfolio, affords them the opportunity to apply different skills such as research skills, self-management skills, social skills and communication skills.

Self-directed learning depends on student understanding of what is expected of them, the assessment criteria and the standards and outcomes.
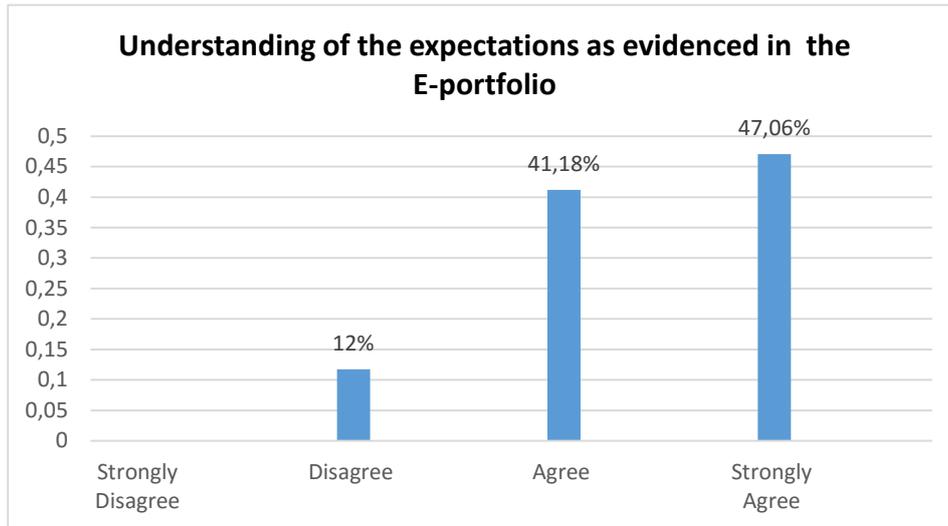
Figure 6.29 Understanding of the expectations as evidenced in the E-portfolio

The above figure shows that 47.06% of respondents strongly agree, with 41.18% agreeing that knowledge of selected outcomes in the assessment of the E-portfolio enhances student self-directed learning. Twelve percent of the respondents disagreed that understanding of the expectations enhances self-directed learning. This shows that students understand the importance of understanding expectations which include assessment criteria and outcomes in order to take control of their learning and become self-directed learners.

An aspect of self-directed learning is the ability to collaborate and interact with peers.
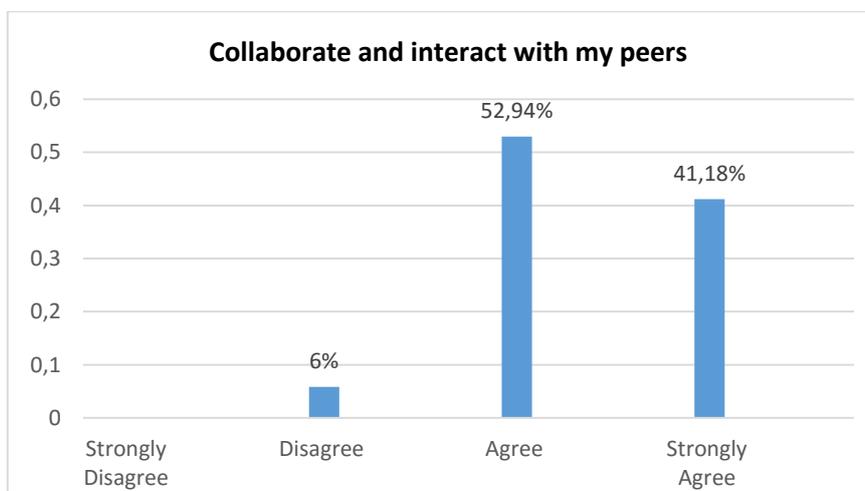
Figure 6.30 Collaborate and interact with my peers within and beyond the module

Figure 6.30 shows that 52.94% of respondents agree, while 41.18 % strongly agree, that in collaborating and interacting with peers developed the ability to become self-directed during their studies and the development of the E-portfolio. However, 6% of the respondents disagreed, reporting that they do not collaborate and interact with their peers.

Personal or human development, within the context of institutions, is developed through specific programmes, tools, techniques and assessment systems. Figure 6.31 presents student perception of their personal development through the activities in the E-portfolio.

Development of confidence, perservarance, life satisfaction through activities in the E-portfolio
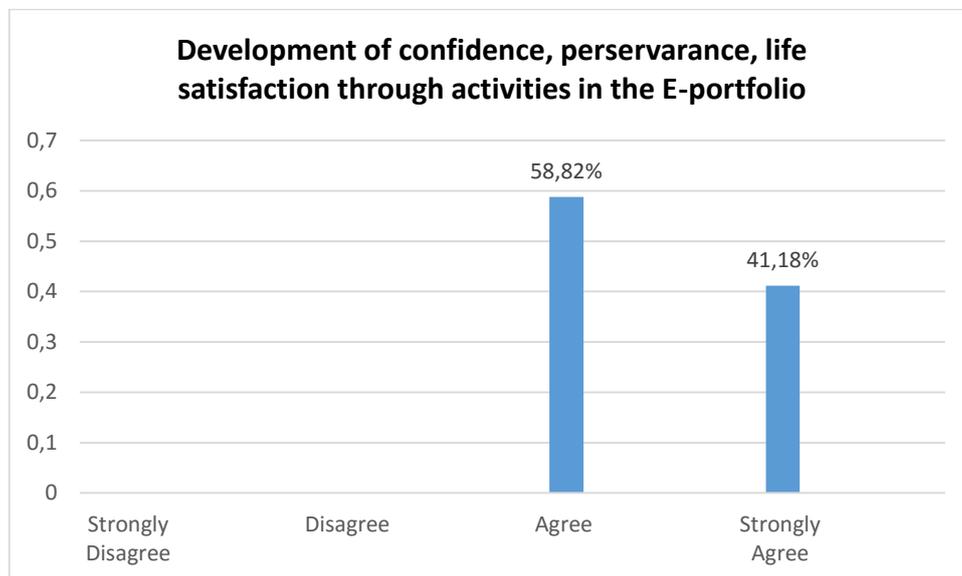
Figure 6.31 Development of self-confidence, perseverance, life satisfaction through the activities in the E-portfolio.

From the figure above, 58.82% of respondents agree that during involvement in alternative assessment, they developed self-confidence, perseverance and life satisfaction through the assessment activities in the E-portfolio. This is an indication that an alternative assessment tool affords students the opportunity to develop as self-directed and lifelong learners.

Trial and error is an essential method of problem solving, characterised by the opportunity to repeat steps and processes and work through varied attempts until

success is attained. An environment of trial and error creates a safe place within which students can work and where success is the goal.
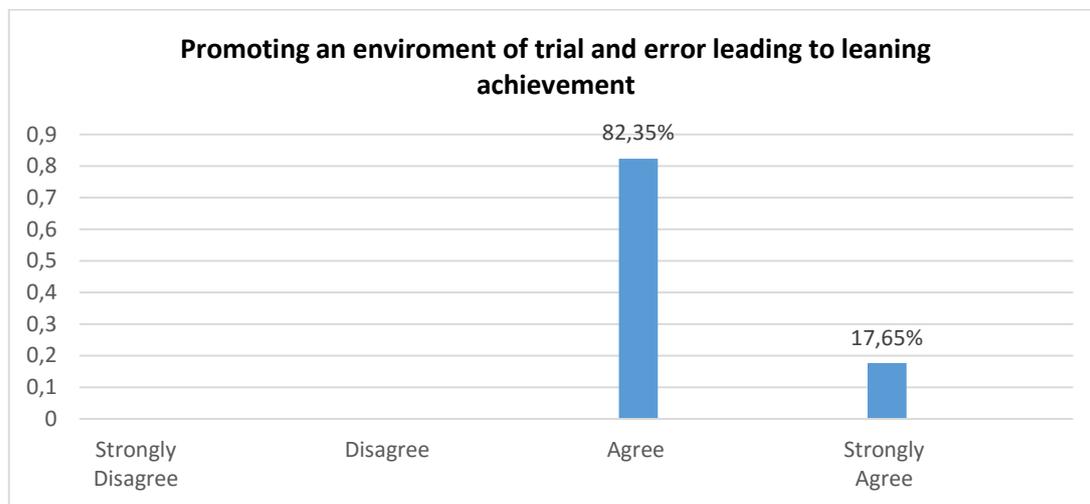
Figure 6.32: Promoting an environment of trial and error leading to learning achievement

Figure 6.32 shows that a majority of 82.35% of respondent agree that a having an environment of trial and error can lead to achievement of learning goals. A smaller percentage (17.65%) strongly agree that being given the opportunity to try new things in a safe environment of trial and error, leads to achievement of learning goals. These results shows that students with the E-portfolio environment have the opportunity to develop as learners through aspects such as the development of higher order thinking, critical thinking and critique and feedback from peers and lecturers (through trial and error) which ultimately leads to the successful achievement of learning goals.

Self-directed learning is defined it 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 human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975:15). Figure 6.33 illustrates the percent of students who were able to monitor their achievements and self-motivate through the course of E-portfolio development.
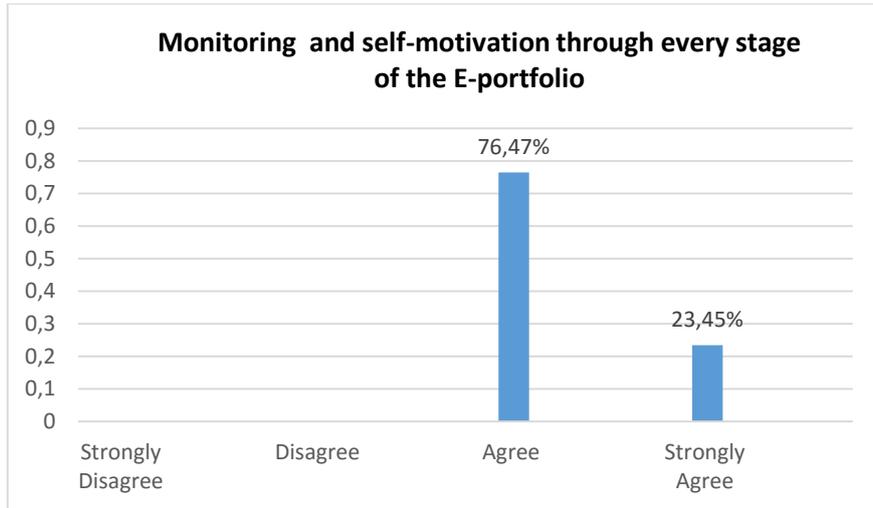
Figure 6.33: Monitoring and self-motivate through every stage of the E-portfolio

The above graph shows that 76.47% of respondents agree, with 23.45% of them strongly agreeing, that they were able to monitor their achievements throughout each stage of the E-portfolio development and in turn, remain motivated to achieve each of the learning goals.

Setting targets in order to achieve success in learning is a further characteristic of self-directed learning. Figure 6.34 illustrates the percentage of students who perceived that they were able to set targets through the alternative assessment programme.
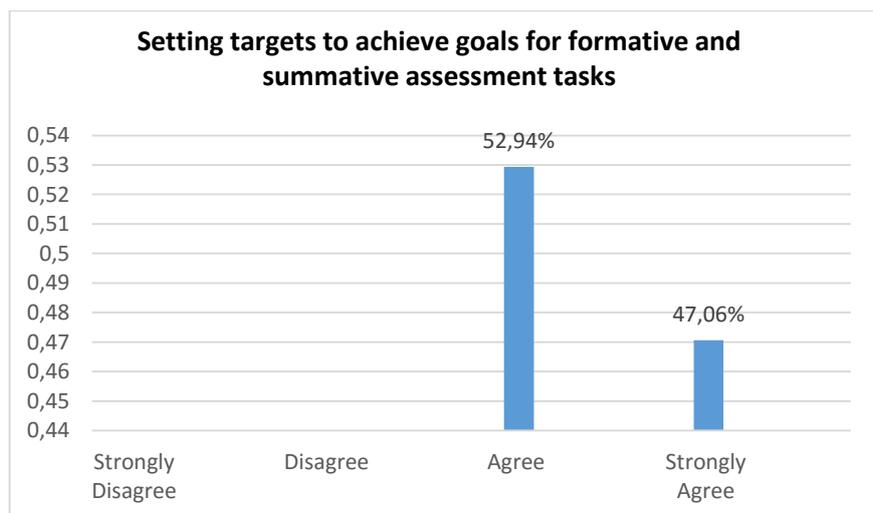
Figure 6.34 Setting targets to achieve goals for formative and summative assessment tasks

Some 52.94% of respondents admitted, with 47.06% strongly admitting, that they were capable of setting targets to achieve their learning goals for their formative assessments and summative assessment tasks.

Alternative assessments deliver many benefits to students, one of which is personal development. Figure 6.3528 presents students perceptions of the benefits gained through completion of the E-portfolio.

Benefits of assessment tasks through personal development from completing the E-portfolio

52,94%

47,06%

Strongly Disagree | Disagree | Agree | Strongly Agree
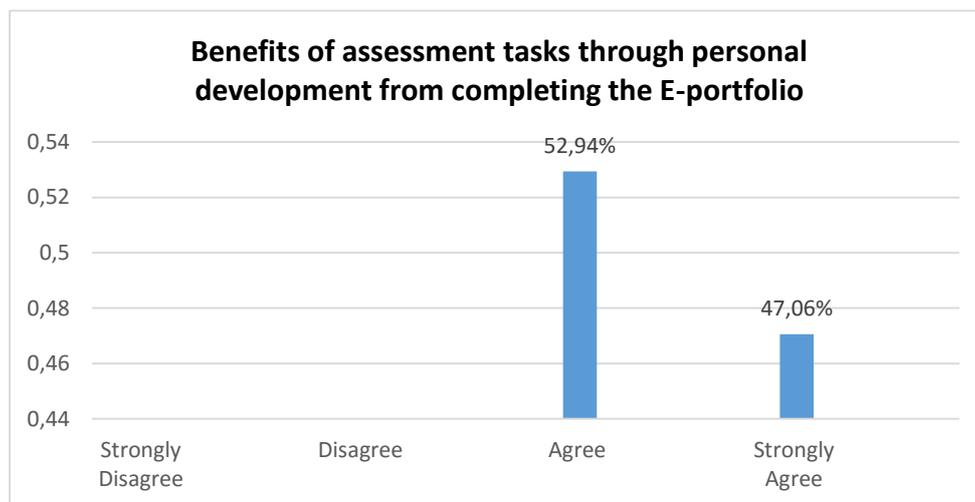
Figure 6.35: Benefits of assessment tasks through personal development from completing the E-portfolio

More than half (52.94%) the respondents admitted, with 47.06% of responders strongly admitting, that they can see how how the assessment tasks, in completion of their E-portfolios, have benefitted their personal development. It seems as if self-directed learning has provided students with the benefits of personal development.

Self-directed learning, as explained earlier, encourages students to take control of their learning to achieve success. Figure 6.36 presents the percentage of learners who reported taking control of their learning.
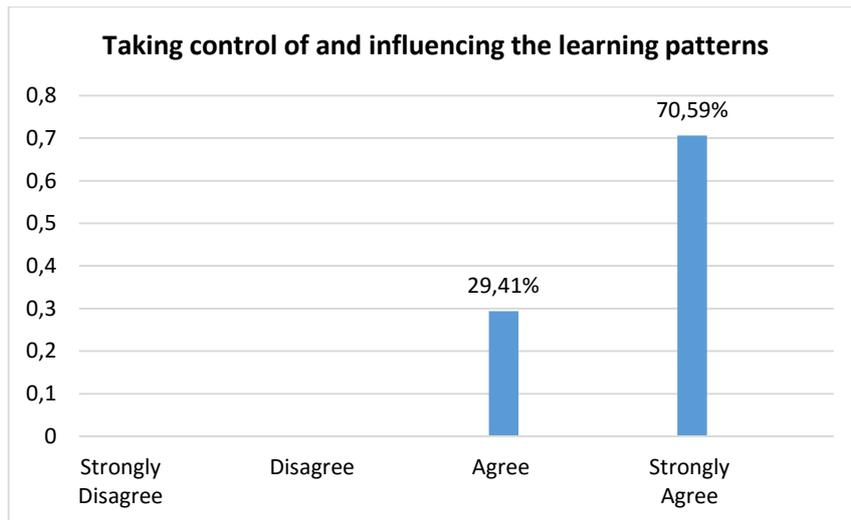
Figure 6.36: Taking control of and influencing the learning pattern

A large majority (70.59%) of respondents strongly agreed, with 29.41% of responders agreeing, that they were able to take control of and influence their learning patterns. The figures represented above clearly demonstrate that alternative assessment which requires self-directed learning, is affording students the opportunity to take control of their learning, which ultimately influence their learning.

The percentage of students, who felt that they took full ownership of their learning through producing quality evidence in the E-portfolio, is presented in the figure below.
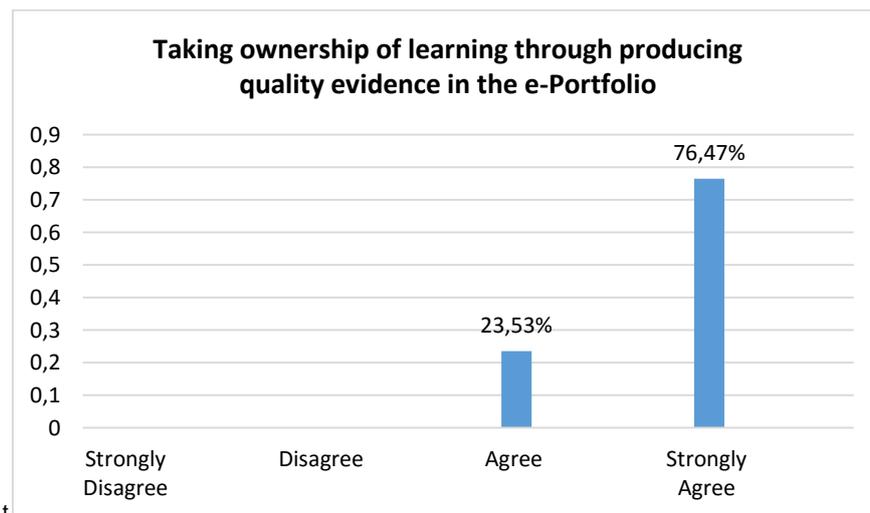
Figure 6.37: Taking ownership of learning through producing quality evidence in the E-portfolio

Figure 6.37 illustrates that over two-thirds (76.47%) of respondents strongly admitted, with 23.53% admitting that they had taken ownership of their learning through producing quality evidence in the E-portfolio,

Finally, Table 6.7 presents the results of the four-point Likert Scale, indicating student perceptions of whether during the creation of the E-portfolio; their higher self-directed skills were enhanced.

Table 6.7 E-portfolio enhances self-directed learning skills (SDLs)

| To what extend do you agree that the e-portfolio enhance your **self-directed learning skills.**	Four point Likert scale (Percentage %)				Descriptive Statistics	
	Strongly disagree	Disagree	Agree	Strongly agree	Mean scores	Standard Deviation
Q.1 I teach myself *how* to learn rather than *what* to learn	0%	11.76%	41.18%	47.06%	2.970	0.125
Q.2 I have the opportunity to teach myself the most essential skills (HOTS and critical thinking) to become a lifelong learner .	0%	0%	52.82%	41.18%	.3.300	0.269
Q.3 I learnt to apply different skills such as research skills, self-management skills, social skills and communication skills through compiling evidence .	0%	0%	47.06%	52.94%	3.308	0.262
Q.4 I usually have a clear idea of where I'm going and what is regarding expected of me regarding evidence in my e-Portfolio.	0%	11.76%	41.18%	47.06%	2.900	0.158
Q.5 I can collaborate and interact with my peers within and beyond the module.	0%	5.88%	52.94%	41.18%	3.378	0.289
Q. 6 I have developed confidence, perseverance, life satisfaction through the activities in the e-portfolio.	0%	0%	58.82%	41.18%	3.670	0.223
Q.7 I always try new things that promote environment of trial and error which leads to achievement of my learning goals.	0%	0%	82.35%	17.65%	3.146	0.214
Q.8 I always monitor and self-motivate what I have achieved in terms of learning at each stage in my e-Portfolio.	0%	0%	76.47%	17.65%	3.770	0.279

Q.9 I can set targets to achieve my goals for my formative assessments and summative assessment tasks .	0%	0%	52.94%	47.06 %	3.312	0.269
Q.10 I can see the benefits of my assessment tasks through personal development from completing my e-Portfolio.	0%	0%	52.94%	47.06 %	3.318	0.260
Q.11. I can take control of and influence my learning pattern	0%	0%	29.41%	70.59 %	3.411	0.231
Q.12. I take full ownership of my learning through producing quality evidence in my e-Portfolio.	0%	0%	23.53%	76.47 %	3.77	0.279

Table 6.7 shows that 82.35% respondents agreed that trying new things promoted in an environment of trial and error, led to achievement of learning goals. A majority of 76.47% of respondents admitted that in monitoring their achievement at each stage of the E-portfolio assessment, developed the ability to self-motivate and thus direct their own learning.

This section dealt with the development of self-directed learning and the results confirm that students are able take full ownership of their learning, set goals, monitor their learning and maintain self-motivation. They are willing to try out new things in an environment of trial and error, in order to produce quality evidence in their E-portfolio and achieve their learning goals.

6.8   INFERENTIAL STATISTICAL ANALYSIS ON E-PORTFOLIO AS AN ALTERNATIVE ASSESSMENT STRATEGY

Inferential statistics are "data analysis techniques for determining how likely it is that results obtained from a sample or samples are the same results that would have been obtained from the entire population" (Gay, Mills & Airasian, 2009; 326).

In this section, measurement of the statistical significant difference between students who were using E-portfolio in comparison with the three dimensions higher order thinking skills (HOTS), critical thinking skills (CTS) and self-directed learning (SDL) was computed.

6.8.1 Measuring the statistically significant difference between male and female students in relation to the three dimensions

The mean scores and statistical significance between male and female students relating to higher order thinking skills (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLs) were computed. The hypothesis which was tested is as follows:

Ho: There is no statistically significance difference between male student and female student responses regarding of HOTS, CTS and SDLs on E-portfolios as alternative assessment

H_1: There is a statistically significant difference between male and female student responses regarding of HOTS, CTS and SDLS in E-portfolios as alternative assessment.

Table 6.8: Mean differences between male and female student responses in relation to HOTS, CTS and SDL

Measuring three dimensions in relation to male and female student responses Ts	Group	N	Mean	SD	SE Mean
Higher Order Thinking Skills HOTS	Male	16	3.320	8.6267	.8897
	Female	40	3.715	5.5873	.6631
Critical Thinking Skills CTS	Male	16	3.631	9.3659	.9660
	Female	40	3.934	7.2246	.3827
Self-Directed Learning Skills SDLS	Male	16	3.704	9.2537	.9544
	Female	40	3.078	6.3901	.7583

The information in Table 6.8 reflects the mean score and standard deviation score differences between female and male student responses. The statistics show that female students seemed to perform better than male students in relation to CTS (mean=3.934; SD=7.2246) and HOTS (mean=3.715; SD=5.5873). Overall students

perfomed better on average, but females students better understand their roles and responsibilities for planning, implementing and designing evidence in the E-Portfolio compare to those of male students. Lastly, the role and responsibilities regarding SDLs implement by students indicated that male students (mean=3.704; SD=9.2537) perceive that they are more self-directed in their learning in comparison to female students. The assumptions were tested for students to identify whether there was an equal or unequal variances in the three dimensions. To compare the sample, a paired independent sample t-test was computed on the three dimensions regarding the roles and responsibilities of the students for producing quality evidence for their E-portfolios (Table 6.9).

Table 6.9: Paired sample test on three dimensions regarding E-portfolio as an alternative assessment strategy towards self-directed learning for (HOTS, CTS and SDL

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | | | | | | | | 95% Confidence Interval of the Difference | |
		F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
HOTS	Equal variances assumed	3.447	.065	-3.363	163	.001	-3.95	1.175	-6.27	-1.63
	Equal variances not assumed			-3.562	159.588	.000	-3.95	1.109	-6.14	-1.76
CTS	Equal variances assumed	33.914	.000	-2.610	163	.010	-3.029	1.161	-5.32	-.73
	Equal variances not assumed			-2.916	120.537	.004	-3.029	1.039	-5.08	-.97
SDLs	Equal variances assumed	6.525	.012	-2.913	163	.004	-3.732	1.281	-6.26	-1.20
	Equal variances not assumed			-3.061	161.810	.003	-3.732	1.219	-6.14	-1.32
Total	Equal variances assumed	11.008	.001	-4.031	163	.000	-13.68	3.393	-20.37	-6.97
	Equal variances not assumed			-4.402	140.816	.000	-13.676	3.107	-19.82	-7.53

Sig. p ≤ 0.05

Based on the results in Table 6.9, regarding the paired sample t-test which reflects the overall scores of the HOTS, CTS and the SDLS of the sampled students is statistically significant (t=-4.402, df=140.816, 2-tailed (p=0.000). The null hypothesis is rejected but the alternative hypothesis is accepted because there is a statistically significant difference in the results between male and female student responses regarding of HOTS, CTS and SDLS in E-portfolios as alternative assessment.

6.8.2 Pearson correlation coefficient on three dimensions (HOTS, CTS and SDLs) in the E-portfolio

In Table 6.10, the Pearson's Product Moment correlation coefficient (r >.001 level) on three dimensions of the role of students regarding the E-portfolio were computed. The Pearson's product moment correlation, a statistically significant correlation measurement was employed to determine whether there are statistically significant correlations between the HOTS, the CTS and SDLS.

Table 6.10: Pearson correlations on three dimensions (HOTS, CTS & SDLs) of E-portfolio as alternative assessment strategy

		HOTS	CTS	SDL
HOTS Higher order thinking skills	Pearson Correlation	1	0.753	0.685
	Sig. (2-tailed)		.000	.000
	Sum of Squares and Cross-products	9738.448	7146.794	7209.37
	Covariance	59.381	43.578	43.960
	N	56	56	56
CTS Critical Thinking skills	Pearson Correlation	0.753	1	0.729
	Sig. (2-tailed)	.000		.000
	Sum of Squares and Cross-products	7146.794	9257.176	7484.50
	Covariance	43.578	56.446	45.637
	N	56	56	56
SDLs Self-directed learning skills	Pearson Correlation	1	0.729	0.685
	Sig. (2-tailed)	.000	.000	
	Sum of Squares and Cross-products	7209.376	7484.503	11385.61
	Covariance	43.960	45.637	69.424
	N	56	56	56

Sig. r< .001

Using the Pearson's product moment correlation measurement, a statistically significant correlation was found on the E-portfolio as an alternative assessment approach toward critical thinking skills (CTS) r = 0.729, ρ=.000) and self-directed learning skills (SDLs) (r = 0.685; p=.000). Furthermore, CTS is statistically significant to the E-portfolio (r = 0.753, p=.000) which correlated with CTS (r = 0.753; p=.000). Lastly, the dimension, CTS is statistically significant correlated with HOTS (r = 0.685, p=.000) and SDLs (r = 0.729; p=.000). In sum, there is a correlation between the three dimensions, which influenced the student self-directed learning in the E-portfolio as alternative assessment approach.

6.8.3   Analysis of Variances (ANOVA) on Year of Study of students in relation to HOTS, CTS and SDLS in the E-portfolio

The ANOVA computed the statistical significance of Year of Study of students in relation to the three dimensions in E-portfolio. The following hypothesis was formulated:

> Ho :There is no difference in Year of Study of students in relation
> to the dimensions of HOTS, CTS and SDLS in the E-portfolio.
> H_1 : There is a statistically significant difference in Year of Study of
> students in relation to the dimensions of HOTS, CTS and SDLS
> in the E-portfolio.

ANOVA was used to explore the differences between Year of Study in respective of students in the colleges was computed. This means that the ANOVA was used as a statistical method to compute the difference between students registered in the module as per Year of Study (McMillan & Schumacher, 2006). This measurement outcome reflects the perceptions of students in the E-portfolio modules

Table 6.11: ANOVA: Year of Study of students (n=56)

			Sum of Squares	Df	Mean Square	F	Sig.
HOTS	Main Effects	Year of Study	1255.721	9	132.858	**3.807**	**.000**[*]
	Model			1255.721	9	132.858	3.807
	Residual			3182.727	55	46.985	
	Total			5238.448	64	59.381	
CTS	Main Effects	Year of Study	1902.202	9	111.318	**2.405**	**.000**[*]
	Model			1902.202	9	111.318	2.405
	Residual			4354.594	55	47.449	
	Total			6257.176	64	56.446	
SDLS	Main Effects	Year of Study	1472.020	9	263.626	**2.214**	**.000**[*]
	Model			2372.632	9	263.626	2.214
	Residual			7012.980	55	58.148	
	Total			9385.612	64	69.424	
Total	Main Effects	Year of Study	20263.142	9	2018.205	**5.109**	**.000**[*]
	Model			20263.142	9	2018.205	5.109
	Residual			43188.970	55	368.961	
	Total			63452.812	64	508.859	

Sig. p < 0.05

In the Table 6.10, the effect size of the three dimensions was calculated. The one-way ANOVA was calculated for statistically significant difference in relation to HOTS (**$F=3.807$; Sig. 0.000**), CTS (**$F=2.405$; Sig. 0.000**), and SDLS (*$F=2.214$; Sig. 0.000*) of students making use of E-portfolios. The overall difference in the three dimensions indicated a *statistically significant* (**$F=5.109$; Sig. 0.000**, *i.e. $p<0.05$*) relationship in the student responses in the E-portfolio. The null hypothesis is rejected but the alternative hypothesis is accepted because there is a statistically significant difference in the Year of Study of students in relation to the dimensions of HOTS, CTS and SDLS in the E-portfolio.

6.8.4   Module registration of students per college

This study computed the statistical significance in Module Registration of students in responses to the three dimensions in the E-portfolio by formulating the following hypothesis:

Ho :   There is no statistically significant difference in Module
Registration of students in the three dimensions in responses in the
E-portfolio.

H_1 :   There is a statistically significant difference in Module
Registration of students in the three dimensions in responses in the
E-portfolio.

The ANOVA regarding the effect size and statistical significance in **Module
Registration of students** in the three dimensions in responses in the E-portfolio was
computed as indicated in Table 6.11

Table 6.11: ANOVA: Module registration for E-portfolio (n=56)

			Sum of Squares	Df	Mean Square	F	Sig.
HOTS	Main Effects	Module Reg	577.197	3	259.066	30.254	0.0000
	Model		577.197	3	259.066	**3.254**	**0.000**
	Residual		7961.251	69	55.660		
	Total		8538.448	172	59.381		
CTS	Main Effects	Module Reg	382.891		127.630	24.10.	0.0003
	Model		382.891	3	127.630	**2.4101**	**0.003**
	Residual		7874.285	69	55.120		
	Total		8257.176	172	56.446		
SDLS	Main Effects	Module Reg	707.901	3	235.967	20.258	0.0006
	Model		707.901	3	235.967	**2.258**	**0.006**
	Residual		10677.711	69	66.321		
	Total		11385.612	172	69.424		
Total	Main Effects	Module Reg	5039.615	3	2113.205	40.112	0.0002
	Model		5039.615	3	2113.205	**4.112**	**0.002**
	Residual		62113.197	69	478.964		
	Tota		72452.812	172	508.859		

Sig. p < 0.05

In Table 6.11 the effect sizes of the three dimensions regarding the one-way analysis
of variances (ANOVA) was calculated for statistically significant difference in relation
to HOTS (*F=3.254; Sig. 0.004*), CTS (*F=2.410; Sig. 0.003*), and SDLS (*F=2.258; Sig.
0.006*) of students registered in the various modules as per college. The overall
difference in Module Registration of students in the three dimensions in responses in

the E-Portfolio computed a *highly statistically significant* (*F=4.112; Sig. 0.002, i.e. p<0.05*) strong relationship. The null hypothesis is rejected but the alternative hypothesis is accepted because there is a statistically significant difference in the Module Registration of students in the three dimensions in responses in the E-portfolio.

6.9 CHALLENGES EXPERIENCED BY STUDENTS WHEN COMPILING EVIDENCE FOR THE E-PORTFOLIO

The last part of the questionnaire investigated issues and challenges students faced when developing their E-portfolio for assessment. In this section, there has been reflection on the themes emerging from the interviews and documents analysis that have been developed, based on participant responses. The implication is that the development of these themes has been influenced by the need to answer the research questions.

Table 6.12: Summary of challenges students experienced when compiling evidence for their E-portfolio

Themes	Extracts from student responses
6.4.1 Lack digital literacy skills	➢ Using the technology was a bit challenging because it is costly for the student. ➢ Not being familiar with technology is difficult. ➢ Searching and listening to a video clip in an internet cafe and be expected to answer some questions was not a good idea
6.4.2 Poor Network connectivity/lack of technical assistance	➢ Poor Internet connection ➢ Network problems ➢ Some material for referral e.g. videos in the links provided was not available ➢ myUnisa downtime ➢ Working in the rural areas where there are no internet cafes you have to go to town so that you can be helped. ➢ Internet access which is expensive
6.4.3 Time Management (process takes a lot of time)	➢ They are time consuming ➢ Requires more time ➢ It takes too long to complete a portfolio ➢ Need more time to complete activities

6.4.4 Challenges of working in a group work	➢ Difficult to do group work activities ➢ Working in groups whereby time frame is determined by the extent of commitment to the group ➢ Other students not making time to complete group activities
6.4.6 Student support	➢ Needing peer support and contribution ➢ Lack of support ➢ Need assistance when working on portfolios
6.4.7 Difficulty understanding the guidelines of the E-portfolio outlined	➢ At first, you do not know where to start and you have to read and read so as to understand. ➢ Finding the information needed is not as simple as possible ➢ Certain questions are not clear on what evidence we should provide ➢ Some instructions are not clear ➢ Some of the questions asked where ambiguous with no straight answer left wondering if what you provided was the correct answer
6.4.8 Mahara	➢ Mahara was new to me and the version outdated according to the online guide we were referred to.

As part of the open-ended questions, students indicated the following issues that highlighted: Lack of digital literacy, need for students support, poor network connectivity/lack of technical assistance, Difficulty understanding the guidelines of the E-portfolio outlined and Mahara as challenges their experienced during their. These challenges were also highlighted by the lecturers during the interviews. The results demonstrated that despite the benefits of the E-portfolio as an alternative assessment, students are faced with a number of challenges in successfully designing and completing their E-portfolios.

6.10   CONCLUDING REMARKS

In this section, the study reflected on student issues (as respondents) and their experience in the use of E-portfolio as an alternative assessment approach towards self-directed learning. Further, there has been reflection on issues and challenges related to development and design of E-portfolio for assessment to gain insight into the extent to which respondents experience this in an ODL environment. For this reason, and wherever possible, reference has been done to show integration between the quantitative and qualitative components of the study.

6.11 CHAPTER CONCLUSION

This chapter presented data collected from multiple sources, which included and semi-interviews with primary lecturers, document analysis and online questionnaire sent to student in an attempt to answer the study's research questions. During Phase one, data from semi-structured interviews were coded and analysed to determine primary lecturer experience regarding E-portfolio use an alternative assessment. Overwhelmingly, the lecturers pointed out the benefits of using E-portfolio as alternative assessment; however, they revealed that they experienced some challenges in the process of its implementation. Most of the lecturers view the mandated assessment process as advantageous to their students; however, they cited some challenges that hinder them from time to time in the process of E-portfolio use. In Phase two, the researcher determined student learning and developmental experiences in using the E-portfolio as an alternative approach using the online questionnaire. Finally, after the two phases were completed, data from both the qualitative and quantitative sources were integrated and analysed to examine lecturer and student experience in the use of E-portfolio as alternative assessment approach towards self-directed learning.

The next chapter deals with the summary, discussion of findings and recommendations

CHAPTER 7

SUMMARY, DISCUSSION OF STUDY FINDINGS, LIMITATIONS, AVENUES FOR FURTHER RESEARCH AND RECOMMENDATIONS

7.1   INTRODUCTION

The primary aim of this study was to develop an E-portfolio assessment framework for an ODL university. The study was undertaken through a scoping review as well as empirical research. The findings and recommendations are made taking into account the scoping review, the findings of the research and personal experiences of assessment, alternative assessment and particularly the use of E-portfolio. In this chapter, a summary and discussion of the research findings is given. The findings are discussed in line with research objectives as outlined in Chapter 1, as well as referring to the literature review in Chapter 2, and in addition, recommendations are offered.

7.2   THE MAIN RESEARCH QUESTION AND SUB RESEARCH QUESTIONS

7.2.1   Main Research Question

This research study seeks to answer the following main research question: ***How can a framework be designed to guide lecturers on how to assess the E-portfolio as an alternative assessment tool in an ODL context?***

7.2.2   Research Sub-questions

The following sub-questions derived from the main research question were addressed:

- How do lecturers experience the use of the E-portfolio as an alternative assessment strategy in an ODL context?
- How do students experience the use of the E-portfolio as an alternative assessment strategy towards self-directed learning?
- How does the E-portfolio, as an alternative assessment approach, support student learning in an ODL environment?

- How does the E-portfolio equip students with higher order thinking (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLS) in an ODL environment?

7.3   SUMMARY OF CHAPTERS

Chapter 1 introduced the study, background, rationale, problem statement, aims and research objectives and the research questions that guided the study, the research methodology, the significance of the study, trustworthiness of quality study, validity and reliability of the study, ethical considerations, and definitions of concepts are described. As a conclusion to the chapter, the content outlines for the remaining chapters were explained.

Chapter 2 explored an integrated theoretical framework that provided a perspective or lens through which the study was examined. This scoping review served the purpose of reviewing literature on learning theories and ODL theories underpinning the use of E-portfolios as alternative assessment approach to enhance self-directed learning. The reviews identified the existing gaps in the field, thereby, ensuring the relevance, importance and usefulness of grounding the phenomenon under investigation. The learning theories discussed included Behaviourist, Cognitivist, and Social Constructivist; while the ODL theories were infused, including Online Collaboration, Connectivism and Self-Directed Learning as the focal points.

Chapter 3 provided a scoping review based on terms, concepts, and attributes associated with assessment in general, forms of assessment and types of alternative assessment practices in ODL. This scoping review was used to synthesise research evidence with reference to the literature based on assessment in higher education. To identify research gaps in the existing scoping review was conducted then conclusions were drawn from existing literature regarding the overall state of assessment and alternative assessment.

Chapter 4 reviewed the literature on E-portfolio as an alternative assessment strategy that forms part of e-assessment and is employed in an ODL environment. A scoping review was used to synthesise research evidence. The research gaps were identified

and conclusions from existing literature regarding the overall state of E-portfolio were drawn.

Chapter 5 outlined the exploratory sequential mixed research design and methodology with specific data collection instruments, validation and ethical considerations that were used to investigate lecturer and student views on E-portfolio use specifically. The research approach, design, instruments, sampling procedures as well as the data collection and analysis methods were then discussed. In the research design, the focus on the preparation of the empirical investigation was given by means of seeking permission to conduct research within UNISA, selecting respondents and using research instruments comprised of interviews, document analysis and online questionnaires, for the collection, recording and analysis of data. Interviewees were reassured that confidentiality and anonymity would be adhered to throughout the study.

Chapter 6 presented the data collected through the interviews, document analysis and online questionnaires as reflected in Chapter 5. This chapter provided an analysis and interpretation of the results from the qualitative and quantitative data that had been collected and collated from the field. Reports on the results of the study in the form of themes and sub-themes that emerged from the interviews conducted with lecturers and document analysis for the qualitaive phase, while the results of quantitative phase from an online questonnaires completed by students from the three colleges, were presented.

Chapter 7 offers a summary of the study's findings, recommendations, implications, limitations, and reflection of the thesis as a whole, including its original purpose and the extent to which the study has answered the research questions. The findings of this study are discussed in respect of the research questions and research outcomes put forward in Chapter 1. Finally, the chapter provides the conclusions of the study as a whole.

Chapter 8 drew the study's findings, recommendations and implications together by establishing, designing and developing a proposed E-portfolio framework for an ODL

university. This framework is based on the literature study, the researcher's personal experience as a lecturer, and the empirical research conducted by means of this study.

7.4   DISCUSSION OF FINDINGS

The main research question for this study, as indicated in Chapter 1, concerned **the designing of *a framework to guide lecturers on how to assess the E-portfolio as an alternative assessment tool in an ODL context.***

To answer this main research question, the study drew from the literature review (Chapters 2, 3 and 4), study findings (Chapter 6) recommendations (Chapter 7) and the researcher's work related experience to the design of an E-portfolio framework for an ODL university context. The section below sets out the findings by addressing each sub-question.

7.4.1   Findings with regard to the first sub-question and aim of the study:

How do lecturers experience the use of the E-portfolio as an alternative assessment strategy in an ODL context?

During the first stage of qualitative data analysis process, six lecturers were interviewed and shared their experiences of using the E-portfolio as an alternative assessment approach. Findings revealed that the interviewees were positive and embraced the change that the E-portfolio tool brought to their modules.

Lecturers pointed out that in comparison to venue-based examinations, using E-portfolio, has more benefits than traditional assessment such as authentic learning as the E-portfolio allows students to be creative, think deeply and collaborate through extended use of technology. Authentic learning embraces the development of those 21st century skills vital for success in the workplace and society. The E-portfolio, as an alternative assessment, allows students to work as individuals or groups, is student-centered and ensures problem-based in line with learning outcomes and the current UNISA Assessment Policy. In E-portfolio use, feedback to students is not only reliant

on lecturers but is expanded to include self and peer assessment, which provides students with information on their learning.

From the findings of the study, it i appears that the move to an alternative assessment such as the E-portfolio has been beneficial as the results, where assessment is continuous, authentic and creative, have had a positive effect on student learning. As such, it seems that lectures would like to continue using the E-portfolio as a way of assessing their students, seeing this alternative assessment as one of value in enhancing student learning.

The majority (89%) of lecturers was positive about the alternative assessment approach and took a conscious decision to embrace and implement it embracing the Senate decision to implement the mandate of exploring E-portfolio use in their modules. They saw the opportunity to expand the alternative assessment approach by creating learning opportunities for the students in their respective modules. Nevertheless, certain lecturers who experienced challenges, decided to revert to a traditional assessment approach. Some lecturers faced challenges such as lacking the required digital literacy skills and confidence to execute their responsibilities using the E-portfolio in the module (*cf.*6.3.1.4).

Lecturers who continued with E-portfolio use expressed the fact that greater understanding of the use and purpose of the E-portfolio in their modules has been developed (*cf.* 6.3.1 sub-theme 1.1). One interviewee noted that artefacts included in the E-portfolios were creative and innovative and demonstrated student learning based on the learning outcomes and set standards. This interviewee's sentiment is captured in relation to the progress report of the Review and Reconfiguration of the Unisa Assessment System and Practices, Senate Report (UNISA, 2015). The report reported that despite the many challenges related to the alternative assessments conducted since its commencement in 2013, the E-portfolio has shown a significant improvement in its purpose, understanding and use. In the vast majority of cases, students were positive and handled the assessment plan and submissions well, despite sometimes being challenged by the Mahara E-portfolio site. Since its inception, the E-portfolio is still the most used alternative assessment approach in the university mainly in the undergraduate modules. Currently the E-portfolio assessment

tool is organised around the best pieces of work in which students are expected to expose clear understanding of learning outcomes, goals, and objectives intended in the module content that demonstrate effective and lifelong learning. In view of this report, lecturers understand why they use and purpose of E-portfolio as an assessment tool. Student learning is gradually improving with every semester or year of E-portfolio use and as a result, one can conclude that both lecturers and students welcome the initiative of E-portfolio as alternative assessment approach, with the same sentiments. It is heartening to see that there are lecturers who have stayed the course being innovative and resourceful in E-portfolio use as well as identifying and overcoming. Most importantly, students are doing their best to improve the learning. Furthermore, numerous scholars spelled out that the E-portfolio can serve different purposes in education mainly for student development to instil values of lifelong learning, self-directed learning and professional development in their different professions. An E-portfolio can primarily focus on personal learning environments that place emphasis on reflective practice for students (Oakley, Pegrum & Johnston, 2014). In addition, an E-portfolio is able to track student development and connections over time, across courses and programmes to instil values of lifelong learning, self-directed learning and professional development (Ahmad, Karim & Daud, 2015). The E-portfolio supports the process of learning through reflection, discussion and formative and summative assessment (Goulding, Bloomfiel & Reimann, 2015; Whitelock, 2011). Finally, the E-portfolio provides students with constructive feedback of their learning activities every step of the way (Ehlers, 2016).

Therefore, a properly designed E-portfolio can facilitate active student engagement, guidance and support, collaboration and reflection on their learning, which leads to enhanced awareness of their own learning needs (Yang, Tai & Lim, 2016). In this regard, E-portfolios are regarded for their effectiveness and efficient use as teaching, learning and assessment tools promoting lifelong student learning and self-directed learning. Therefore, using E-portfolios for enhancement of student learning serves different purposes that benefit learning growth. One would argue that these findings are essential for lecturers to understand the purpose of using E-portfolio as an assessment strategy in order to design relevant assessment tasks and provide guidance to students.

However, despite the positive feedback from lecturers about their experiences of E-portfolios use, some experienced challenges. Some interviewees indicated that they were not appropriately empowered with **digital literacy skills** were challenged when navigating the E-portfolio site or assessing tasks throughout the modules (*cf.* 6.3.1.4 sub-theme 4.1). **Lack of digital literacy competence** was a hindrance, as lecturers found difficulty in applying technology skills to assess student evidence in the E-portfolios, particularly the final summative assessment submissions (*cf.* sub-theme 4.1)**.** This study emphasises the importance of digital literacy not only to students (the millennials) but also to the lecturers who need to keep up with developing trends in technology and 21st century skills, which incorporate technology. However, although lecturers did attend training on the E-portfolio, some lecturers took over modules without having had training, which made the process challenging.

Initial training on new technology is crucial in order to ensure the smooth running of the module using the relevant technology. Although initial training was given to lecturers who elected to include E-portfolio as an alternative assessment, and some lecturers who took over modules from lecturers who had left, mentioned that they had never attended **training.** This means that at times lecturers were given E-portfolio modules to teach without **full training** on using E-portfolio for teaching; learning and assessment with the assumption that they are digitally literate (*cf. 6.4.4.).* Based on the findings, this study sheds further light on the significance of lecturers not being sufficiently trained concerning E-portfolio use. One would argue that it is early days to be expecting good progress since alternative assessment is new in the university. However, I find it important that training of lecturers, old and new, should be compulsory and on a continuous process. This recommendation is supported by Chau and Cheng (2010) who argue that in order for effective independent learning with E-portfolios to take place, lecturers and students need to be technologically competent.

Technical assistance was also identified as an issue experienced by lecturers. It was noted in the interviews that lecturers had little support from the ICT department in terms of technology when trying to access the E-portfolio and that this lack of support was a constraint that hindered the implementation of E-portfolios use. Hui (2017:205) reinforce the importance of having support from support departments such as ICT. The authors considered it key to the success of the programme in that on-going

technical support of lecturers on E-portfolios use will yield good results. In the researcher's view the ICT department role is to offer support and guidance, thus working hand-in-hand with lecturers is crucial

Barrett's (2010) study showed that **lack of technology availability**, and not lack of technical skills, was a constraint in using E-portfolios. In this study, the interviewees noted that poor technical skills and lack of technical assistance from ICT hindered the use of E-portfolios but also challenges with software arose. Participants shared their experiences in using learning management system (LMS MyUnisa), which is neither synchronised nor site interactive. Among the various learning management systems, UNISA chose to use the **Mahara E-portfolio** as its LMS. However, the data revealed that using Mahara E-portfolios as a learning management system is challenging, which impacted the fruitful purpose of Mahara use E-portfolios. Notably the interviewees emphasised the difficulty of noncompliance and non-synchronisation. Therefore, some lecturers reported that students could not work on the E-portfolio site, which created confusion resulting in some lecturers needing to find alternate ways of ensuring that students could access assessment tasks. Some

reverted to printed portfolios while others found alternate ways for submission like drop boxes for students to submit their portfolios (*cf.*6. 3.1). Interviewees reported that they had no options but to use other means to access student portfolios for assessment. In this regard, scholars like Hallam and Creagh (2010) argue that Mahara was designed primarily as a learning tool owned by students, and allowing them to upload multimedia files, which can be incorporated as artefacts in any internal page while they can be shared with other individuals, groups or communities. The author's further point out that the main features of adopting Mahara as a lifelong learning and developmental tool is that of accessibility, ownership, interoperability and transferability. Additionally, the Mahara E-portfolio can be a collaborative and communication tool included to support peer discussions and provide an efficient environment, which promotes collaboration, self-regulation, peer and self-assessment, and support personal development *(cf.*4.5.1). This aligns itself with the UNISA Assessment Policy, which encourages assessment that should be valid or fit for purpose. In this regard, assessment practices will enhance student learning holistically. The participants emphasised that the E-portfolio site is not interactive, and seemed to differ from the

one they used when they were training on the use of the Mahara E-portfolio (cf. 6.3.1.4 sub-theme 4.2).

A further challenge experienced by the lecturers was that of being **effective assessors.** The assessment policy of the institution should guide them; however, the UNISA Assessment Policy, dealing with policy and procedures of assessment, does not make provision for online assessment. To support this claim, a lecturer highlighted that the assessment policy is not specific to online assessment and does not provide guidelines on how to go about assessing online. In view of the latter, this limitation in the assessment policy creates a sense of inconsistency, unfairness and lack of transparency in assessing student work. Notably, these limitations influenced by the principles of assessment and quality assurance practices.

In summation, interviewed lecturers report that there is a general acceptance of the E-portfolio as an assessment tool but feel that the challenges experienced hinder the progress. Hence, some lecturers reverted to the traditional assessment or printed hard copy portfolios.

7.4.2 Findings with regard to the second sub-research question and aim of the study

How do students experience the use of the E-portfolio as an alternative assessment strategy towards self-directed learning?

The **online learning environment** provides students with the opportunity to develop competencies in a real-world situation (Strydom & Barnard, 2015). The use of the E-portfolio as an alternative assessment strategy towards self-directed learning in an ODL is dependent on a number of factors. Lecturers should understand the digital skills necessary for the development of an E-portfolio and thus ensure that students are equipped with the relevant **digital skills** to fully make use of all the potential benefits of an online platform and its associated technical functionalities. This will instil digital literacies, a vital 21st century skill, that can be applied beyond graduation. Digital literacy skill is a requirement in online learning (Tai, Zhang, Wang & Wang, 2016; Shopova, 2014; Bull & Gilbert, 2012), and it is thus crucial that students are

empowered with digital literacy to apply their functions to network, collaborate with others (Garci *et al.,* 2013:253).

It is assumed that students attending higher education have sophisticated technological skills and have access to a variety of tools (Kennedy, Judd, Churchward, Gray & Krause, 2008). However, in this study it is evident that differences are observed in the digital literacy levels of many students (Ng, 2012). Students are able to use the Internet and Web 2.0 technologies tools for social media, with applications such as Facebook, Twitter, Instagram, and WhatsApp. These apps can be used as educational learning tools. It is worth noting that 35.29% of respondents agreed that they can connect and communicate with their peers and lecturers using social media platform (Facebook, WhatsApp, WeChat) on issues relating to my E-portfolio, with 41.18 % strongly agreeing. Some students, however, do not use social media for education purpose (cf.6.6.2 sub-theme 1.4; 4.2, table 6.6 question 12, figure 6.5).

A female lecturer confirmed that some students are **digitally illiterate**, "…*most of them will tell you they are computer illiterate* …" (MM01) but some have little or no skills "*there were some illiterate* …" (MM01). Constructivism underpins this study and as such, during the course of the module students are compelled and assisted to develop the appropriate technical skills in order to facilitate their learning … *this portfolio activity forces them to become computer literate* …" (MM01).

Learning on an online platform, taps into the theory of **connectivism**, through online networking and **collaboration**. Students connect and collaborate amongst each other anywhere and at any time with network facilities and resources. In an ODL environment, acccess to technology assists in bridging the gap between time, space and distance between students and students, as well as lecturers and students, ensuring connectivism to promote wider student activity and involvement in learning. Collaborative learning theories emphasise connectivity and online collaboration respectively. Online collaboration is the computer-mediated version of traditional in-class collaborative learning, incorporating the possibility and accessibility of multilevel interaction, resource sharing and higher order thinking activities (Oliveira, Tinoca & Pereira, 2011). In an ODL environment, online collaboration is crucial as it exposes students to their peers and other relevant connections for their study. Therefore, lack

of digital literacies makes the students unable to operate effectively in the online platform for the development of the E-portfolio (*cf.*6.31.4, Sub-theme 4.1: table 6.12).

In essence, the E-portfolio and its associated benefits affords students the opportunity to become the owners, creators and administrators, providing agency to the student and contributing to the notion of student-centred and self-directed learning (Van Staden, 2016). In view of the latter, this could be of optimal value if students understand the pedagogical value of such an intervention, in developing those critical 21st century skills.

During the quantitative phase, students were requested to complete an online questionnaire related to experiences regarding the use of E-portfolios as an alternative assessment, focusing on the acquisition and development of HOTS, CTS and SDL. Assessment plays a key role in student learning, it is therefore vital that it is conducted properly and fits the purpose. The literature on the benefits of using E-portfolios in higher education is extensive. Such assessments are applicable in ODL, and are aimed at enhancing learning through authentic, reflective and sustainable assessment practices (Yastibas & Cepik, 2015).

Authentic assessment is imperative in equipping students in dealing with real-life situations. In these contexts, students are acquiring and developing a variety of 21st century skills for their professional development using real-life situations. In order for assessment to be successful, lecturers have to design assessment tasks that will assess theory through practice. Constructivism was the lens for this study, particularly social constructivism which works towards developing confidence and respect for others, encouraging etiquette and social skills among students. in the theory of constructivism suggests that assessment is not only based on tests but also on student observations, student work and points of view following the notion that knowledge is constructed through observations, reflection and interaction with the surrounding environment in terms of their peers, lecturers or technology. This knowledge and skill is transferable and can be applied in various situations and contexts. Findings shows that, 52.94% of respondents strongly agreed that they could apply knowledge and skills acquired throughout their learning when developing their E-portfolio for assessment, with 47.05% agreeing that they are able to apply knowledge and skills

acquired. This shows a significant number of students indicating that the use of E-portfolio, as an alternative yet authentic assessment, equips them with skills that they can apply in other situations. Document analysis of student E-portfolios illustrated that assessment tasks relate to real-life situations (*cf.* 4.5.3.3). Yastibas and Yastibas (2015) argue that E-portfolios provide authentic assessment methods focusing on life situations. The E-portfolio used in ODL exposes students to learning that empowers them with skills. Furthermore, the researchers' view is that assessment brings in performance-based assessment depicting real-life situations, which encourages professional development of students.

Professional development also involves the ability to offer critique, but not of only others, but oneself. Jimoyiannis (2012) and van Wyk (2017) contend that students are provided with the opportunity to **self-assess** their work, taking into consideration how they are meeting the outcomes or particular standards.

Reflective practices are essential as this engages the students in thinking or reflecting on their learning in their reflective journals *(cf.* Table 6.4). This affords students the opportunity to reflect on the knowledge, skills and values developed throughout the learning processes. Rowntree (2015) argues that reflective practices in any assessments should increase the opportunities for self-assessment and self-reflection. As the literature explains, reflective practice affords students the opportunity to make direct links between the theories they are being taught and the practice of teaching in their professional careers (Ellis*,* 2017). As a result, E-portfolios use has emerged as a way for students to record and present their learning for both assessment and future employment opportunities (Moran, Vozzo, Reid, Pietsch & Hatton, 2013).

In Table 6.6 question 7, in the online questionnaire of the study's questionnaire requires a response from students on: *I can engage in reflective practices through analysing and critiquing evidence produced in my portfolio*. Student perceptions are that they can engage in **reflective practices** with their E-portfolios with 47.06% strongly agreeing and 52.94% agreeing that in developing their E-portfolio, they develop the ability to reflect on their learning (see Table 6.20). Therefore, one can

argue that through reflective practices, students can determine their strengths and weaknesses against learning outcomes towards self-directed learning.

One of the three aspects of good assessment practices which Boud (2016) describes is **sustainability** of assessment. He describes sustainable assessments as meeting the needs of the present criteria in terms of the demands of formative and summative assessment, which also prepares students to meet their own future learning needs. Sustainable assessment fosters student ability to make judgements, thus cultivating reflexive learners with the goal of forming dispositions for practice (Mohamadi, 2018). Boud (2016) further alludes that sustainability of assessments should address the on-going learning performance of the student in the context of lifelong learning. Timmis, Broadfoot and Sutherland (2016) also point out that sustainable assessment can develop independent students and therefore it encompasses self-assessment as a key element of its practice. In this light as noted by Jones (2010) the development of portfolios assists students in developing a reflective practice and thus becoming independent students.

The three aspects of E-portfolio assessment practices, that is, authentic, reflective and sustainable assessment practices (Yastibas & Cepik, 2015) are crucial for success of quality assessment. Assessment tasks, incorporating these three aspects, have the ability **to enhance student learning** through the development of **higher order learning skills** (**HOTS), critical thinking skills (CTS) and self-directed learning (SDL).** This study demonstrated that student experience of E-portfolio use has been crucial in developing HOTS, CTS and SDL by being engaged in the assessment process

One of the objectives of the study was to find out to what extent students agree that the E-portfolio enhances their **higher order thinking skills (HOTS).** Application of HOTS is one of the indicators of improvement in learning, therefore assessment activities build student thinking and scientific attitudes that encompasses both critical thinking and problem solving (Belgard, 2013). Section 6.6.2.1 reported on student perceptions of whether higher order thinking skills were developed during the development and design of an E-portfolio. Table 6.5 shows that respondents strongly agree that ty perceive that they can create (52.94%), evaluate (52.94%) and apply

(52.94%) higher order thinking skills (HOTS) when designing and producing evidence for the E-portfolio. It can be deduced that E-portfolio, as an alternative assessment, enhanced the students HOTS because of processes followed in the production of the quality evidence or artefacts for their E-portfolios. Furthermore, HOTS development in students can be viewed through how they analyse, create knowledge and evaluate tasks assigned to them, which are indicators for measuring analytical skills that includes focusing on key ideas (Branney & Priego-Hernández, 2018). Utilising research project skills such as analysing data, categorising, comparing, critiquing, creating categories, summarising, and predicting during discussion, seminars, demonstrations and workshops activities deepen student learning (Asshaari, Othman, Bahaludin, Ismail and Nopiah, 2012). This is confirmed as students respond to: *I can analyse the quality of evidence produced by comparing, organising, critiquing and structuring) in my E-portfolio* where 58.82% of respondents agree that they are able to analyse the quality of evidence produced in their E-portfolio, with 41.18% strongly agreeing.

Another aspect of HOTS is the ability to **create** something that is new and innovative. Students are expected to create quality evidence through effective planning, designing and producing of artefacts in the E-portfolio. Therefore, using E-portfolios students are able to think deeply about the planning: *I can create quality evidence through effective planning, designing and producing* Students have confirmed (41.18% agree while 52.94% strongly agree) that they perceive they can create quality evidence for their E-portfolio. In view of the latter, deep learning unlocks ideas and creativity used by students to develop quality evidence for their E-portfolios. Chetty (2014) argues that the use of the E-portfolio can promote surface and deep learning in an ODL learning environment during the design of E-portfolios when students are given activities that require them to research about a particular concept or topic

HOTS affords students the opportunity to use **evaluation** as one of the activities of making judgements with regard to the value of an idea, creation and method (Omar, Haris, Hassan, Arshad, Rahmat, Zainal & Zulkifli, 2012). This reasoning ability is necessary in the process of thinking and drawing a conclusion in the form of knowledge. In querying: *I can evaluate the quality of evidence (through checking critiquing, judging and reviewing my activities)* for their E-portfolio, 52.94% students

strongly agree while 47.06% agree that they perceive they can evaluate quality evidence in their E-portfolio. In view of the latter, these can be achieved when students conduct thorough research which includes collaborating with others, sharing ideas to ensure quality evidence. Thus, E-portfolio use affords students the opportunity to create, analyse and evaluate quality, evidence in their E-portfolios which comprise formative assessments as well as summative assessments.

A further objective of the study was to investigate the extent to which students agree that the E-portfolio enhances their **critical thinking skills (CTS),** as one of the 21st century skills.

The development then of CTS is crucial and students responded to: *I can think deeply to make relevant connections when designing quality evidence for my E-Portfolio* to ascertain their perception (see Table 6.6). Some 47.06% of students agreed that they perceived that they could think deeply when designing evidence in their E-portfolio while *I can integrate critical thinking skills within and across subject content areas and skills* had a 52.94% of students strongly agreeing that they perceive that they could integrate critical thinking skills in their learning.

The various key concepts of Bloom's cognitive levels were used to determine their attainment of such skills. One of the dominant key issues is communication, networking and collaboration. Students highlighted that they are able to share ideas and give each other feedback through networking, collaboration and debate as they engage on any relevant content topic.

Table 6.6, question 2, shows that respondents strongly agreed (64.71%) that they *can communicate, debate and network with peers and lecturers effectively.* Furthermore students agreement (64.71%) that they *can explore alternatives to producing evidence through my creative thinking skills.* While 35.29% of students strongly agree, with 64.71% agreeing, that they connect and communicate with their peers and lecturers using myUnisa as an online platform: *I connect and communicate with my peers and lecturers using myUnisa as an online platform (instant messages, emails, announcements, webinars, e-Discussion forums and blogs.* This confirms that students are developing 21st century skills of communication through networking,

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sharing and exploring ideas and collaborating with peers to expand their knowledge. Thus, they are trained to become critical thinkers in their studies and beyond graduation.

Finally, the research study explored the enhancement of **self directed learning (SDL)** through E-portfolio use as an alternative assessment approach. SDL is one of the skills that students need in an ODL environment for them to reach their personal goals and to become self-regulated. Scholars describe SDL as a process in which individuals set goals, locate resources, choose the method and evaluate progress through critical reflection (Brookfield, 1995; Knowles, 1975).

In the qualitative phase, lecturers highlighted that students have shown that they can take control and self-regulate their studies with effective time management through planning, and organising their learning through time management *(cf.*6.3.1.2 theme 2.3). Drawing from the interviews, it seems that SDL students are empowered, independent, self-controlled, are motivated and manage their time, qualities instilled in them as most meet the requirements of competence based on the learning outcomes. To achieve this, in the researcher's view, E-portfolios assessment can be used to sharpen students SDL skills.

Questions were posed to determine the extent to which the E-portfolio activities enhance learning and to identify if personalised learning takes place. Students, in response to questioning, particularly (71%) female students, that 41.18% strongly agree with 52.94% agreeing that they have *developed confidence, perseverance, and life satisfaction through the activities in the E-portfolio.* The researcher posits that as students develop the appropriate SDL skill to regulate their own learning they will become responsible for it beyond their graduation. Ultimately, students are able to engage both individually and collaboratively in the E-portfolio project, a notion reinforced by McLoughlin and Lee (2010) who report that lecturers use E-portfolios in the design of assessment activities as a means to develop personalised learning opportunities. SDL students strongly agree (76.47%) with 23.53% agreeing, that they *take full ownership of my learning through producing quality evidence in my E-portfolio).* In addition, UNISA with its MyUnisa online platform affords students an opportunity to communicate, share and collaborate among themselves. As students

are not in a face-to-face learning environment, collaboration through E-portfolio serves as a great advantage.

This is confirmed by students who report on the development of their self-directed learning. Table 6.7 shows that 76.47% of respondents agree, with 23.45% of them strongly agreeing, that *always monitor and self-motivate what I have achieved in terms of learning at each stage in my E-portfolio*. This confirms that students are able take full ownership of their learning (76.547% strongly agreeing), try new things to produce quality evidence in their E-portfolio (82.35% agreeing) and set goals monitor and self-motivate themselves (52.94% agreeing) to achieve their learning goals. E-portfolios require that students take responsibility of their own learning by organising their material for a specific purpose, self-evaluating their work, and reflecting their findings about their learning process, experiences and skills.

On the other hand, students have responded to *I learnt to apply different skills such as research skills, self-management skills, social skills and communication skills through compiling evidence*. In this regard, 47.06% of students agree and 52.94% strongly agree that they are able to apply the different skills acquired. Furthermore, data revealed that *I can collaborate and interact with my peers within and beyond the module*. Some 41.18% of students strongly agree, with 52.94% agreeing, that they could collaborate with peers during the design and development of their E-portfolio.

In view of the benefits that E-portfolios provide, it can be used effectively and efficiently in teaching, learning, and assessment. To achieve this, motivating students to be responsible, and then enabling them to organise, control and take charge of the content in their E-portfolios is critical (*cf.* Table 6. 7 Q. 11-12).

In summation, findings in this study illustrate that evidence produced in the E-portfolio by students, show responsibility in their learning. This confirms that most of the students have, during the process of developing their E-portfolios, become self-regulated, goal-directed, self-controlled and take ownership of their learning to achieve their learning outcomes.

Finally, in the process of their E-portfolio development, students experienced **challenges**, as reported in the open-ended questions. Firstly, students lack **digital literacy** with many students being technologically lacking, which was highlighted as one of the major challenge as success in E-portfolio use is dependent in digital proficiency. However, when students are introduced to the E-portfolio platform some find it difficult to operate certain functions in order to be successful in their E-portfolios. Secondly, **student support** throughout the E-portfolio assessment was highlighted as it seems that students need more efficient support mainly with network connectivity, and technical assistance from the institution. Furthermore, students pointed out that because they rely only on their tutorial letters 101, clear instructions are vital. However, in some areas of the tutorial letter the guidelines are unclear. Finally, non-synchronisation of Mahara was a challenge because students found difficulties on working in the E-portfolio site, therefore some students resorted to submitting online in using dropboxes with some students even submitting hard copies. In the context, it was difficult for students to work on the Mahar site; hence this is a huge drawback on the development of online assessment. These challenges need to be taken into consideration when planning E-portfolio use for further use in the future.

It seems that E-portfolio, as an alternative assessment practices, led to the development of the students' own final products that demonstrated personal learning achievements within the specific modules illustrating that students of the 21st century need to be self-directed and lifelong learners.

7.4.3   Findings with regard to the third sub-question and aim of the study:

How does the E-portfolio, as an alternative assessment approach, support student learning in an ODL environment?

Support in any learning environment plays a key role in enhancing student learning. Roberts and Potrac (2014:181) argue that the constructivist learning perspective is student-centred and requires active involvement. For ODL students to be actively involved in the learning process, they need support to yield good achievement. Wetzel and Strudler's (2006) findings concur that participants require intensive guidance and support in process that might be stressful for both academics and students. The

support assist students in clarifying expectations, sharing work with peers, and mitigating technology problems. In this study, participants mentioned levels of support namely, academic support and institutional support *(cf.* 6.3 sub theme 3 3.1-3.2), while constructive feedback also supports the development student learning.

Study finding reveal that **academic support** focuses on outlining the content of the module firstly through an official tutorial letter 101. An UNISA official document, developed designed by the primary lecturers of respective modules, communicates relevant information to registered students. For the interest of this study, this tutorial letters provided information regarding assessment tasks, such as assignment descriptions, learning objectives, assessment criteria, guidelines on the development E-portfolios content and submission dates for assessment tasks are provided (*cf.*6.4 theme1.1).

Students in the ODL receive their study packages which incorporates tutorial letters outlining assessment tasks. Therefore the tutorial letters can be regarded as a relevant tool for information. However, in the open-ended questions of the online questionnaire (Appendix H), students pointed that they find the guidelines in tutorial letters 101 unclear (*cf.* section 6.31.3 sub-theme 3.1). Therefore, it is essential this should be looked into as students find it difficult to understand some instructions regarding the E-portfolio.

Institutional support plays a key role in supporting the student throughout the learning process. It is worth noting that the E-portfolios require robust, stable, cutting-edge ICT infrastructure and platform to support student learning. In this light, findings from the qualitative phased have revealed that the lecturers some students need support from ICT regarding technical, network connectivity and MyUnisa platforms to access the E-portfolio site. As in most cases students find themselves struggling to access the necessary resources due to poor network and system challenges (*cf.* 6.3.1.3, sub-theme 3.2). Findings from both qualitative and quantitative revealed that there is lack of support from ICT that include connectivity and system failures. Additionally, even the lecturers themselves pointed that they are not sufficiently supported by ICT as they experience problems with the E-portfolio site (*cf.*6.3.1 sub-theme 3.2).

The tutorial letters 101 inform students of the telecentres available in various regional offices in the provinces of South Africa. The institution provides support by deploying well-capacitated human resources (on-site administrators) at the telecentres to provide support to UNISA students (van Niekerk, 2015). The deployed on-site administrators ensure effective and efficient service in various regional offices offering assistance with regard to ICT use. Their role is to support students to access connectivity, video conferencing, the Internet, with online access resourced by Vodacom, as the service provider.

The students are provided with the link, http://digitalclassroom.co.za/digitalclassroom/centres,to access the list of centres students. The role of telecentres is to support students in the improvement of the quality of teaching, learning and research, mostly to rural student communities, by extending student online access and support through ICT infrastructure. Furthermore, the institution uploads all study guides and tutorial letters on myUnisa for students to access them online. However, during the document analysis process, students indicated in their reflective journal that they live in remote areas and cannot easily access network connectivity and live far away from the telecentres (*cf. cf.*6.3.1 sub-theme 3.2). In the same light, many administrators are not trained in assisting students regarding E-portfolio related issues. Therefore, this creates challenge regarding the effectiveness of telecentres regarding E-portfolio use.

The further form of support comes through providing **constructive feedback.** This may be in the form of feedback from lecturers used as a support measure to inform students about their progress and help identify aspects of learning still to be covered or learned (*cf.*6.3 theme 3-1-3-2). In this view, the basic tenet of assessment is to provide useful feedback that will guide students on their strengths and weaknesses highlighting what needs to be corrected and opportunities for students to demonstrate the quality of their work (Shepherd & Bolliger, 2011). Feedback on assessment tasks support learning that takes place, therefore students will understand better. Constructive feedback from peers was highlighted as very helpful as students were able to assess each other's work and share information and feedback (*cf. 6.3*.1.3 sub-theme 3.1). Nonetheless, scholars contend that real-time feedback and contributions from all relevant role players contribute to the opportunity to connect, clarify and

communicate as and where needed (van Wyk 2017; Jimoyiannis 2013). Thus feedback support students throughout the learning process.

Furthermore, the use of authentic assessment tasks that depict real-life situations, exposes students to different learning activities that require students to think critically, analyse their work and evaluate their assessment responses applying deep thinking to produce quality good quality evidence for their learning. As a result, using E-portfolios the authentic processes has emerged as a way for supporting students learning to record and present their learning for both assessment and future employment opportunities (Moran, Vozzo, Reid, Pietsch & Hatton, 2013). In this context of authentic learning, reflection and assessment are considered important components of learning that provide experiences that are more realistic for students. In view of the latter critical reflection, self-evaluation and self-development can be regarded components of authentic assessment. Peer assessment requires students to provide either feedback to their peers on a product or a performance, based on the criteria provided by lecturers or developed by them with the support of the learners (Spiller, 2012). Additionally, the findings of the study has also revealed that support is provided through different myUnisa forums such discussion forums, announcements and sending text messages to students, that provide opportunities for students to interact with each other (lecturers and students) sharing, ideas and interacting on issues related to their different tasks to enhance their learning. Interaction with other students and lecturers. With myUnisa, students have access to online resources learning like study materials, additional resources for their respective modules that assist them shape and improve their learning. As a result, students are no longer isolated but get opportunity to be exposed to broader knowledge as their share and discuss with others.

7.4.4   Findings with regard to the fourth sub-question and aim of the study:

How does the E-portfolio equip students with higher order thinking (HOTS), critical thinking skills (CTS) and self-directed learning skills (SDLS) in an ODL environment?

The 21st century with its evolving world requires that students be equipped with the necessary competency skills needed to achieve academically. For this study, the

emphasis was on HOTS, CTS and SDL as some of the 21st century skills needed in the ODL environment. It was evident from the findings of this study, that the three competency skills afforded students the opportunity to build their knowledge capacity like research skills (Lukitasari, Handhika & Murtafiah, 2017), problem-solving skills (Lar-kin, 2014); communication skills, collaboration skills and digital literacy skills (Shahraki & Barghi, 2017; Nkhoma & Nkhoma, 2015) to achieve their academic goals research skills. In view of the latter, the researcher contends that students can develop skills, values and attitudes through the authentic assessments that are performance-based because students had to respond to real-life situations. In addition, the use of E-portfolio alternative assessment approach exposes students to these competency skills throughout the learning process as they compile and share evidence (Nkhoma, Nkhoma, & Ky, 2018). Van Wyk (2017a) supports the notion that the competency skills students acquire in the development of E-portfolios are developing confidence in them and personalising their learning.

Consequently, findings highlight that unlike the traditional assessment, students involved in E-portfolio assessment have shown improvement in their learning through evidence that they have acquired in the learning process (*cf.*6.3.1 theme 1.1*)*. Although assessment of the 21st century competence skills is still in their infancy stage in the E-portfolio at UNISA, lecturers have confirmed that their students are better equipped with knowledge, skills and values in particular HOTS, CTS and SDL skills (*cf.*6.3.1.2*)*.

Firstly, the study investigated whether assessment tasks administered to students included HOTS. The evidence produced by students in their E-portfolio confirmed that HOTS empowered students with the ability to create, analyse, evaluative, and synthesise their artefacts respectively. The researcher is of the view that students applying 21st century skills complete assessment tasks designed by lecturers. In addition, this study's findings revealed that tutorial letters 101 and evidence produced in E-portfolios demonstrated that E-portfolio assessment activities are authentic, performance-based and develop students professionally through real-life situations (*cf.*6.3.1 theme 1.3). In addition, Bloom's revised taxonomy, which specifies lower-ordered thinking that includes comprehension, knowledge, and application, whilst higher-order thinking contains evaluation, creativity, and analysis, has been used in

the development of the assessment tasks. The qualitative findings of the study, revealed that unlike the traditional assessment of non-venue based examination, the E-portfolio assessment has broadened assessment as students were no longer assessed on content knowledge only but assessment design required students to deal with real-life situations based on the curriculum and relevant industry requirements. With reference to this research study, lecturers started implementing alternative assessment activities with the purpose of enhancing deep learning. As a result, learning process knowledge, skills and values expanded depending on the criteria and learning objectives set in the assessment tasks. It is worth highlighting that in comparison with traditional assessment there is improvement in assessment.

HOTS skills have been developed with students being required to analyse, evaluate and creatively solve problems (cf.6.3.1.2). Furthermore, the quantitative phase of the study, pointed out positive results from students responses regarding how the E-portfolio enhances their HOTS. Findings confirmed that students could analyse, create, evaluate quality evidence for their respective E-portfolio (*cf.* table 6.5). In addition the document analysis evidence in the E-portfolio revealed evidence of HOTS. In this context, students were requested to complete assessment tasks that required them to think creatively through conducting and producing research projects, posting reflective journal entries and create wikis as required (cf.6.3.2, Table 6.5. Higher-order thinking skills provided students with the ability to link, manipulate, and transform existing knowledge and experience to think critically and creatively in deciding and solving problems in new situations (including logic and reasoning, analysis, evaluation, creation, problem solving, and retrieval decision making (Rofiah, Aminah and Ekawati, 2013; Patton and Robin, 2012). Findings emerging from the study indicate that students are equipped with these skills necessary in the process of thinking and drawing conclusions. Shahraki and Barghi (2017) support the fact that E-portfolio use enhances the components of thinking, skills, knowledge and self-motivation through developing interaction and promoting meaningful learning, raising self-awareness and conducting more self-assessments. Various scholars concur that E-portfolios have considerable advantages for students in developing transferable skills, mainly reflection, critical thinking, learner autonomy, professional development, and the ability to organize and self-regulate the learning process (van Wyk, 2017b).

Secondly, the development of **critical thinking skills (CTS)** was explored qualitatively and quantitatively. Finding from the qualitative confirm that students produce quality evidence in their E-portfolios, indicating that they are applying CTS, particularly with thinking deeply to make relevant connections and integrating their learning within the content knowledge according their curriculum (cf.6 theme 2. CTS was displayed in that students engaged in reflective practices through analysing and critiquing evidence produced in their E-portfolios. For students to be able to successful and produce quality evidence in their E-portfolios, they had to collaborate with other students to share ideas, work collaboratively and explore alternatives to produce evidence, thus indicating evidence of CTS application. Some 52.06% students strongly agreed, while 47.04% agreed that different skills such as research skills, self-management skills, social skills and communication skills are applied when compiling evidence of their E-portfolio. With reference to the research skills students were involved in intensive research, investigation, and critical analysis of their assessment tasks (Van Manen, 2016). Furthermore, students were instructed and expected in specific tasks to search for relevant literature, conduct fieldwork, to analyse data and interpret and writing report of their findings (*cf* 6.3.1.2). Consequently, it is deduced that students and lecturers agree that the use of E-portfolio exposes them to CTS skills that were never taken into consideration when they were assessed in a traditional assessment manner, which focused mainly on grading than providing students with lifelong learning and authentic learning experiences that can be applied beyond graduation (*cf.* 6.3.1.2). Research has shown that application of CTS skills is one of the indicators of improvement of learning (Lukitasari, Handhika & Murtafiah, 2018), as revealed in this study.

Finally, the research study explored the enhancement of **self-directed learning** through the E-portfolio approach. SDL is one of the skills that students need to develop and use in an ODL environment in order for them to reach their personal goals and to become self-regulated. Scholars describe SDL as a process in which individuals set goals, locate resources, choose the method and evaluate progress through critical reflection (Brookfield, 1995; Knowles, 1975). Resource use, strategy use, and motivation are the three main characteristics of personal attributes in which students take responsibility for their own self-directed learning (Song and Hill, 2007). Equipping

students with SDL skills is imperative to becoming an independent and lifelong learner beyond graduation.

In the qualitative phase of the study, participants highlighted that students have shown that they can take control and self-regulate their studies with effective time management as they are able to plan, organise their learning through time management (*cf*.6.3.1.2. sub-theme 2.3). Drawing from the interviews, SDL students are empowered independence, self-control, time management and motivation in SDL instilled as most of them are meeting the requirements of competence based on the learning outcomes. To achieve this, in the researcher's view, E-portfolios assessment can be used to sharpen students SDL skills. As previously reported, 41.18% strongly agree with 52.94% agreeing that they developed confidence, perseverance, and life satisfaction through the activities in the E-portfolio.

The researcher posits that as students develop the appropriate SDL skills, they are able to regulate their own learning and become responsible for it beyond their graduation. Ultimately, students are able to engage both individually and collaboratively in the E-portfolio project. Therefore, McLoughlin and Lee (2010) point out that lecturers use E-portfolios in the design of assessment activities as a means developing personalised learning opportunities. As previously reported, students 76.47% strongly agreed, with 23.53% agreeing that they take full ownership of my learning through producing quality evidence in my E-portfolio (*cf*.6.7 question 12).

In addition, UNISA with its MyUnisa online platform afford students an opportunity to communicate, share and collaborate among themselves. Moreover, students are not in a face-to-face learning environment, therefore collaboration through E-portfolio serve as a great advantage. Some 64.71% of respondents agree that they can connect and communicate with their peers verifying the findings that the students are no longer isolated but can connect and interact with other students through the various platforms (*cf*.6.3.1 sub-theme 1.4). Students connect and communicate with their peers and lecturers using myUnisa as an online platform (instant messages, emails, announcements, webinars, e-Discussion forums and blogs). E-portfolio is a communicative and interactive tool affording students the opportunity to communicate and interact with their peers and lecturers to improve their learning (Bolliger &

Shepherd, 2010; Lin, 2008). Jimoyiannis (2012) contends that collaborating provides students with an authentic experience related to the selection and discussion of appropriate artefacts for their E-portfolio, real-time feedback from all relevant role players. In my view, sharing and collaborating encourages peer tutoring, and students can share and discuss their issues and challenges. In this regard, findings of this study have revealed that the students are no longer isolated.

In summation, the findings of this study have shown that evidence produced in the E-portfolio by students, shows responsibility in their learning. This confirms that most of the students are self-regulated, goal-directed, self-controlled and take ownership of their learning to achieve their learning outcomes.

7.5   LIMITATIONS OF THE STUDY

The findings of this study have to be considered within the context of the limitations presented. Although this study yielded the results that the researcher hoped to achieve in terms of the research paradigm, design, conceptual framework and the objectives, some unavoidable limitations and challenges were experienced and thus should be recognised.

7.5.1   The non-compliance of lecturers regarding implementation E-portfolio assessment tool for their identified modules as per Senate mandate

The researcher experienced challenges relating to the collection of data. Some participants were not eager to participate in the interviews. Initially the researcher identified nine lecturers to participate in the study; however, during the interviews, three lecturers who were involved in the E-portfolios, one did not respond to the interview invitation, while the other two explained that they were no longer using E-portfolio and had reverted to hard copy portfolios. This is regarded as non-compliance from the initial mandate from the Senate.

7.5.2 The non-responsiveness of students regarding completion of online questionnaire

During the quantitative phase, the student response rate regarding the questionnaire was slow. Several reminders were sent to students about the completion of the questionnaire. This was a challenge; hence fewer numbers of students participated in the study. The researcher would have liked to include as many participants as possible in order to get a broader understanding regarding the topic under investigation, but limited resources made this impossible.

7.5.3 Research exclusive to UNISA as an ODL institution

UNISA is the only ODL University in Southern Africa; therefore, it was used as the sole research site. While data elicited from the participants provided valuable insights in relation to E-portfolio, as an assessment approach towards self-directed learning in the ODL university, it must be acknowledged that these experiences were solely from Unisa, and as a result, the findings from this study cannot be generalised to other ODL institutions.

7.5.4 Use of E-portfolio modules

The researcher explored the E-portfolio as one of the alternative assessment approach to enhance self-directed learning amongst those that were approved by University Senate. The researcher focused only one method of assessing alternatively, therefore one cannot generalise that other alternative assessment approaches approved by Senate will yield the same results. In addition, the researcher briefly discussed the implications of the study's findings and how they impacted the use of E-portfolio, as alternative assessment approach towards self-directed learning in ODL contexts. In the final part of this thesis, the E-portfolio framework in Chapter 8 has limitations in that it has not been applied or tested yet. Therefore, the findings cannot be generalised.

7.5.5 Scoping review on E-portfolio assessment in ODL

The E-portfolio is new in South Africa; there is little literature in this regard. The search mainly produced literature on E-portfolio in higher education but little literature on ODL was found in the South African context. However, some literature from Africa emerged, but mostly literature reported on E-portfolio use in first world countries; therefore, this was regarded as a limitation.

7.5.4 The use of the online questionnaire as a research instrument

An online questionnaire, as a research tool, has three possible limitations. Firstly, the information collected may tend to be descriptive rather than to explain how things are found. Secondly, the information received can be superficial. Lastly, the time and process required to draft and pilot a questionnaire is often underestimated and tedious, which could reduce its usefulness if it is not monitored in an objective way. In this context, time and processing of the questionnaire took longer than expected and in addition, the response rate from the students was slow.

7.6 RECOMMENDATIONS

In the preceding sections, there have been discussions on as findings in an attempt to answer the research questions. In the subsequent sections, certain recommendations are made with regards to the use of E-portfolio as an alternative assessment approach enhancing student self-directed learning. Based on the aim of this research, the data collected and the findings, the following recommendations are made:

7.6.1 Recommendations regarding Lecturer Experience using E-portfolio as an Alternative Assessment Strategy in an ODL Context

The following recommendations are made regarding the research protocol that was used for a scoping review about as an alternative assessment approach enhancing student self-directed learning in an ODL context.

- Conducting seminars, discussions panels, workshops and online collaboration amongst academics for deepening their conceptualisation and contextualisation of the E-portfolio as an alternative assessment strategy for UNISA as in an ODL context.

- Providing academics with the necessary ongoing in-service training skills in particular, digital literacy, on how to use the E-portfolio through the UNISA's Continuous Professional Development (CPD) unit.

- UNISA' Teaching, Learning, Community Engagement and Student Support directorate should advocate and encourage more lecturers to employ alternative assessment strategies, particularly E-portfolio for teaching and learning.

- Primary lecturers as module developers should be capacitated through workshops on how to plan curriculum based activities on E-portfolio for their modules that require twenty-century competency skills.

- The primary lecturers should be trained on how to use the twenty first century competency skills, in particular HOTS, CTS and SDL, to empower students with this skills towards personalised learning.

- The institution's Tuition and learning department through the Teaching, Learning, Community Engagement and Student Support directorate should provide E-portfolios exemplars for primary lecturers to familiarise themselves with the use E-portfolio before they venture into adopting E-portfolio in their modules.

- The ICT and CPD should provide continuous basic ICT skills on Mahara site to primary lecturers to assist and support students who face challenges to interact in the E-portfolio Mahara site.

- The newly appointed lecturers or lecturer using E-portfolio tool for first time should be trained before they are assigned modules using E-portfolio as a teaching, learning and assessment tool.

- The Teaching, Learning, Community Engagement and Student Support directorate and the Tuition department should provide more continued, in-depth training workshops to ensure that lecturers are conducting assessments in accordance with the UNISA Assessment policy.

7.6.2 Recommendations Regarding Student Experience using E-portfolio as an Alternative Assessment Approach towards Self-Directed Learning

The following recommendations are made regarding the student experiences towards using E-portfolios as an alternative assessment strategy with regard to self-directed learning.

- Registered students for the E-portfolio modules should be informed through webinars, videos conferencing and interactive live broadcast how to use and access the E-portfolio Mahara site.
- Students who do not have network connectivity (for internet) should use the regional office telecentres and teaching centres located as venue-based training facilities countrywide to access the E-portfolio Mahara site.
- The institution should provide students who qualify for the National Student Financial Aid Scheme (South Africa), with a laptop and Digi band (memory stick) with mobile data bundles to access the E-portfolio Mahara site.
- Continued research through online survey with students should be conducted to identify their strengths and weaknesses regarding E-portfolio Mahara site with findings used to inform revision.

7.6.3 Recommendations regarding E-portfolio equipping Students with Higher Order Thinking, Critical Thinking and Self-Directed Learning Skills in an ODL Environment

The following recommendations are made regarding equipping students with 21st century competency skills in an ODL environment.

- The institution's Tuition and Learning Department, through the Teaching, Learning, Community Engagement and Student Support Directorate, should provide dummy E-portfolios as exemplars for students to familiarise them with the evidence required for successful E-portfolio completion of their summative assessment.

- The primary lecturers should plan applicable learning activities, which focus on developing and applying HOTS, CTS and SDL, as evidence based in the E-portfolio.

- Primary lecturers should provide constructive feedback timeously to students to reflect and build their HOTS, CTS and SDL to ultimately achieve the intended learning outcomes in the E-portfolio for the specific module .

- The primary lecturers should have the necessary knowledge of 21st century competency skills, in particular HOTS, CTS and SDL, to plan a variety of learning activities that reflect authentic assessment in the E-portfolio.

- E-portfolio students should be empowered through webinars, videos conferencing and interactive live broadcast about HOTS, CTS and SDL for them to understand that application thereof forms part of the evidence provided for summative assessment.

7.6.4 Recommendations regarding the E-portfolio as an Alternative Assessment Strategy to support Student Learning in an ODL Environment

The following recommendations are made regarding support for student learning in an ODL environment.

- The Teaching, Learning, Community Engagement and Student Support Directorate should provide technical and pedagogical support for both primary lecturers and students develop competency in using the E-portfolio Mahara site.

- The ICT Department should provide continuous support for students and primary lecturers regarding digital literacy and technical skills through training and development.

- The Teaching, Learning, Community Engagement and Student Support Directorate should conduct seminars and panel discussions to encourage lecturers to support each other by sharing E-portfolio best assessment practices.

- Students and lecturers can form learning communities using MyUnisa and other social media platforms such as Facebook, WhatsApp, WeChat and Twitter to share ideas, collaborate and communicate best practices in developing authentic E-portfolio evidence.

- Lecturers can support students using specific myUnisa tools and other communicative means such as emails, announcements, online meetings, SMS messages (SMS), e-discussions forums and blogs to enhance student learning.

7.7 AVENUES FOR FURTHER RESEARCH

This research investigated the E-portfolio, as an alternative assessment approach to enhance self-directed learning in an ODL. This study has been significant in the sense that it provided a clearer picture on how effective E-portfolio can be used as an assessment tool. The findings of the study indicated that E-portfolio is a relevant alternative tool that can equip students with HOTS, CTS and SDL to make them competent students and lifelong learners.

Similar studies could be conducted using the same sample in order to determine whether the same experiences are observed when respondents and participants use E-portfolio as an alternative assessment.

The following aspects are recommended for further study and research for the implementation E-portfolios as an alternative assessment approach enhancing self-directed learning:

- E-portfolio as an authentic tool to enhance self-regulated learning in ODL context;
- The use of E-portfolio in support of student learning in the ODL university to enrich student higher order thinking skills.
- The design and application of E-portfolio to enhance critical thinking in the ODL university.

- The student support regarding E-portfolio use to enhance student learning in the ODL university.

- The use of E-portfolio as a teaching and online learning tool to equip students with 21st century skills necessary for the labour market.

7.8   CHAPTER CONCLUSION

This thesis provided an overview of the literature review with regards to the E-portfolio assessment approach. The findings and recommendations, in respect of the aim of this study, were identified with the view of designing a framework on how to use E-portfolio as an alternative assessment approach to enhance self-directed learning in an ODL environment. This chapter summarised the findings of the study, recommendations of this study, limitations and further research based on the E-portfolio. This summary forms the basis for E-portfolio framework design contained in the following. The proposed framework, based on the literature review (*cf.* Chapters 2, 3 and 4) and the outcomes of the empirical research (*cf.* Chapters 6 and 7), is recommended for use by lecturers using E-portfolio alternative assessment approach to enhance self-directed learning in an ODL environment.

CHAPTER 8

A PROPOSED FRAMEWORK FOR E-PORTFOLIO AS AN ALTERNATIVE ASSESSMENT APPROACH IN AN ODL UNIVERSITY

8.1   INTRODUCTION

In the previous chapter, the focus was on the summary, findings and recommendations based on the scoping review, which included Chapters 2, 3 and 4 focusing on assessment, alternative assessment and E-portfolio respectively. Based on the scoping review, findings of the empirical study and recommendations, the components for the design of the proposed E-portfolio framework as an alternative assessment approach in an ODL context were identified. The recommended components of the proposed framework for the E-portfolio were compiled from information gathered and discussed below:

- Scoping review (*cf.* Chapters 2, 3 and 4);
- Empirical research (*cf.* Chapters 5, 6 and 7);
- Personal experience as an as a lecturer;
- Interactions with colleagues over the years regarding assessment practices in ODL;
- Conversations with lecturers involved in portfolio and E-portfolio as an alternative assessment approach.

This framework serves as a guideline for E-portfolio assessment in higher education, particularly ODL environment and will require adjustment according to personal circumstances, content to be taught and level of students' ability. The framework is structured according to the policies as legal imperatives, learning and ODL theories application and expected outcomes of assessment practices. The framework, set out in Figure 8.2 at the end of the chapter, outlines the components of E-portfolio as an alternative assessment approach in higher education for an ODL university. The sections below elaborate on the theories underpinning the framework followed by the policy imperatives that guide Tuition, Curriculum and Assessment at UNISA.

As discussed in the previous chapters (Chapter 3 and 4), assessment plays a vital role in the process of teaching, learning (acquiring knowledge, skills and values) in an ODL environment. This proposed E-portfolio framework is of importance for this study to guide the processes and procedures of E-portfolio assessment with the aim of enhancing student learning and improve the quality of assessment using E-portfolio. Furthermore, the framework is aimed at guiding lecturers who are relatively new in the use of E-portfolio to know what expected of them as assessors. This framework will be of value to the university in making sure that the assessment is fit for its purpose and of use to the University, as with the assessment policy, it will be able to provide step-by-step quality assessment practices required for the grading of students. UNISA and other ODL lecturers will be assisted in understand the key issues involved in using E-portfolios for assessment, be able to put into place appropriate systems and supporting processes to ensure that students have, or acquire, the necessary skills to manage and use systems and processes efficiently and effectively.

8.2   INTEGRATIVE THEORETICAL FRAME FOR AN E-PORTFOLIO AS AN ALTERNATIVE ASSESSMENT APPROACH

It is notable that the use of technology has affected how we teach, learn and assess our students in this digital era. Therefore, it is important to explain the relevance of the learning and ODL theories that are relevant for this study and guide the development of the proposed framework. Moore (2000:1-2) emphasises that every educator is supported by a learning theory and works within a certain philosophical context, be they explicit conscious or implicit/unconscious. This is a summary of theories applicable for this study and proposed framework (*cf.* Chapter 2).

8.2.1   Learning Theories

This proposed framework (cf. Figure 8.2) is foregrounded in three "classical" learning theories namely, Behaviourism, Cognitivism and Social Constructivist. Firstly, the **behaviourist** tradition is characterised by an instructional pattern with sequential series of small steps each covering a piece of the subject domain or a particular skill in focus. The behaviourist perspective is relevant for this framework as it focuses on equity of access and opportunity to acquire valued knowledge and supports the

development of practices that ensure that all students can achieve a satisfactory level of basic knowledge. Moreover, that online learning can stimulate a behaviour that can be compared to provided stimuli and responses. As a result, online lecturers have to put behaviourism principles to good use when designing learning activities that condition a response cycle in students. This allows students to have opportunities to acquire knowledge through practice through technological devices or application models, which the learner can 'drill and practise' followed by the provision of feedback. The students are able to use the feedback provided to learn what they know and still need to know. In this regard, in online learning, students are expected to read and follow instructions for them to be able to understand the process needed in the use of E-portfolios.

Secondly, the cognitive school of thought focuses on making knowledge meaningful and helping the students to organise and relate new information to prior knowledge in memory (Ertmer & Newby, 1993). Therefore, in this regard, a **cognitivist** approach to teaching is relevant for this study as it guides the learning that takes place during the development and design of an E-portfolio because students are active beings in the study and not passive. as is purported to be the case with behaviourism, with reflection-based learning. Critical reflection in an online environment is effective way to elicit optimal performances from students and promote deep, long lasting learning (Glowacki-Dudcka & Barnett, 2007).The emphasis in cognitivism is mostly on acquiring, processing and assimilating knowledge through asynchronous discussion activities that afford students opportunities review their work with other students and reflect on their writing thereof (Sinclair, 2009). Thus, reflection and constructive feedback assist students to gain better understanding of their learning.

Thirdly, in a **constructivist-learning environment**, using E-portfolio is relevant as it encourages active involvement of students in their learning. In the constructivist-learning environment, students are not only passive recipients of information. They become active, reflective, and critical by taking more responsibility for their own learning, and learn to build knowledge on their own by linking new information to their prior knowledge (Mazlan, Sui, Zanariah & Jano, 2015). Brown (2003:7) argues that "a range of small tasks throughout the learning process can ensure that participants are

actively engaged in learning activities that can culminate in the final assessment". This theory supports the active involvement of students as they are able to construct meaningful knowledge from all the learning activities. Therefore, this framework supports the active involvement of students in the compiling, and selecting the artefacts that are relevant as evidence for their E-portfolio.

8.2.2   ODL Theories

The theories in this section are relevant for an ODL context, Connetivism, Collaborativism (Online Collaborative Learning Theory) and Self-directed learning. The development of e-learning and e-assessment tools like E-portfolios, support **collaboration** among students. Moreover, Ku,Tseng and Akarasriworn (2013) posit that online collaborative learning attracts considerable attention in distance learning as online collaboration plays a key role in providing opportunities for students to interact wherever they are and at any given time. In the context of this study, online collaboration is essential as it provides the opportunity for students to collaborate amongst themselves wherever they are to share ideas, critique and advice each other through constructive feedback. Jimoyiannis, (2012) notes that collaboration provides students with an authentic experience related to the selection and discussion of appropriate artefacts, but also real-time feedback and contributions from all the relevant role players that contribute to the opportunity to connect, clarify and communicate as and where needed. In essence, E-portfolios allow students to participate in various multimedia spaces where they can showcase their learning and participate in the discourse relating to the learning experiences within an online community of practice (Pitts & Ruggirello, 2012, Buzzetto-More, 2010). In an online learning environment, as Thomas and Brown, (2011) point out, students are able to join the online communities to gain the knowledge they need and share their expertise online. It is, therefore, necessary to align this E-portfolio proposed framework with online collaborative learning.

Secondly, the relevancy of **connectivism** is that lecturers and students should be able to establish networks and nodes for knowledge acquisition and sharing in real time, to empower themselves and their peers. It will be even more advantageous for teaching, learning and assessment using E-portfolio as connectivity through networks allowing

students to collaborate, connect through different networks to gather and share knowledge. While from the teaching point of view, teachers share and interact with peers to improve their knowledge of the subject content and get ideas on how to improve their teaching techniques. These attributes are due to the complex nature of connectivism and are the key principles that characterise connectivism as a learning theory. Furthermore, with these networks students are able to learn and improve skills like digital literacies, research skills, communication skills, deepen their critical thinking using HOTS and CTS and writing skills. By adopting a constructivist approach, assessment will emphasises deep learning (Sánchez & Soto, 2015) that E-portfolio can improve critical thinking skills among student. This approach affords students the opportunity to use their higher order thinking skills and critical thinking skills to deepen their thinking and become creative in providing evidence for their E-portfolio. This framework encourages lecturers to align their assessment tasks and design them, taking consideration the **socio-constructivist** learning perspective.

Finally, The UNISA tuition policy is in line with the **self-directed learning** (SDL) by allowing students to take responsibility for their own learning and progress (UNISA Tuition policy, 2013). Such responsibility extends to activities related to learning and being familiar with all academic requirements of their studies. Therefore, with the implementation of E-portfolio, students are exposed to taking ownership of their studies. In the context of ODL, it is crucial that students learn to take the initiative in identifying their own learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. Song and Hill (2007) concur that self-directed learning in online learning environments is structured along three dimensions, the learners' personal attributes; the learning processes elaborated (planning, monitoring, evaluating) and the learning context (i.e. recourses, strategies, nature of tasks).

To extend the importance of SDL, this framework takes into consideration Zimmerman's theory of self-regulated learning. Self-regulated learning (SRL) as another lens for describing significant aspects of learning processes, which relate the learning outcomes to learners' goals, motivations, volitions and actions (Zimmerman, 2000). SRL refers to a constructivist learning process in which students are actively

engaged in goal setting, progress monitoring and learning strategies controlling rather than passive knowledge reception from teachers (Pintrich, 2000). The notion of self-regulation is generally based on Zimmerman's three-phase cyclical processes of learning. Self-regulation is the control that students have over their cognition, behaviour, emotions and motivation through the use of personal strategies to achieve the goals they have established (Panadero & Alonso-Tapia, 2014). The phases includes planning (forethought), performance (monitoring and strategy use), and evaluation (reflection) (Zimmerman, 2000).

Zimmerman (2000) argues that self-regulated learning (SRL) is an active and constructive process, used by students to acquire new knowledge and skills, by setting goals, selecting and deploying strategies, managing material and resources, self-monitoring their effectiveness and regulating their learning to reach specific goals. The connection between SRL strategies and 21st century competences suggests that students with effective SRL strategies may be better prepared to address the challenges of a fast-changing world. The literature shows that E-portfolios, competency, and self-regulated learning are related to each other.

The first phase, **forethought phase,** emphasises that student approaches the task, analysing it, assessing the capacity to perform it with success and establishing goals and plans regarding how to complete it. In the forethought phase, competency evaluation skill allows the student to set goals, judge efficacy, or plan time and effort more effectively, based on the status of their competencies (Pintrich, 2004).

The second phase, **performance phase**, the focus is on self-control where task strategies, self-instruction, imagery, time management, environmental structuring, help seeking, interest incentives and self-consequences, as well as self-observation, metacognitive monitoring and self-recording come into play. During the performance phase, it is important that the student keep focused and use appropriate learning strategies: firstly, so motivation does not decrease, and secondly to keep track of progress towards the goal. Both implicate different actions and processes that are different depending on the self-regulation model used. According to Zimmerman and Moylan (2009), the two main processes during the performance phase are self-

observation and self-control, and in order for them to work successfully, a number of strategies can be followed.

The third phase is the **self-reflection phase**, during this phase the student judges his/her work and formulates reasons for the results. While justifying the success or failure, the student experiences positive or negative emotions depending on attributional style. These emotions will influence student motivation and regulation in the future. Self-judgment is the process through which the student assesses his/her performance. It is composed of self-evaluation and causal attribution. Self-evaluation is the student's assessment of his/her own performance based on the assessment criteria and modulated by the performance level goal (Panadero, 2011). The cyclical process, illustrated in Figure 8.1, indicates the process that could be followed for students to be able to self-regulate their learning.
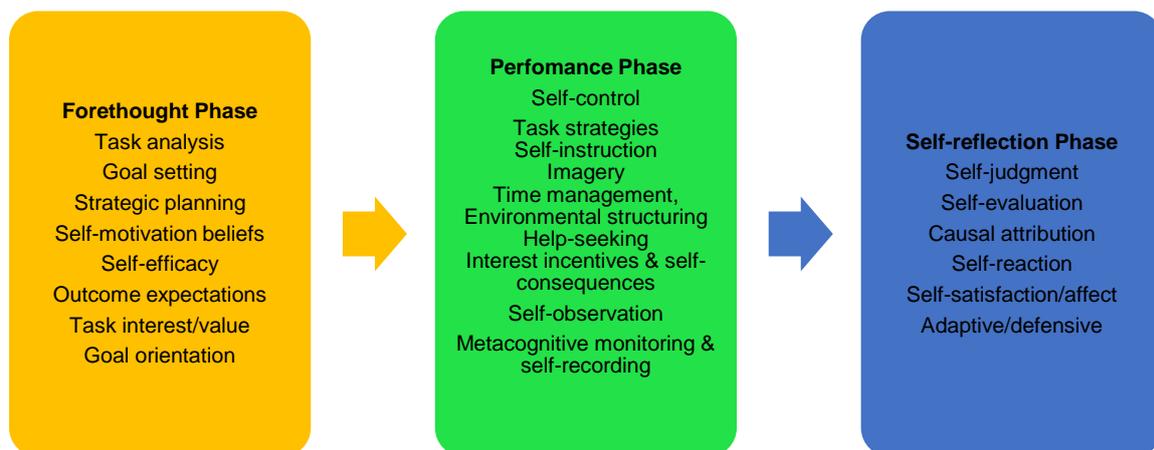
Figure 8.1: Zimmerman's (2000) three-phase cyclical processes of learning

8.3   UNISA POLICY IMPERATIVES AS DIRECTIVES FOR E-PORTFOLIO ASSESSMENT PRACTICES

This doctoral study formulates the designing of a proposed framework for E-portfolio as an alternative assessment approach in higher education particularly an ODL environment. UNISA has policy documents that serve as legal imperatives in providing guidelines with specific information regarding the teaching, learning and assessment of different modules, aligned to the relevant curriculum, stipulating learning outcomes and assessment criteria. The study initially focused on the UNISA Assessment Policy;

however, the study also included the use of the Curriculum and Tuition Policy as this affected the teaching and learning processes. The following three policy documents of UNISA were identified as important for the E-portfolio assessment framework:

- The *Curriculum Policy* was revised and approved by the Council in November 2012
- The revised *Tuition Policy* was approved by the Council in 2013
- The *Assessment Policy* was also approved by the Council in 2015

Each policy documents provides guidelines on the process of teaching, learning and assessment of a particular curriculum in a module. Each is discussed below to provide background information on assessment practices and developments at UNISA.

8.3.1   Tuition Policy

UNISA is an African university in the service of humanity and its purpose is to meet changing needs, foster coaching that provide quality education at higher education level. The *Tuition policy* (UNISA, 2013a) contains the fundamental principles pertaining to the foundation for the functioning of the university as a comprehensive, open distance learning institution. In this light, amongst its eleven principles, the university is committed to provide accessible and affordable learning opportunities to all students regardless of their background; providing students with appropriate support in an environment conducive to active learning. This policy notes how the principles are implemented in practice and all of these promote sound assessment strategies in the teaching and learning environment (UNISA, 2013a). The university is student-centred and promotes teaching, learning and assessment that requires student involvement. The teaching and learning is aimed at cultivating students with appropriate graduate attributes as formulated in the curriculum policy. This includes sets of learning outcomes and attributes which students are expected to have achieved when they have completed their qualification successfully. Ultimately, these students will contribute to their communities and focus on lifelong learning and active learning (UNISA, 2013a). E-portfolio, as an alternative assessment approach and tool, should be embedded and guided by the tuition policy. The tuition policy stipulates that

the institution endeavours to ensure that all students acquire a commitment to continual self-improvement and lifelong learning, among them are skills that include the ability to think critically and creatively. The university takes cognisance of the principles of professional development and experiential learning. The implementation of e-assessment through E-portfolio teaching, learning and assessment and other alternative assessment methods, has to be implemented through this tuition policy. The policy has to be adhered to when planning and implementing the assessment practices, as it is a guiding tool to successful tuition, which informs assessment.

8.3.2   Curriculum Policy

The *Curriculum Policy* (UNISA, 2012:2) is the culmination of several processes aimed at transforming UNISA into "the African university in service of humanity" through the core business of the university's curricula. Inputs from a workshop, a literature review and a comparative study of curriculum policies in the broader South African context influenced the formulation of the final document. The curriculum policy provides a set of learning experiences constituting the particular qualification or module. The Curriculum Policy provides all key aspects of teaching and learning such as what is to be learnt (subject content), why is it learnt (rationale), how it is to be learnt (process) and when it is to be learnt. In order for learning to take place, it should be conducted in creative ways and various tools and methods of learning should be implemented. The document contains a comprehensive list of definitions of concepts as well as detailed descriptions of the three broad principles that serve as the foundation for curriculum development. These principles are:

- Responsiveness to the needs and expectations of all stakeholders, including broader society
- Student-centeredness
- Accountability by the academic departments for academic integrity, teaching and learning

The policy document accounts to the issues around curriculum in the various modules, and therefore assessment is based also on the curriculum of each module. Ultimately,

the curriculum policy provides the content to be learned with relevant learning outcomes that guide the assessment processes. It is therefore imperative that this policy is embedded in the assessment practices related to all modules.

8.3.3   Assessment Policy

The *Assessment Policy's* purpose is to guide all assessment practices at UNISA or any given institution (UNISA, 2015:3). The policy states that assessment "must measure predetermined outcomes using appropriate assessment methods" (UNISA, 2015:3). The Assessment Policy is aimed at ensuring that all assessment practices are aligned to the national higher education legislative and policy environment. Assessment is conceptualised and planned during the development of a curriculum as described in the policy document. Consequently, the assessment planning is aligned to the pedagogy used in the academic programme. As discussed in Chapter 1, traditional assessments are no longer being used in some modules. The University is currently employing alternative assessment that includes portfolios and E-portfolios. The integration of E-portfolio in an ODL context can provide assessment (formative and summative assessment), based on the tuition, curriculum and assessment policies which offer guidelines for assessment processes and procedures. It is therefore imperative for this E-portfolio alternative assessment framework (Figure 8.2) to take into consideration and adhere to its processes and procedures for the success of assessment practices.

In summation, the three UNISA policy documents (*cf.*8.4) and the integrated learning and ODL theories (*cf.*8.2), foreground the proposed E-Portfolio framework as an alternative assessment approach.

8.4   COMPONENTS OF A FRAMEWORK FOR AN E-PORTFOLIO AS AN ALTERNATIVE ASSESSMENT APPROACH IN HIGHER EDUCATION FOR AN ODL UNIVERSITY

The proposed framework is built around components for E-portfolio use as an alternative assessment approach to enhance self-directed learning in an ODL environment. It is imperative for the lecturers and instructors to study these

components in order to improve their alternative assessment practices. The paradigm shift to online learning in higher education has created a fertile environment for potential synergies of authenticity and assessment and E-portfolio is one of the better ways to exercise authenticity in assessment (Conrad & Openo, 2018). An E-portfolio is generally described as a collection of parts, often called "artefacts," that has been constructed or compiled by students wishing to demonstrate their competence in a certain area (Nguyen & Ikeda, 2015). However, it is worth noting that an E-portfolio cannot be used as a platform for storing information; it should provide transparency of the learning process and facilitating visibility of learning (Curtis, 2012:66), with the evidence or artefacts displayed in the form of formative assessment leading to summative assessment, with feedback to students supporting their development and critical reflection skills. UNISA uses E-portfolio mostly as a non-venue based examination mode wherein students have to compile the portfolio based on instructions provided to fulfil requirements for summative assessment activities. While there are other modules that use an E-portfolio that focuses on formative and summative assessment, students work on the E-portfolio from the start of process to the product. The process gives students more practice as they work at developing it throughout the study duration. The completion of assessment practices demonstrated as evidence of student learning serve to confirm learning that took place. Therefore, in order to provide clear assessment guidelines for the E-portfolio assessment, specific processes and procedures have to be followed. Indicated below are the various steps of the process of the development of E-portfolio to its final stage of a product. These steps could include planning, selecting and compiling of evidence for the E-portfolio, focusing on learning objectives, assessment standards and criteria that will determine product for final grading, with each step having its own objectives required for the final product.

8.4.1   Step 1: Conceptualisation and Planning of E-Portfolio

The overarching UNISA policies for teaching and learning namely the Tuition, Assessment, and Curriculum Policies provide processes, procedures and practices for modules in the university .The conceptualisation and planning of E-portfolio has to be guided by these processes and procedures. Firstly, the lecturer should have the necessary documents that guide their teaching, learning and assessment. A module

registration form (Form 3) is the departure point for the process as it provides the purpose, learning outcomes and assessment criteria to be followed in the module. Lecturers involved in E-portfolio modules would, thus, have to follow learning outcomes and assessment criteria spelled out in the module form to plan the teaching and assessment.

Secondly, through information in the module registration forms (purpose of the module, learning objectives and assessment criteria); lecturers have to design assessment plan and tutorial letters 101. The assessment plan guides the assessment process regarding how assessment will be rolled out and how it will be weighted. The tutorial letter 101 is the official document sent to students providing information about the module including assessment and activities tasks. It is crucial that the lecturers provide adequate information to students regarding the introduction of E-portfolio for teaching, learning and assessment. The tutorial letter 101 gives guidance for students as they start the process of developing their assessment through to the final product. The planning process should provide students with E-portfolios guidelines on how to use E-portfolio (Mahara, taking into consideration the tuition, curriculum and assessment policies. The following guidelines can be used as general basic information for all modules to follow when guiding students on the submission of artefacts or activities on the E-portfolio Mahara site.

Guidelines for using the E-portfolio (Mahara) for submission of student activities (UNISA 2018, INTMAEU/101/0/2018:19)

- Students should be encouraged to access the online manual at: http://manual.mahara.org/en/1.10/ in case of any uncertainties or if they need help to upload artefacts or files.
- They should create a profile on Mahara and thereafter, they can start working with files.
- They should create a Table of Contents for all their submissions. There are different layouts available from which they could choose to upload work.

- They should then upload improved and re-worked assignments on Mahara as they get the feedback from the lecturer with comments towards improvements.

- Students should create the E-portfolio and use it properly for interaction regarding the work in the modules. It should be explained to students that an E-portfolio is not only for loading of files (Assignments). Students should be made aware that they need to create an interactive presence on Mahara with links to social networks, videos, photos and text based documents.

- An E-portfolio is a showcase for assessment, feedback, promotion of several aspects such as social networking, co-creation of knowledge and interactive learning. Students should remember that they have control over what they want to share and what they want to keep private.

- The E-portfolio provides students with an opportunity to develop skills related to digital literacy. E-Portfolios have different dimensions and are integrative learning tools for creating personal, professional and institutional creativity.

- An E-portfolio is very much the same as a community of practice. An E-Portfolio is "*reflection-in-action*" and students need to capture this in their construction and usage of the tools in the E-portfolio in Mahara. So, students should ensure that they showcase all the dimensions. Students should apply creative minds by creating quality evidence and have a systematic approach.

- An E-portfolio should be well planned and constructed in a logical way. Students should take some time to think about this and remember that they could change and edit until submission. Once submitted, changes cannot be made.

- The creation of an E-portfolio on Mahara is not an overnight task. Students are required to work on the E-portfolio for the duration of registration for their modules.

- Collaboration is key in this regard, therefore students should make sure that they invite and share their work with lecturers and peer students (with whom they have worked with and can trust) for review and reflection on their E-

portfolio. This might help receive constructive feedback for improvement, which could result in a higher standard of their E-portfolio.

- Plagiarism should be clearly explained to students and they should be provided with the plagiarism policy. This policy will guide them in not sharing their work with everyone as this might create more risks of plagiarism. Furthermore, students should consult UNISA's policy on plagiarism before they share their artefacts. The policy should be included in the tutorial letter 101 of each module or website.

With this guideline, students will be able to conceptualise and plan the aspects of their of the E-portfolio using. In addition, the following aspects should form part of the planning and conceptualisation process.

8.4.1.1 Application of learning objectives, standard, and criteria set for E-portfolio

Defining learning objectives, assessment criteria and set standards is a key component of working with E-portfolios. Learning objectives should be clearly spelled out to students informing them what is to be learned in the (limited) time at their disposal (De Bruijn & Leeman, 2011). The learning objectives are essential for planning work (students and lecturers), content and method of a course (lecturers), and assessment. The tutorial letter 101 provides learning objectives of each module for students (Van Wyk, 2017).

8.4.1.2 Planning of assessment tasks

Online learning provides flexibility for students to pace their own study (Chizmar & Walbert, 1999). The anytime, anywhere feature of asynchronous online learning provides students with the ability to plan their activities at the time and the place that is most convenient for them (Palloff & Pratt, 1999). Online learning provides flexibility for students to pace their own study (Tang & Lam, 2014). The anytime, anywhere feature of asynchronous online learning provides students with the ability to plan their activities at the time and the place that is most convenient for them. Therefore, the development of E-portfolio requires proper planning from the lecturers and students.

The lecturers have to plan their assessment activities (formative and summative assessment) while the students have to plan what, when and how in order to design and develop quality evidence for their E-portfolios. As suggested by van Wyk (2017), numerous activities from the E-portfolios can be considered as evidence, and may include written assignments for creative writing, a research project, reflective journals entries, podcasts, blog postings, PowerPoint presentations, digital video clippings (DVDs) and others. In this perspective, students should be able to know which evidence is required in the E-portfolio through proper planning and guidance from the lecturers. A general description should be outlined to students.

8.4.1.3 Academic and institutional guidance support

Student support plays an essential role in student academic achievement; therefore, with the E-portfolio as alternative assessment, students need continuous support from the start. Introducing E-portfolio requires that students are guided towards a new perspective of education, where they learn to assume more responsibility for their personal development and lifelong learning. The lecturers have a primary role in supporting students academically during the development of the E-portfolio so that quality evidence is produced. Lecturers have to find means and ways that work for them to support students in their different context as they develop the E-portfolios. Academic support commences with providing information regarding the processes to be followed for successful development of an E-portfolio. The literature suggested steps that can be followed to effectively and efficiently support students in developing quality evidence in their E-portfolios (*cf*.4.5.1). Secondly, the institution has the responsibility of assisting students with ICT, administrative E-portfolio issues (Roth, Bovey, Zea, Hediger, Keller & Berg, 2009). Therefore, a well-planned technical implementation is crucial for the success of E-portfolios through the assistance of the IT department. Given UNISA's size and the particular teaching and learning pedagogy and modalities applied, optimal implementation of E-portfolios requires a robust, stable, cutting-edge ICT infrastructure and platform (Van Niekerk, 2015). However, the relatively large proportion of the UNISA student community, who do not have access to the required equipment and software at home, are supported in the following ways. UNISA's multipurpose regional centres should equipped with ICT infrastructure to support those students who, due to socio-economic factors, lack the means to afford

these. The online administrators at the centres should be trained on the E-portfolio site to be able to navigate with students to assist them. Furthermore, the E-portfolio students need to have mentors, students who have experience in developing E-portfolio, to help them throughput their studies.

8.4.1.5 Modelling professional practices

The collection of E-portfolios should model the professional development of career development and professionalism of students. Bhattacharya and Hartnett (2007) found that the design and development of E-portfolios require a suitable platform, which is to provide integrative learning, where students can describe the relationship between the subject content they have learned to real-life situations (Lombardi, 2007). When modelling professional practices, the focus is on four elements in the development of E-portfolios as learning and innovative skills, and career skills that are relevant for the 21st century (Geisinger, 2016). These elements include the areas of standards and assessments, curriculum and instruction, professional development and learning spaces. Yastıbaş (2013) explains that E-portfolios communicate various kinds of information for the purposes of assessment. For example, E-portfolios can:

- Demonstrate applications of knowledge and critical literacies for course programmatic assessment;
- Provide evidence of meeting standards for professional certification (rubrics, marking guidelines);
- Display qualifications for employment;
- Showcase job-related accomplishments beyond schooling, for evaluation or promotion; and
- Represent lifelong learning for participation in public service.

Supporting student can be modelled through their competencies in their professional practices as demonstrated. By modelling professional practices, students demonstrate through their understanding of what is required and what is expected of them, as they collaborate, network, and provide feedback to each other. In addition, feedback from the lecturer also builds their confidence in modelling their professional practices. This

is achieved when students take control of their learning, managing their time as they self-direct and regulate their learning.Ultimately through the use of E-portfolio, students will be able to become part of community of lifelong learners.

8.4.2 Step 2: Compiling and Selecting Quality Artefacts

The second step involves collection and production of quality artefacts as students select the best suitable artefacts relevant for their E-portfolio use. In this stage, students review and evaluate the artefacts, and identify those that demonstrate achievement of specific criteria and standards set. An E-portfolio becomes a final product when all necessary evidence is being produced in the form of evidence

The following aspects are necessary for E-portfolio assessment:

8.4.2.1 Supervision of student progress

Throughout the learning process, lecturers should supervise the process of the E-portfolio checking on the progress of students before they submit. By checking on their progress, lecturers will be notified about the progress of the students and give support where necessary.

8.4.2.2 Portfolio Content knowledge

Throughout the duration of the studies, students will be asked to prepare specific learning activities learning activities such as assignments, writing essays, performing active field research, reflective journals. Therefore, with every learning activity, they will have to create content that will be included in their E-portfolios (Van Wyk, 2017a). Assessment is based on the content knowledge learnt theoretically; therefore, module content knowledge is crucial for both the lecturers and students (Boud, 2013). The content that will be included in the portfolios is defined by the learning activities identified for the particular module (Bennett, 2011). It is important to note that formative feedback should be provided to students giving them enough time and information on how to improve their learning activities (Burke, 2010). The theory learnt as evidence in their E-portfolio, depicting their professional development in their different modules.

Therefore, content knowledge is displayed in their E-portfolio artefacts selected as evidence and should be related to the content knowledge of the module.

8.4.2.3 Ethics issues (plagiarism and language use)

During the collection of artefacts, it is essential that the importance of ethics should not be overlooked throughout the learning process. The ethical issues regarding plagiarism (e.g. copying from peers, scientific citation) should be discussed with students to avoid ignorance. It should be clearly outlined that copying each other's work is not acceptable, and appropriate scientific citation should be applied (Van Wyk, 2017b). Therefore, every student should do their own work. The scientific measures to prevent plagiarism should be addressed through Turnitin similarity checks. Student work should be put on Turnitin to detect and identify similarities to assist students in managing potential academic misconduct by highlighting similarities to the world's largest collection of internet, academic, and student paper content. Secondly, language when communicating with peers should be taken into consideration. Students should know how to behave online, that is, be aware of their tone, criticism, privacy, and should be done sensibly. The UNISA policy regarding plagiarism should be made available to students before they commence with assessment tasks or activities. The plagiarism policy can be uploaded on the module website and for ease of reference. The plagiarism policy should be implemented if work is plagiarised in any way.

8.4.2.4 Tasks accomplishments

During this process, students are expected to complete tasks required using the guidance and communication from peers and lecturers, or in informative documents on the subjects of learning, judging the work like tutorial letters and module website. For them to accomplish the tasks students have to collect, select and use their evidence selected for the E-Portfolio, for instance, documents, pictures and links related to their learning activities: like videos, audio recordings, pdfs documents, PowerPoints presentations, word, excel, blogs, texts. These artefacts will assist them to them to complete the tasks and accomplish their learning outcomes. Student should apply their thinking, creatively use their thoughts, and add them to your E-portfolio. In

creating these artefacts, unique skills will be demonstrated leading to personalised learning. The reflective part of the E-portfolio is displayed in the process, which is one of the most important aspect of student learning is progress.

8.4.3   Step 3: Compiling Relevant Evidence for the E-Portfolio

In this phase, students collect, select and save artefacts that represent their learning achievements and growth opportunities in their day-to-day learning. Thus, Belgard (2013) clarifies that compiling and sharing evidence in the E-portfolio empowers students to build up their learning and collaborative skills.

8.4.3.1   Formative and summative assessments

Assessment in student learning is determined by their competency in various skills as requested by learning outcomes conducted throughout the learning. E-portfolio assessment should be combined with several types of assessment that includes formative, summative, peer, and self-assessment. Formative and summative assessment activities can be used for assessment (Smith & Tillema, 2003). The former, it has been argued, has the potential to raise student self-esteem whereas the latter may reduce student motivation (Barrett 2010) though it has been suggested that this negative effect may be countered if the student is allowed greater autonomy within the E-portfolio process (Wade, Abrami & Sclater 2005). The assessment itself may be done in a manner which looks for evidence of learning gains (Nickelson 2004) or by comparing it with scoring rubrics or standards (Wade, Abrami & Sclater 2005; Nickelson 2004). Barrett (2007:442) proposes that while assessing E-portfolios, a distinction should be made between assessment for and assessment of learning. The latter is high-stakes, institutionally prescribed as summative assessment, and the former is meant to improve learning and is essentially formative.

As Colby, Ehrlich, Beaumont and Stephens (2003:259) state, assessment, practices should assess using formative and summative assessment type holistically covers the four dimensions of learning and education such as knowledge, skills-based learning, self-learning and co-learning values. As a result, assessors have to decide on developing assessments that requires skills, performance, products, oral and written

tests and group-work that will demonstrate effective learning. As a result, E-portfolio assessment tasks and activities afford students the opportunity to build upon factual, developmental stages that will demonstrate various learning that happened.

8.4.3.2   Specific learning objectives

Students are guided by clearly articulated learning outcomes in their collection, selection reflection and presentation of artefacts in their E-portfolios. The purpose of the learning objectives is to provide students with insight into the complexity of the modules to be achieved by the end of the course, as defined by the curriculum. With the E-portfolio being a competence-oriented assessment approach focusing on the development of student competencies based on the learning outcomes, module-learning outcomes should be aligned with learning activities designed for the E-portfolio. Learning objectives will inform on what is to be learned in the (limited) time available. Secondly, the learning outcomes are for planning work (students and teachers), content and method of a course (teachers), and assessment. A classification of learning objectives can be helpful in aligning learning objectives, learning activities and assessment

8.4.3.3   Knowledge, skills and achievements

The purpose of the portfolio is to assess learning outcomes that confirm learning that took place. The artefacts compiled, selected, and used as evidence for the E-portfolio should demonstrate knowledge, skills and values achieved. Van Wyk, 2017b) assert that these competencies can be demonstrated through collecting and uploading of evidences such as:

- Diagrams and pictures to support as evidence;
- Interesting facts or research findings;
- Evidence of application in classrooms;
- Social media which students have used during the module;
- Photos of students work which might be of importance in the E-portfolio; and
- Evidence of co-creating of knowledge during the journey in the module.

As a result, the evidences will be assessed and will inform the students about their learning comprising the knowledge, skills and values achieved.

8.4.3.4 Self and Peer Assessment

The assessment as learning involvements the development of assessment tasks that require students to assess themselves and their peers, to meet the achievements the learning outcomes set for the module. In addition, self and peer assessment and evaluation tools afford students the opportunity to enhance student reflection, personal development and learning. Fenwick and Parsons (2009:111) describes self-assessment as "the act of identifying standards or criteria and applying them to one's own work, and then making a judgment as to whether or how well you have met them". The development of E-portfolio is a continuous process, which is frequently collaborative in nature, routinely using technology-rich co-construction environments (Barber, King & Buchanan, 2015). From a constructivist perspective, self-assessment represents a step on the path to critical reflection and growth, to independence learning and self-direction learning (Garrison & Archer, 2000). With the use of self and peer assessment in the E-portfolio, assessment will improve student self-assessment skills because they could monitor their learning process, understand their strengths and weaknesses, and try to overcome their weaknesses. To improve further on self and peer assessment, lecturers should consider the following aspects in implementation:

- Assessment criteria must be clarified; for example by providing a valid rubric, checklist, illustrations.
- Assessment briefing/training sessions should be carried out before implementing self and peer assessment to ensure students understand the assessment process and criteria; for example, via discussion, providing examples of good and bad practices.
- Student capabilities for performing self and peer assessment should be taken into consideration (for example, course level, student background)
- The learning environment needs to be safe and conducive for students to feel comfortable with self and peer assessment.

- Assessment session should be appropriately scheduled, based on the purpose of the assessment; for example, self-reflection can be done when outside the learning environment.

- Feedback should be given to students regarding their self and peer assessments.

- Assessment results should only be shared in a thoughtful manner; for example, cumulative results can be shared but individual students' reflections/results should not be shared without consent.

- Feed forward is conducted during the assessment process providing use for future enhancement of existing strengths and improvement of past weaknesses.

In this regard, students through self and peer assessment can reflect on what happened during the assessment tasks process. It requires students to write up a reflection on an aspect that is considered important to their learning or profession, as either are a self-contained part of the curriculum or added as an assignment to an already existing course (Driessen, 2017). The reflective component of the E-portfolio is thought to provide a bridge between theory and practice, linking the knowledge gained with that of the practice environment (McCready, 2006, Joyce, 2005). Bolton (2014), recommends that free writing can assist in order to capture thoughts and feelings. The author further recommends that reflective practices afford students the opportunity to become more self-aware of their learning progress. This could be more like a mirror where students are able to look at how far they have gone in their learning. Honey and Mumford (2000) suggested learning styles that can support the strengths and weaknesses: The reflective practice emphasises the SWOT/B analysis that is displayed through (Strengths, Weaknesses, Opportunities and Threats/Barriers) and SWAIN (Strengths, Weaknesses, Aspirations, Interests and Needs) exercises to help students to analyse their current position. In order for students to reflect, they can use set standards and criteria based in the rubric. This study has designed a rubric that can be used as a guiding tool when developing a rubric for different module (*cf.* Appendix N).

8.4.4   Step 4: Grading of the E-Portfolio

In this stage, assessment of the E-portfolio is conducted following the set criteria. For most of the module, students are required to prepare an E-portfolio as a final form of summative assessment. In all learning activities or assessment tasks, that include formative, self and peer assessment, activities illustrating competencies and knowledge should be included in the E-portfolio. Upon submission of the final E-portfolio, a final review and grading is done by the lecturers; thereafter, each student will receive their results of the module. Brown and Harris (2014) recommend that grading is the process of interpreting student learning products and performance by:

- Reflecting on where students stand in relation to an orderly development of competence.
- Informing both students and lecturers about not only the current level of student learning, but also what needs to be done to improve that position; and.
- Combining with other grades in order to meet administrative requirements for awarding levels according to student performance.

For the success of assessment, students should be made aware that all learning activities will be graded, based on the merit of pass or fail. The summative assessment grading for the E-portfolio is the final course or module grade. Grading is a high stakes activity, the results of which students use to define themselves as students. Interpreting and grading student learning relies upon careful upfront planning and can be significantly enhanced when students become agents of the assessment process as they become involved in self and peer assessment.

The most commonly used strategy for assessing and grading E-portfolios is rubrics (Van Niekerk, 2015). As discussed in Chapter 4, a rubric is a scoring sheet that lists the criteria for a piece of work or identifies what counts in a piece of work, or writing (*cf.*4). The two significant advantages of rubrics are that it ensures that students receive feedback and feed forward on time, which helps them to think critically. The rubric also assists lecturers in refining their teaching and levelling the ground for

students (Shaw, 2007). Rubrics display what it is essential and thus provide clear information of the assessment process to students (Shaw, 2007, Bissell & Lemons, 2006; Schamber & Mahoney, 2006), while it is also used to evaluate students, learning activities or assessment tasks submitted. The lecturers use Rubrics to track student performance and assess their work (criteria or rating scales); rubrics can also be used to inform students of the course expectations. When the rubric is shared and discussed with students, it gives them an additional orientation and explains to them what a particular skill or outcome means. To make it more meaningful, the lecturers can make the formative component stronger by discussing the skill descriptors of the rubric with the students. During collection of and reflection of evidence in the E-portfolio, and prior to E-Portfolio submission, lecturers should encourage students to evaluate their E-portfolios using the rubric.

Based on the elaboration of the components of the E-portfolio, Figure 8.2 below depicts the proposed framework that can be facilitated from the commencement of the E-portfolio development process to the final product assessment process.
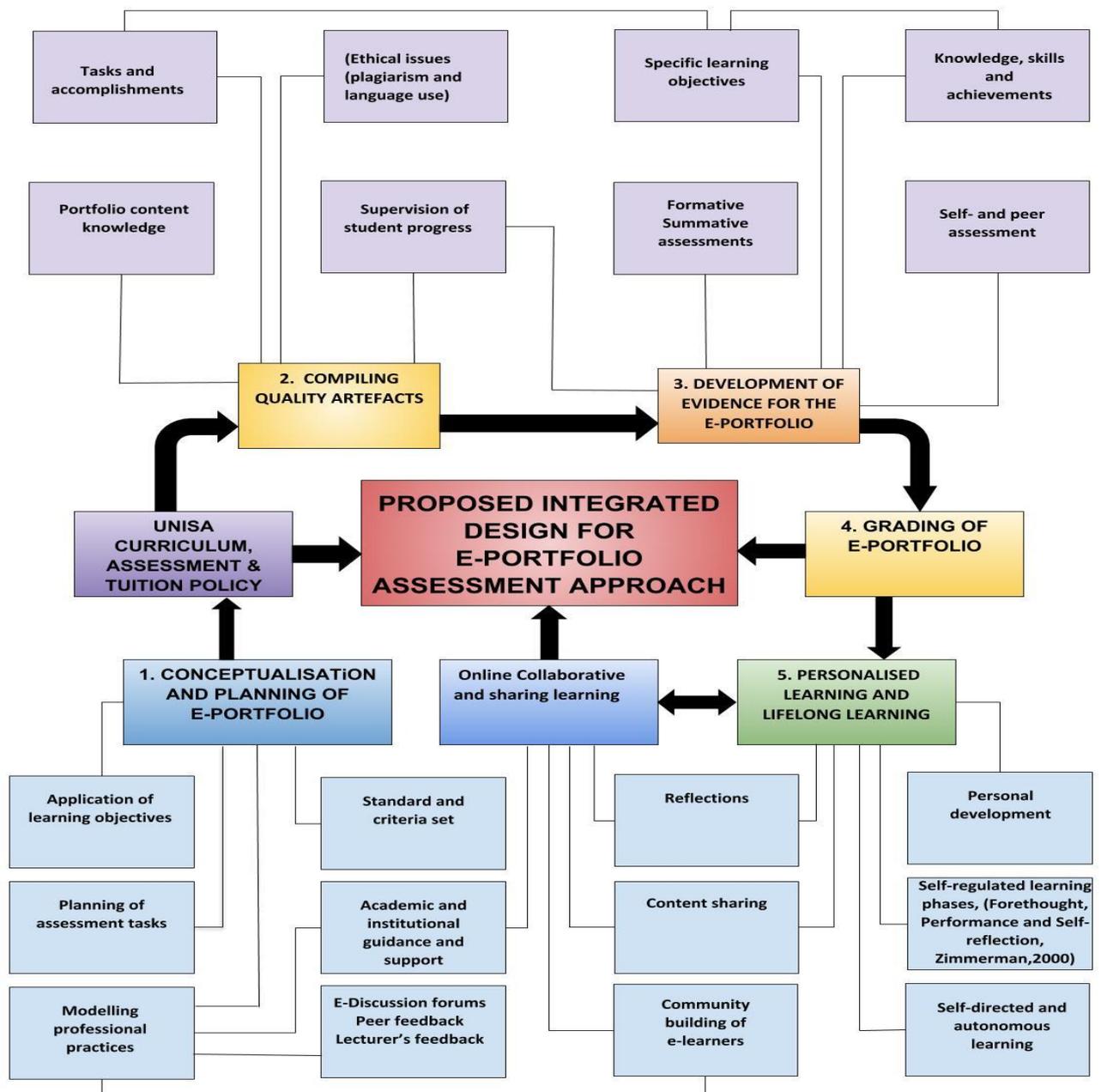
Figure 8.2: A proposed framework for an E-portfolio for learning and assessment to enhance student self-directed learning (Nkalane, 2018)

8.5 CONCLUSION

This chapter discussed and outlined the proposed E-portfolio framework. Designing and developing an E-portfolio can be a valuable experience and provide a treasured

product for students and their lecturers. The design and development of the framework was based on the literature review, findings of the empirical study and recommendations in identifying the components for the design of a framework for the E-portfolio as an alternative assessment approach in an ODL context. The recommended components of the proposed framework for the E-portfolio were compiled from information gathered from the scoping review, empirical research, personal experience as a lecturer; interactions with colleagues over the years regarding assessment practices and conversations with lecturers involved in portfolio and E-portfolio as an alternative assessment approach. The proposed framework serves as a guideline for E-portfolio assessment in ODL environment and will require adjustment according to personal circumstances, content to be taught and level of student ability. Furthermore, this framework is structured according to the three UNISA policy documents, application and expected outcomes of assessment. Therefore, the lecturers and educators should plan, use and implement the guidelines provided by this framework for the successful use of E-portfolio assessment with the view of achieving the learning outcomes of the module, developing student careers or professional development, equipping students with the necessary skills and enhancing their self-directed learning and lifelong learning.

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APPENDIX A: ETHICAL CLEARANCE CERTIFICATE

UNISA | university of south africa

UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2018/03/14

Ref: 2018/03/14/ 41146905/06/MC
Name: Mrs PKB Nkalane
Student: 41146905

Dear Mrs Nkalane

Decision: Ethics Approval from 2018/03/14 to 2023/03/14

Researcher(s): Name: Mrs PKB Nkalane
E-mail address: nkalapk@unis.ac.za
Telephone: +27 12 429 8898

Supervisor(s): Name: Prof MM van Wyk
E-mail address: vwykmm@unisa.ac.za
Telephone: +27 12 429 4775

Title of research:

e-Portfolio as an alternative assessment strategy to enhance students' self-directed learning in an Open Distance e-Learning environment

---

Qualification: D Ed in Curriculum and Instructional studies

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2018/03/14 to 2023/03/14.

The **low risk** application was reviewed by the Ethics Review Committee on 2018/03/14 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

Open Rubric

2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the UNISA College of Education Ethics Review Committee.

3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.

4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.

6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.

7. No field work activities may continue after the expiry date **2023/03/14**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number **2018/03/14/ 41146905/06/MC** should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,

Dr M Claassens
CHAIRPERSON: CEDU RERC
mcdtc@netactive.co.za

Prof V McKay
EXECUTIVE DEAN
Mckayvi@unisa.ac.za

APPENDIX B: RPSC APPROVAL CERTIFICATE

RESEARCH PERMISSION SUB-COMMITTEE (RPSC) OF THE SENATE RESEARCH, INNOVATION, POSTGRADUATE DEGREES AND COMMERCIALISATION COMMITTEE (SRIPCC)

25 April 2018

<table>
<tr>
<td>

Decision: Research Permission Approval from 1 May 2018 until 31 December 2019.

</td>
<td>

Ref #: 2018_RPSC_016

Ms. Patience Kelebogile Nkalane

Student #: 41146905

Staff #: 90233719

</td>
</tr>
</table>

Principal Investigator:
   Ms. Patience Kelebogile Nkalane
   Department of Curriculum and Instructional Studies
   School of Teacher Education
   College of Education
   Unisa
   nkalapk@unisa.ac.za, 012 429 8898/ 0829532090

Supervisor: Micheal Moos Van Wyk, vwykmm@unisa.ac.za, 012 429 4775/ 083544 5217

e-Portfolio as an alternative assessment strategy to enhance students' self-directed learning in an Open Distance e-Learning environment.

Your application regarding permission to conduct research involving UNISA employees, students and data in respect of the above study has been received and was considered by the Research Permission Subcommittee (RPSC) of the UNISA Senate, Research, Innovation, Postgraduate Degrees and Commercialisation Committee (SRIPCC) on 20 April 2018.

It is my pleasure to inform you that permission has been granted for the study. You may:

1. Gain access to the email addresses of nine (9) Unisa lecturers who teach modules that use e-Portfolios and they are identified as SDECOON, SDBIOLJ, HBEDMEF, PYC4804, HSE3704, LPL4802, ANH301A, CUDAEE and INTMAEU.
2. Invite the nine lecturers to participate in personal interviews.

Open Rubric

3. Send an online questionnaire to the students registered for SDECOON, SDBIOLJ, HBEDMEF, PYC4804, HSE3704, LPL4802, ANH301A, CUDAEE and INTMAEU modules, through the gatekeeping assistance of ICT.
4. Gain access to the students' e-portfolios, tutorial letters of the modules mentioned above and the assessment policy.

You are requested to submit a report of the study to the Research Permission Subcommittee (RPSC@unisa.ac.za) within 3 months of completion of the study.

The personal information made available to the researcher(s)/gatekeeper(s) will only be used for the advancement of this research project as indicated and for the purpose as described in this permission letter. The researcher(s)/gatekeeper(s) must take all appropriate precautionary measures to protect the personal information given to him/her/them in good faith and it must not be passed on to third parties. The dissemination of research instruments through the use of electronic mail should strictly be through blind copying, so as to protect the participants' right of privacy. The researcher hereby indemnifies UNISA from any claim or action arising from or due to the researcher's breach of his/her information protection obligations.

Note:
*The reference number **2018_RPSC_016** should be clearly indicated on all forms of communication with the intended research participants and the Research Permission Subcommittee.*

We would like to wish you well in your research undertaking.

Kind regards,

pp. Dr Retha Visagie – Acting Chairperson: RPSC
Email: visagrg@unisa.ac.za, Tel: (012) 429-2478

Prof Annemarie Davis – Acting Executive Director: Research
Email: davisa@unisa.ac.za, Tel: (012) 429-8357

APPENDIX C: TURNIT IN REPORT

Turnitin Originality Report

Thesis   by Patience Kelebogile Nkalane

From Complete dissertation/thesis for examination (M&D Students 2018)

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6 1% match (publications)
Ahmet Erdost Yastibas, Gülsah Cinar Yastibas. "The Use of E-portfolio-based Assessment to
Develop Students' Self-regulated Learning in English Language Teaching", Procedia - Social
and Behavioral Sciences, 2015

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http://uir.unisa.ac.za/bitstream/handle/10500/22045/thesis_mukhari_ss.pdf?i=&sequence=1

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"E-Portfolios in Higher Education", Springer Nature, 2017

9 1% match (publications)
M Lukitasari, J Handhika, W Murtafiah. "Higher order thinking skills: using e-portfolio in project-

APPENDIX D: LANGUAGUE EDITING

EDITING SERVICES

To whom it may concern

This letter serves to confirm that editing and proofreading was done for:

Patience Kelebogile Nkalane

E-portfolio as an alternative assessment approach enhancing self-directed learning in an Open Distance Learning environment

Doctor of Philosophy in Education
Curriculum Studies
University of South Africa

Supervisor: Professor Michael M. Van Wyk

Cilla Dowse
16 November 2018

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Open Rubric

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APPENDIX E: PARTICIPANT INFORMATION SHEET

DATE: 15 February 2018

TITLE: e-Portfolio as an alternative assessment strategy to enhance students' self-directed learning in an Open distance e-Learning (ODeL) environment.

DEAR PROSPECTIVE PARTICIPANT

My name is Patience Kelebogile Nkalane and I am doing research under the supervision of Professor MM Van Wyk, a professor in the Department of Curriculum and Instructional Studies, towards a PhD at the University of South Africa. We are inviting you to participate in a study entitled **e-Portfolio as an alternative assessment strategy to enhance students' self-directed learning in Open Distance e-Learning (ODeL) environment.**

WHAT IS THE PURPOSE OF THE STUDY?

This study is expected to collect important information that could uncover how e-Portfolios as alternative assessment strategy could be used to enhance students self-directed learning and to develop a self-directed learning e-portfolio framework (SDL e-Portfolio framework) for support student learning in an open distance learning context. The aim of this study is to generate new knowledge on e-Portfolios particularly on students self-directed learning in an ODeL context, effecting changes to the e-learning and e-assessment through assessment policy practices of Unisa.

WHY AM I BEING INVITED TO PARTICIPATE?

You are invited because you belong to the institution where the need to conduct the research has been observed, and you have the potential to provide relevant information pertaining to the research. I obtained your contact details from the lecturer of your module. A total of eight lecturers and 3641 students will participate in the study. Only those survey responses returned will be used for data collection.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

Your role in the study is to participate in individual or online survey. The study involves audio taping of individual semi-structures. A list of individual and online survey questions is available for your perusal. The expected duration of participation in the research is three weeks per module course, and the time needed to complete individual and online survey is about forty minutes respectively.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

As a participant in the study you will have access to the published report of the study, where your identity will be protected. Also, participating in the study may have some direct benefits for you as the study will benefit students, lecturers, curriculum developers and other stakeholders in education.

ARE THERE ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

There is no foreseeable risk of harm or side-effects to the potential participants, other than the risk of inconvenience. Participation in the study is voluntary, and the participants will have the right to withdraw should they experience emotional discomfort.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

As a participant, your name will not be recorded anywhere and no one, apart from the researcher and identified members of the research team, will know about your involvement in this research. Also, your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings.

Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

The data you will provide may be used anonymously for other purposes, such as a research report, journal articles and/or conference proceedings. However, individual participants will not be identifiable in such a report. Please keep in mind that it is sometimes impossible to

make an absolute guarantee of confidentiality or anonymity, e.g. when focus groups are used as a data collection method.

Yin (2016:336) describes a focus group as "a form of data collection whereby the researcher convenes a small group of people having similar attributes, experiences, or "focus" and leads the group in a nondirective manner to surface the perspectives of the people in the group with as minimal influence by the researcher as possible". While every effort will be made by the researcher to ensure that you will not be connected to the information that you share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason, I advise you not to disclose personally sensitive information in the focus group.

HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet in the Department of Curriculum and Instructional Studies at Unisa for future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. The hard copies of your answers will be shredded manually after a period of five years.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no reimbursement or any incentives for participation in the research.

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study has received written approval from the Research Ethics Review Committee of the College of Education, Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Patience Kelebogile Nkalane on 0829532090, or nkalapk@unisa.ac.za. The findings are accessible for a period of five years. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Patience Kelebogile Nkalane on 0829532090, or nkalapk@unisa.ac.za

Should you have concerns about the way in which the research has been conducted, you may contact Professor Michael Moos Van Wyk at 012-429 4775, or email vwykmm@unisa.ac.za.

Thank you for taking time to read this information sheet and for participating in this study. Thank you.

_____

_____

Patience Kelebogile Nkalane
Contact number 0829532090
Email: nkalapk@unisa.ac.za

APPENDIX F: CONSENT FORM

CONSENT TO PARTICIPATE IN THIS STUDY (Return slip)

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the _____ (insert specific data collection method).

I have received a signed copy of the informed consent agreement.

Participant Name & Surname (please print) _____

_____   _____
Participant Signature   Date

Researcher's Name & Surname (please print)
Nkalane Patience Kelebogile

_____   _____
Researcher's signature   Date

SEMI-STRUCTURED INTERVIEW QUESTIONS

Face-to-face Semi-Structured Interview with lecturers

Interviewer: Nkalane P K
Interviewee:_____

<div align="center">Potential Questions:</div>

CONTEXTUALISATION , USE AND PURPOSE OF E-PORTFOLIO ASSESSMENT STRATEGY

1. Briefly explain your understanding of e-portfolios use in your module

2. What is the purpose of the student electronic portfolio in your module?

3. Why did you decide to introduce electronic portfolios to students for your module?

4. Please explain the structure of the e-portfolio for your module.

PRODUCTION OF QUALITY EVIDENCE IN STUDENT'S E-PORTFOLIO OF AUTHENTIC ASSESSMENT

5. In your opinion is there evidence of student learning achievement with regards skills with reference to:

   a) *Does the e-Portfolio assigned tasks to student show the higher order thinking skills?*

   b) *Does e-Portfolio assigned tasks to student show the critical thinking skills?*

   c) *Does the e-Portfolio assigned tasks that demonstrate any other skills achieved by students?*

SUPPORT STUDENT NEED IN SELF-DIRECTED TECHNOLOGY-USE FOR LEARNING

6. How do you motivate and support your student during process of e-Portfolio design and development?

7. How do you make sure that your students retain and make use of what they learn, better?
   a) *How do you guide them into* achieving goal-set?

E-PORTFOLIO USE FOR ASSESSMENT USE

8. How do you assess using e-Portfolios in your module?

   a) *Do you use formative or summative assessment?*

   b) *Does the use of e-Portfolios have an impact on formative and/or summative assessment?*

   c) *Which type of assessment do you think become more effective in using e-Portfolios in your module?*

   d) *Do you think the use of e-Portfolios in your course improve your methods of assessment?*

   e) *How has your assessment practices changed since you started using e-Portfolios?*

Please motivate your answers

EXPERIENCES IN USING E-PORTFOLIO

9. What experiences can you share regarding use of e-portfolio use?

   a) *What benefits have you gained from using e-Portfolios in your module?*

   b) *What challenges and constraints have you faced while using e-Portfolios in your module?*

   c) *How have you overcome such constraints?*

10. Will you continue to use e-portfolio development in your module in the future? Please, explain.

11. Would you recommend using electronic portfolios to other colleagues in the department, college?

12. Do you have any additional comments that you would like to share?

Thank you for your participation

APPENDIX H : ONLINE SURVEY

ONLINE QUESTIONNAIRE

From: Mrs P K Nkalane
Department: Curriculum and Instructional Studies
College of Education
University of South Africa

To: Dear Unisa Student

My name is Patience Kelebogile Nkalane. I am conducting a research study entitled ***E-portfolios as an alternative assessment strategy in enhancing student self-directed learning in an Open distance e-Learning (ODeL) environment,*** which will be conducted in the Colleges of the University of South Africa. This study explores how E-portfolios, as an alternative assessment strategy, could be used to enhance student self-directed learning. The purpose is to design a self-directed learning framework for E-portfolio (SDL E-portfolio Framework) for support student learning in an open distance learning context. The purpose of this study is to generate new knowledge on E-portfolios, particularly students self-directed learning in an ODeL context, effecting changes to the e-learning and e-assessment through assessment policy practices of UNISA.

Participating in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and then be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason. Based on your experience as a distance education student enrolled at UNISA, show the extent to which you agree or disagree with each of the statement below by marking the appropriate box with an X. **1=Strongly Disagree, 2=Disagree, 3=Partially Agree, 4=Agree, 5=Strongly Agree.** All the information you provide will be treated confidentially.

I therefore, request you to complete the questionnaire below, which will not take you more than 20 minutes. Kindly respond and email your responses to the following email address:nkalapk@unisa.ac.za

Your response is highly appreciated.

Ms P K Nkalane
The Researcher

ONLINE QUESTIONNAIRE

Instructions: *Please read through the questionnaire and mark the relevant answer.*

SECTION A: BIOGRAPHICAL DATA

This section of the questionnaire refers to biographical information. Although we are aware of the sensitivity of the questions in this questionnaire, the information will allow us to compare groups of respondents. Your co-operation is appreciated.

1.1 Please indicate your gender

Female	1	
Male	2	

1.2. Indicate with an '**X**' in which of the following colleges are you registered.

Law	
Education	
Agriculture & Environmental Sciences	
Human Sciences	
Economics and Management Sciences	
Science, Engineering & Technology	
Accounting Sciences	

1.3 In which year of study are you doing the E-portfolio

1.3.5	1st year	
1.3.2	2nd year	
1.3.3	3rd year	
1.3.4	4th year	

1.4. Please indicate the module for which you are registered in 2018

1.4.1	CUDAEE	
1.4.2	SDBIOJ	
1.4.3	ANH130A	

1.4.6	INTMAEU	
1.4.7	HSE3704	
1.4.8	SDEC00N	

SECTION B: E PORTFOLIO ENHANCES HIGH ORDER THINKING SKILLS (HOTS), CRITICAL THINKING SKILLS (CTS) AND SELF-DIRECTED LEARNING SKILLS (SDLs)

Please study and indicate in this section whether you agree that your portfolio enhances your high order thinking skills, critical thinking skills and self-directed learning skills.

2.1   E-PORTFOLIO ENHANCES MY HIGH ORDER THINKING SKILLS (HOTS)

To what extent do you agree that the E-portfolio enhance your higher order thinking skills.

	Strongly disagree	Disagree	Agree	Strongly agree
2.1.1. I can **create** quality evidence (through effective planning, designing and producing) for my E-portfolio	1	2	3	4
2.1.2 I can **evaluate** the quality of evidence (through checking ,critiquing , judging and reviewing my activities) for my E-portfolio	1	2	3	4
2.1.3 I can **analyse** the quality of evidence produced (by comparing , organising, critiquing and structuring) my E-portfolio	1	2	3	4
2.1.4 I can **apply** knowledge and skills when developing evidence (by carrying out criteria expected) for my E-portfolio.	1	2	3	4
2.1.5 I can clearly **understand** (by comparing, interpreting, summarising and explaining) the evidence produced in my E-portfolio.	1	2	3	4

2.1.6 I am able to **remember** (by recognising, listing, identifying, describing and finding) quality evidence for my E-portfolio.	1	2	3	4

2.2 E-PORTFOLIO ENHANCES MY CRITICAL THINKING SKILLS (CTS)				
To what extent do you agree that the E-portfolio enhances your critical thinking skills.				
2.2.1 I can think deeply to make relevant connections when designing quality evidence for my E-portfolio.	1	2	3	4
2.2.2 I can communicate, debate and network with my peers and lecturers effectively.	1	2	3	4
2.2.3 I can integrate critical thinking skills within and across subject content areas and skills.	1	2	3	4
2.2.4 I can analyse, reason and evaluate my assessment tasks produced for my E-portfolio.	1	2	3	4
2.2.5 I can use my critical skills to practice and apply subject content successfully.	1	2	3	4
2.2.6 I can interpret information as set out in my assessment tasks beyond surface learning.	1	2	3	4
2.2.7 I can engage in reflective practices through analysing and critiquing evidence produced in my portfolio.	1	2	3	4
2.2.8 I can explore alternatives to producing evidence through my creative thinking skills.	1	2	3	4
2.2.9 I can consistently cultivate a sense of questioning towards credibility, accuracy and relevancy of information and sources to be used in my E-portfolio.	1	2	3	4
2.2.10 I can generate and evaluate options prior to making decisions in my assessment tasks.	1	2	3	4

2.2.11 I connect and communicate with my peers and lecturers using myUnisa as an online platform (instant messages, emails, announcements, webinars, e-Discussion forums and blogs).	1	2	3	4
2.2.12 I connect and communicate with my peers and lecturers using social media platform (Facebook, WhatsApp, WeChat) on issues relating to my E-portfolio.	1	2	3	4

2.3 E-PORTFOLIO ENHANCES MY SELF-DIRECTED LEARNING SKILLS (SDLs)

To what extent do the E-portfolio activities in my module enhance my self-directed learning.

2.3.1 I teach myself *how* to learn rather than *what* to learn	1	2	3	4
2.3.2 I have the opportunity to teach myself the most essential skills (HOTS and critical thinking) to become a lifelong learner .	1	2	3	4
2.3.4 I learnt to apply different skills such as research skills, self-management skills, social skills and communication skills through compiling evidence.	1	2	3	4
2.3.5 I usually have a clear idea of where I'm going and what is regarding expected of me regarding evidence in my E-portfolio.	1	2	3	4
2.3.6 I can collaborate and interact with my peers within and beyond the module.	1	2	3	4
2.3 7 I have developed confidence, perseverance, and life satisfaction through the activities in the E-portfolio.	1	2	3	4

2.3.8 I always try new things that promote environment of trial and error which leads to achievement of my learning goals.	1	2	3	4
2.3.9 I always monitor and self-motivate what I have achieved in terms of learning at each stage in my E-portfolio.	1	2	3	4
2.3.10 I can set targets to achieve my goals for my formative assessments and summative assessment tasks.	1	2	3	4
2.3.11 I can see the benefits of my assessment tasks through personal development from completing my E-portfolio.	1	2	3	4
2.3.12. I can take control of and influence my learning pattern.	1	2	3	4
2.3.13. I take full ownership of my learning through producing quality evidence in my E-portfolio.	1	2	3	4

2.4 CHALLENGES FACED BY STUDENTS WHEN COMPILING EVIDENCE FOR THE E-PORTFOLIO

List any three challenges faced when compiling evidence for your E-portfolio.

1.
2.
3.

Thank you for your co-operation in completing this online questionnaire

Thank you for your co-operation in completing this survey questionnaire

APPENDIX I: E-PORTFOLIO CHECK LIST

UNISA | university of south africa

Module code

Date:

Items	Information required	Yes	No	Comments, suggestions and recommendations
Tutorial letter No: ……………..	Background information regarding the use of E-portfolio in the module			
	Information on the processes and procedures of assessment activities and submissions			
	Due dates for submission of assessment tasks			
	Guidance on formative assessments			
	Guidance on the summative assessments			
Content in the E-portfolio documents	Evidence of formative assessment criteria followed			
	Evidence of summative assessment criteria followed			
	Relevance of the content assessment tasks			
	Evidence of support shown by lecturers in the development of E-portfolio during the process by providing feedback			
	Evidence of reflection of students to improve their learning			
Evidence of critical thinking	Application critical knowledge in designing the tasks			
	Interpretation of information in their learning through tasks developed			
	Reflective practices in analysing tasks			

	Using alternatives means in producing creative thinking skills			
	Communication and sharing of knowledge among peers and lecturers			
Evidence of higher order thinking skills	Creation of quality evidence (through effective planning, designing and producing) in the E-portfolio			
	Evaluation the quality of evidence (through checking ,critiquing , judging and reviewing my activities) of the E-portfolio			
	Analyses of quality evidence produced (by comparing, organising, critiquing and structuring) in their E-portfolio			
	Application of knowledge and skills when developing evidence (by carrying out criteria expected) for E-portfolio			
	Clear understanding (by comparing, interpreting, summarising and explaining) of the evidence produced in the E-portfolio.			
	Self-management in completion of required tasks			
	Collaboration and integration with others in group work			
	Meeting of requirements for goals set to achieve			
	Independent and ownership of E-portfolio designs uniquely meeting requirements			
	Creativity in designing artefacts in the E-portfolio			
	Self-evaluation of their designed tasks			

APPENDIX J: INTERVIEW TRANSCRIPTS

Q: I think we should start. Thank you for allowing me to interview you regarding e-portfolio assessment. I am with participant M001. We are starting with our interview. Thank you. The first question, briefly explain what is your understanding of e-Portfolio use in your module?

R: The e-Portfolios that we use in my module, is not according to the e-Portfolio that I understand, like the one Unisa Training Department showed us on how to use the Mahara e-Portfolio. The Mahara e-Portfolio was an interactive portfolio where students could write information, answering maybe questions that were send to all the students according to the tutorial letter assignments and so forth, and the student could work at different paces. The lecturer could see what is the work that the student has released to the lecturer and they give feedback while the portfolio is going on. What is happening in module HSS3704, is different in the sense that the portfolio that they are doing is in a form of a workbook. They get a workbook with activities to do online, they send at the end, there is a closing date, they send the completed activities workbook back to the lecturer and they submit online like an assignment. So what is happening here, is that the portfolio is not interactive with the lecturer specifically. Instead the lecturer will have some other form of participation to ensure that there is peer participation, but generally it is a workbook that guides them and they fill in the workbook activities and submit online.

Q: So when you refer to other forms of participation, which ones are you referring to?

R: Like there are some activities in the workbook that I want them to do and reflect on in the discussion forums. So I set the discussion forum topics according to the activity, like it will be this activity name on the discussion forum and I expect the students to reflects concerning that activity or to do the activity and post their work, so that other students will be able to review the work and comment on that particular work, like mind maps, tables with information and so forth.

Q: Thank you for answering that question for me. The next question, in that regards to what is the purpose of the electronic portfolio in your module?

R: It is a non-venue based exam where the students will work on these activities within a given period and submit as a summative assessment.

Q: Okay. So do you use that for learning purpose or for assessment purposes?

R: I use it both for learning and assessment, the learning part mostly is where they use the peer review on the discussion forums and I also participate with them on the discussion forums, but it is activities related to the content of the module and the assessment part is the end product which they submit to the their lecturer.

Q: Okay, thank you.

R: Online.

Q: Then why did you decide to introduce the alternative assessment in the form of electronic portfolios?

R: It was sort of imposed on me, I didn't decide on it, when I came back from leave, I found the module running, just that the lecturer left, the one who introduced the module as online, and when I tried to get the history, it was said that it was an instruction from above to say, there must be pilot modules that will be non-venue based and online, so this was one of the pilot modules. I had to continue with it, I didn't have a choice. It was a bit difficult even in the beginning, because I was used to the venue based exam, blended mode of learning, but after the first semester, I got my feet and I enjoy the module now.

Q: Okay. And then is there any policy that informs the assessment, the alternative assessment in terms of electronic portfolio, is there any policy that informs you how to go about or any guidelines or any training that you have gone through, that actually helps you in this regard?

R: In terms of assessment I use the assessment policy, but it is not specific to online assessment as such and then on guidelines as to how to go about assessing them online, there are various trainings that I attend with the professional development centre, they do show us alternative assessment methods and I incorporated them in to the portfolio, they are not specifically for the portfolio because even the people that are using the blended mode are able to use the blogs, are able to use the other modes, but they are easier when you come to the portfolio in the sense they are online already and the student can be assessed and given marks online.

Q: Okay. I have a question that talks about how students design and develop their e-Portfolio and you mentioned you don't directly work into the e-Portfolio itself?

R: Yes, it is a different portfolio, it is not the one where students work on the portfolio and it is a continuous assessment form of portfolio. This one sort of, it is a summative assessment more than a continuous formative assessment. So that is why I had to design other formative assessment modes, because we have the other

assignments in the form of MCQs and we have the portfolio activity, which are submitted at the end as summative, in between the continuous assessment is done through the discussion forums.

Q: But you still have evidence that students put in that particular submission that they do, besides the interactive e-Portolio?

R: Yes, the summative one, which is the final document in a form of activities, yes there is the evidence.

Q: Okay.

R: Because it is submitted as an assignment through the assignment, online assignment route and we have to mark and we even get the assistance of external markers to mark the portfolios.

Q: Okay. Kindly explain to me what evidence is there in their portfolio that shows that they have developed? Okay, my question was.

R: Sorry. The question again.

Q: Can we continue?

R: Okay.

Q: My question was, can you, what evidence do you have, or is it included in the student portfolio? The very same submission that you do, their summative submission that you do, what evidence do they actually submit in the portfolio.

R: They submit a completed workbook with activities and the activities, they have answers to the activities. Although there is an introduction of who are you and you see those affective parts of the portfolio. They are part of the introduction but the body downwards it is there, the actual activities related to the content of curriculum development and at the end there is a build in reflective part where they reflect on the content and the way the module is delivered.

Q: Okay.

R: As part of the conclusion, so there is evidence through the Unisa online submission to say student, this has got, has submitted this and we mark that portfolio submitted and we give the summative mark.

Q: Okay. So with regards to the evidence or the artefacts that the students put in, in their portfolios, do you see any, any learning taking place as they continuously or as they develop or design the portfolio?

R: Yes, there is learning taking place and they also, in their reflection state that there is a lot of learning taking place, like most of them will tell you they were computer

illiterate or they were some illiterate but this portfolio activities force them to be computer literate and when they can't understand, they either write on the discussion forums or they write e-mails to say this is where I am stuck. That is where peer review comes in, they help each other and I also come in and also part of the topics on the discussion forum, it is when I encourage them to put on useful sites for each other, like we used to use mind view for the mind maps but then later on some of the students reflected that the mind views were not helping, they were causing difficulties, they couldn't import the maps from mind view onto the portfolio or onto the discussion forums, then they resorted back to plain word or mind mister. So they are learning and also with the content, the way the content is designed is in a way that they are forced to get into the internet, they are given links to go and get the content there, because there are no prescribed books. So they have to surf the net for the relevant content to answer the activities in the portfolio.

Q: Okay. So does this assigned tasks that you give to students, show or indicate some form of skills other than computer skills, you mentioned computer skills, other as computer skills that …

R: Yes, content related skills, they are there and also they are forced to work in groups in the sense that some of the activities will tell them to form groups of four and complete the table in relation to a research activity, or and when forming the groups, they then have to go to the discussion forums, under the topic of general discussions, ask for group members from there, so that they then can collaborate, form WhatsApp groups and complete that particular activity.

Q: Okay, thanks for that. So my next question is based on the other skills, like critical skills, thinking skills, high order thinking skills and problem solving skills. Do you see them being able to identify, can you identify those skills from them in terms of whether they can be able to go an extra mile, think deeply and be creative as students?

R: Yes, they do have those skills, other than them reflecting that they developed critical thinking skills and problem solving skills. Their mind maps, they show their creativity for example it is the same content, but the way they put it, it will be mind maps but they will even look different and the other thing that force them to be creative is that they post their mind maps for other students to comment. So you can't look at somebody's mind map, comment on it and post something exactly like it, you will just have to be very creative and also problem solving in the sense that

they are asked about, they are asked this question and given a link, maybe to go and view a video and in the video they will find maybe the theories, the topic, they have to deduct the information and use it in the sense that they will be able to answer that particular activity in the portfolio. So critical thinking, problem solving, it is instilled. That is instilled.

Q: Thank you. Then we come to the issue of support. The support students need when they develop their e-portfolios. How do they get support from you as their lecturer and also from other stakeholders in the institution?

R: Basically the support is from ICT, it is from the lecturer, and it is also peer support. With the ICT, sometimes when they post their mind maps, like for example, in this module we haven't used the blogs, so they use the space in the discussion forums to post their work, sometimes they find that the system is down or they find that there isn't enough space, because they are many, the numbers are increasing, then that is where they need the support of IT, either they contact ICT department directly from the information given in the tutorial letter, or they send me an e-mail and via the lecturer it is then that they get the ICT support and from the lecturer, some of them get difficulties like they said they are computer illiterate, they don't know how to get to the portfolios, they welcoming page will tell them how to, but they will still phone to verify when they are in front of their computers to see, how do I get this portfolio because it is an additional learning material, it is not under the official study material. So they have to get to the additional material and there are basic problems because these are adult students, who are professional nurses already doing a post-basic programme, there are problems like, they don't know that they have to download the workbooks as PDF, save them as PDF, and download the activity, the portfolio, the portfolio which has the activities in word so that they will be able to write over the portfolio before then save it into PDF and submit online. So there is a lot of technical support that is needed.

Q: Okay.

R: Other than that, the content because they are not new to learning, they are able to go on and there is a lot of peer support in relation to the content and the other thing that they will need support with is when the link that you have given them, is now giving different information, they usually do come back to say in the discussion forums, this links is no longer working, please help and then, sometimes even before I help them, there will be somebody who will have found the information and give the

new link, that is why we have a topic on useful links so that the others will be able to see the information, if it has disappeared.

Q: Thank you.

R: And for general content, very few will tell you I really don't understand this content, then you have relate theory into practice then they go on better.

Q: Thank you. So after they have designed, or developed their portfolios, they submit them online.

R: As an assignment. It does have unique number like the other assignments, to it becomes assignment no 3, the portfolio, because the first two are the formative assessments for the year mark and the last one it is the summative, their exam, which is their portfolio.

Q: Okay, I wanted to come to the part of how do you assess them. You mentioned formative and summative.

R: Yes, they are formative assessments, it is not part of the portfolio, it is MSQ questions embedded in their tutorial letter that they answer related to the content, but this is done while they are busy with their portfolio, because the portfolio is divided into seven study units, it is curriculum development, curriculum implementation, curriculum evaluation, so they have to go through all this modules, like when they start, there will be these questions on the side for the MCQs but they will have to work continuously on the portfolio although it is summative assessment. So you can't just sit and say, this can be my portfolio, they will not succeed, you must start immediately post registration, sit down, when you look at the content, the study guide and you get into the links that are in the portfolio, you start working and get the information to fill up the content, ask the others, post your work for constructive criticism and put relevant evidence that you did put your work up, in the discussion forums and this what the others have said, because they do get marks to say, what did they say about your work. Three students, then you copy the students comments from the discussion forums, you paste onto the portfolio, and you also copy what you said to others as well, maybe two students and you also say why do you agree or why do you disagree to what they have said about your work. To make them go into the discussion forums, because they really need that feedback to be part of their portfolio.

Q: Okay. I get that, thank you. Since you have started using the e-portfolio, in your module, can you see any improvement with regards to students being able to gather or to get more learning into the particular e-portfolio other than manage or .

R: Previously it was a lot of regurgitation because what they had, when they were still writing exams, concerning curriculum development, they just, the questions were sort of repeating themselves, that is the first thing because they were not activities, they were similar to the formative questions. So they would look at past question papers and study for the exam, but now they are forced to work throughout the semester, that is the difference, now with the portfolio they work throughout the semester, they don't work for the exam.

Q: Okay, and has the assessment practices, since you started the portfolio changed or you have still change in that regard, with the assessment practices?

R: Yes, because we are no longer having the venue exams, we are having the portfolio as per summative assessment.

Q: Okay, so if you were to compare the venue based and the non-venue based, what are the benefits of the e-portfolio as a non-venue based assessment?

R: If I were, if I could turn your question around and say if I were to allowed a choice to say, do I want the portfolios or do I want to revert back to the venue based exam, I wouldn't because, according to me the students benefit more with the e-portfolio in the sense that they work with the content and develop new skills especially because they are going to be educators themselves, they have to know how do we get the content, they must be able to develop specific content and have select specific content for the students and have different strategies of teaching the students, so if they learn that themselves within the whole semester, not a short period when they are preparing themselves for the exam. I feel that there is some learning and I would stick with the portfolio, not the venue based exam because with the venue based exam, they submit on the same day, because they write on the same day. With the portfolios, although it is a lot of work, but they don't submit it at the same time. At least I do get time to time, although not that much because they do wait for the closing date most of them, but also there are those who are pro-active who will submit and give it in.

Q: Okay, thank you. We just talked about the benefits and the advantages of using e-portfolios, if I put it that way, but then I want to found out, are there challenges that you come across as you interact, as you work with students with the portfolios?

R: Ja, challenges are a lot, it is just that most there are surmountable. Like we have foreign nationals, who are from very rural areas and they will describe their rural areas in a way that you will think South African rural areas are better, they will like, we had two in the previous semester, who wanted the old method of assessment and said that the portfolios they can't, because according to them they don't even have an internet café to go to, unlike in South Africa where our students have got support centres, where they can go and not to use their money for downloading the content, or viewing the activities and maybe YouTube videos but we have foreign nationals who will put a green picture concerning internet accessibility and because I don't know the place, I don't know if it is true or not, but it is a very small percentage, most of them who are not within Africa, they don't give internet related problems, and within South Africa we do have problems like where we have outages, they don't work well during those times. They will tell you that there was a lot of outages and they couldn't work because internet was down together with the electricity or they couldn't type, because they have to be on the computer most of the time and the computer needs to be charged. So initially it would be when the semester it would start, I am not computer literate, I can't do my work and when they see that we don't; sympathise with them, then we try to help them instead to overcome those challenges, they then will tell you about their problems in relation to access, they will tell you the module is expensive, I need a lot data, but when you refer them to the Unisa support centres, then the complaints get down. So every semester when the semester begins, the new group, computer illiterate, then you have the challenges afresh, but as the time goes on, and they see that other people are interactive, they join them interacting.

Q: Okay.

R: And I didn't expect them to complain so much about data, because they are working as compared to the level 7 students who are not working in Unisa, other Unisa modules. So these ones they are professional nurses, they are working, they just want you to symphatise with them and especially after you showed them that you download the work and save if, you don't view the whole video using your data, or you don't do the portfolio with you internet on, so then such things, such guidance then they do come back. Then the other challenge is the marking of the portfolio because it is volumes compared to on ordinary answer books from the exam, the pages are more, the activities are more. Capacity in terms of marking the portfolio

becomes a challenge especially that the qualification is getting to an end, so the nursing students are notified that their qualification are getting to an end, the numbers are increasing. Like now I have 3704 on health, I have 411 students.

Q: For the next semester?

R: For this semester and I have one marker, the other marked is not, cannot mark online. Still has to train and the contract took long to be finalised, there were some glitches here and signatures, this and that. To the extent that this marker couldn't be trained on time because she must have a contract to come for jrooter training and while is training she marks maybe 1 or 2 portfolios per week. The numbers are increasing, the portfolios must be marked within a certain time. So at least the older marker is able to help, she was working here, she knows the online marking, then we mark being two, over and above whatever I have to do, I still have to mark the portfolios which consume a lot of time compared to ordinary assignment scripts.

Q: Okay. So having used e-portfolio since the beginning of

R: 2016 second semester.

Q: Would you recommend using e-portfolios to other colleagues or to other departments in the college or the University?

R: Yes, I would recommend it because our content is sort of abstract, it is better if the portfolio, the content of this module goes into being, not a semester, but a year module. That is what the reflections also say. The good thing is that we are going to into a new curriculum so the new curriculum we discussed and agreed that it is should be strictly online. So the students who will be doing this new honours module, it will be a year module and they will do portfolios, all the modules in the Health Sciences education will be non-venue based.

Q: Any other additional information or comments that you would like to share with me regarding the e-portfolio, that you feel is important.

R: I feel e-portfolios can work better, especially if the students can be orientated, like before you register as a Unisa student, you will have a module that prepares you before online, learning and portfolios, something like that, because they just register, like in one of the reflections, the student said that when I read that there is no exam for this module, I was over the moon, but immediately I started doing the portfolio and saw that there is a lot of work, that means me to be there all the time, doing the activities throughout the semester, my joy was short-lived. I expected that if I have registered for five modules and I have this one which is non-venue based exam, I

thought it is going to leave me with the other four modules, but then she discovered that this non-venue based module is the one that has got a lot of work, more than the other four where you have to sit for an exam. So we still have those challenges, but it is better with e-portfolios as summative assessment or continuous assessment, glitches like exam related problems are just not there. I use to have scripts that were lost, I used to have people who didn't write and bring apology letters and sick notes and death certificates, this one is different, they will just tell me that I could submit the portfolio, I didn't have electricity, I say no, you have electricity, resubmit and they submit. So a lot of activities related to exam preparation venues, they are eliminated and a lot of activities related to scripts marking, sending out to the external moderator, physically via the courier, they are eliminated. So there are benefits with the portfolio either as a continuous assessment or as a summative assessment tool.

Q: Thank you very much, ma'am sharing your knowledge. Thank you. That is the end of our interview

R: Thank you.

APPENDIX L1: ASSESSMENT POLICY

UNISA | university of south africa

ASSESSMENT POLICY[1]

1. PURPOSES

The purposes of this policy are to

1.1 guide all assessment practices at UNISA[2];

1.2 ensure that all assessment practices are aligned to the national higher education legislative and policy environment;

1.3 ensure that assessment is an integrated process within the learning experience.

2. DEFINITIONS

Applied competence	refers to the foundational, practical and reflexive aspects of learning. In other words, students must demonstrate their understanding of the knowledge, skills and attitudes associated with a particular discipline or field of study (foundational knowledge), be able to apply this knowledge in given contexts and be able to reflect on the knowledge and application in a critical way;
Assessment	is the systematic evaluation of a student's ability to demonstrate the achievement of the learning goals intended in a curriculum;
Assessment plan	will primarily contain assignments and assessment criteria. Weighting of assignments and their contribution to the year mark should also be included;
Assessment strategy	refers to formative and summative assessment, with weighting of various components and due dates;
Capstone assignment	integrates learning that has taken place throughout the programme which is not limited to the content or scope of a particular module;
Capstone module	is a programme-specific module taken concurrently with the final year of study. The purpose of such a module is to integrate deliberately the learning that has taken place throughout the programme to assess if the exit outcomes have been achieved. It can take the form of a research project identified by the student in consultation with the department. Students have to be involved in determining the project as they take individual combinations within a degree programme;

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[1] Policy was not amended in accordance with the Policy:Policy/Rule Formulation
[2] See also Manual: *Procedures on the setting, evaluation and quality assurance of assessment*);
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Revised – approved - Council – 05.04.2013
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| Continuous assessment | refers to the assessment of a student throughout the tuition period instead of mainly at the end of the period; |
| Lecturer | refers to all academic employees employed to teach. It includes all categories of academic teaching employees (full professor, associate professor, senior lecturer, lecturer, junior lecturer). |

3. INTRODUCTION

Assessment is an integral part of curriculum development as outlined in the Curriculum Policy. During curriculum development an assessment strategy that is aligned to the ODL Policy is developed using the Framework for a Team Approach (FTA).

Assessment can have different focuses:

a) improve the quality of students' learning experiences by focusing on significant knowledge, skills, attitudes and values, and providing motivation to work through the material through tasks and feedback. Assessment should focus on the ability to transfer knowledge to new contexts and to apply knowledge in specific contexts.

b) provide accurate estimates of current competence or potential in relation to desired outcomes to enable lecturers to make appropriate decisions (placement, diagnostic, etc.).

c) make high stakes judgements related to competence and progression or qualification.

The function of formative assessment in open distance learning (ODL) is to provide contact, support and structure to the learning experiences of students often unfamiliar with and alienated by the distance learning experience. It is a key motivator of learning.

Why do we record assessment data? On an academic level, we develop a profile of student achievement of specified outcomes in formative and summative assessment. Formative data enable the lecturer to plan interventions to support students. On an administrative level, assessment provides an accountable basis for credit and eventual certification of students in relation to outcomes of particular qualifications.

Student performance in assessment will be viewed by lecturers as feedback on teaching criteria and standards as part of systematic monitoring of quality assurance. Assessment is a means of learning about students' misunderstandings so teaching can be modified accordingly.

The institution should also use assessment data as part of a wider 360 degrees self-evaluation system to inform decision-making. Assessment data identify at-risk modules, completion rates for modules, etc.

4. PRINCIPLES INFORMING THIS POLICY

We continually seek to understand why we need to assess in certain ways to be effective as educators. This section explains some well-established general principles of assessment.

4.1 Curriculum development

Assessment is conceptualised and planned for during the development of a curriculum as described in the Curriculum Policy and operationalized through the *Framework for the implementation of a team approach to curriculum and learning development* (FTA). The FTA process facilitates the design and planning of assessment which is aligned to the pedagogy used in the academic programme and other institutional policies (e.g., Tuition Policy, Curriculum Policy, ODL Policy, Experiential Learning Policy, Admission Policy).

The resulting assessment strategy and assessment plan will provide details about formative and summative assessments, weights of different assessment components, due dates of assessments and nature of feedback.

4.2 Validity

Assessment must be valid or fit for purpose. That is, it must measure predetermined outcomes, using appropriate assessment methods. Three important aspects of validity are:

4.2.1 Face validity

This means that the assessment should be perceived to be fair, giving students a reasonable opportunity to show what they know and what they have mastered. For example, any suggestion of bias that may be to the detriment of some would reduce face validity for students (e.g. gender or ethnic bias). It should not advantage or disadvantage any student. Tuition and assessment are equitable when they take into account the instructional context and the special background of students (e.g. prior knowledge, cultural experience, language proficiency, cognitive style and interests). In distance education these characteristics can only be broadly determined based on the student profile for individual modules.

4.2.2 Content validity

Assessment should be appropriate for the stated outcomes of the course and should cover the knowledge (ideas and skills) adequately.

4.2.3 Construct validity

This refers to the extent to which assessment succeeds in measuring and evaluating the abilities (theoretical or practical 'constructs') that it intends to assess.

4.3 Reliability

Assessment should be reliable or consistent. That is, it should produce the same results when:

4.3.1 particular students are assessed across time for the same knowledge, skills, attitudes and values using a variety of methods.

4.3.2 different markers assess the same piece of work.

The amount of work assessed should be sufficient in proportion to the comprehensiveness of the study package.

Value judgements (such as passing or failing marks) should be as objective as possible. There should be academic and administrative quality control before, during and after the assessment. If a student's marks differ significantly depending on who marks the assignment/examination, assessment is not reliable. Guidance for marking must also be transparent and defensible.

4.4 Manageability

Assessment should be manageable – Efficient systems must be in place to administer the various types of assessments used by the university academic programmes.

Quantity and type of assessment should also allow lecturers to achieve reliable results in a reasonable period of time. This also relates to timely feedback to students in order to improve their learning at the next step in the learning process.

4.5   Directness

Assessment should be as direct as possible. That is, it should be directly related to the real-life use of the knowledge and skills outside educational settings. Authentic assessment also includes assessment of processes, practices, skills and reflection that occur in the learning situation. To ensure relevance and validity, the focus should be on measuring students' mastery of significant, not trivial, outcomes. During the planning for a new module/learning programme, tuition and assessment methods should be developed simultaneously in relation to student learning and the meeting of learning outcomes to ensure that assessment is relevant. Directness has to be balanced with manageability.

4.6   Range of assessment methods

Lecturers will use a range of assessment methods to ensure that assessment is educationally sound, appropriate to the discipline or field of study, all outcomes are assessed and the criteria of validity, reliability, authenticity and feasibility are met. No single assessment method can assess a student's learning fully[3]. It is necessary to use a set of assessment methods to achieve consistent and fair results. The total assessment package for a learning programme should be carefully designed to cover all learning outcomes. The assessment type(s) used will also be suited to the underlying teaching/ learning principles outlined in the *Tuition Policy and Curriculum Policy*, the learning students need to evidence, the level of the module and diverse student abilities, learning styles, and contexts. The constraints of ODL and the particular tuition model should be considered as well.

Unisa should continually embrace the use of emerging assessment methods particularly within the online environment. This includes designing continuous assessment activities that provide students with an increased number of assessment opportunities.

4.6.1   Formative assessment

Formative assessment refers to assessment that takes place during the teaching and learning process. It is thus designed to support the teaching and learning process and is developmental in nature. It is sometimes referred to as 'continuous assessment'. Formative assessment

a)   is a 'learning opportunity', not just a test of student performance;
b)   assists in planning future learning;
c)   diagnoses the student's strengths and weaknesses; and
d)   provides feedback to the student on his/ her progress.

Unisa students will be involved in formative assessment that will add value to their learning, while also providing them with effective cognitive skills (foundational and reflexive), practical skills, and learning attitudes and values that they will need for further study or in a workplace situation or for any other goals after certification. The actual number of assignments will be determined on educational grounds but must be sufficient to merit formative assessment contributing not less than 20% of the student's final mark. Formative assessments contributing less than twenty per cent and fifty per cent or more to

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[3]   Where a specific discipline, such as Mathematics, wishes to use only a single type of assessment because it is the only one appropriate to that discipline, they should indicate this exception in documentation submitted to the Senate for the approval of the relevant modules.

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the final mark require Senate approval. Assignments can be weighted so that earlier assignments where students might be less competent are weighted less than later assignments where they are more competent.

4.6.2 Summative assessment

Summative assessment refers to assessment that is used for making a judgement about the achievement of outcomes in order to certify that a student may progress in his/her studies or may graduate. Such assessment is carried out at the end of a section of work or at the end of a module/learning programme/ qualification. It determines whether the student is competent or not yet competent in respect of pre-determined outcomes. There should be continuity between formative and summative assessment so that students are adequately prepared for summative assessment.

4.6.3 Integrated assessment of applied competence

Integrated assessment refers to

a) assessing a number of outcomes together;

b) assessing a number of modules together;

c) using a combination of assessment methods and instruments for an outcome/outcomes;

d) collecting naturally occurring evidence (such as in a workplace setting);

e) acquiring evidence from other sources such as supervisors' reports, testimonials, portfolios of work previously done, logbooks, journals, etc.

The use of different types and combinations of integrated assessment will be dependent on the nature of specific disciplines.

In submissions of new learning programmes, the lecturer/department/ College concerned will indicate to the Senate how integrated assessment will be carried out. Two appropriate methods would be the inclusion of

i) a capstone module for a learning programme in the student's final year of undergraduate study;

ii) a capstone assignment in all final year modules.

4.7 Criterion-referenced assessment

The lecturer makes judgements about students by measuring each student's work against pre-determined outcomes and related assessment criteria. These criteria state the quality of the performance of students at different levels of competence. The relationship between assessment and learning outcomes, the definition of standards, the performance expectations held of students and feedback on performance can all be more easily and explicitly expressed when criterion-referenced assessment is used.

Other advantages of criterion-referencing are transparency, student involvement and greater inter-marker reliability. While the use of criterion-referenced assessment supports the educational purposes of assessment, it does not impede the functional purpose. Students can be marked and graded according to their levels of achievement against well-defined criteria. The fact that the criteria are explicit means that the

judgements made are more readily defensible in terms of rigour and consistency.

These well-defined criteria can be expressed as a statement of standards or by the use of examples that are provided in advance so that students can direct their learning accordingly. More precise explanations may be provided after assessment has taken place because it is possible to point to the characteristics of the students' performance that led to the judgement that a particular outcome was or was not achieved. While such judgements may sometimes be fallible, their overall reliability is likely to be enhanced by the explicitness of the criteria used.

Assessment/performance criteria specify how much learning has to be evidenced, at what level of complexity and responsibility and how well. Assessment criteria complete the stem: 'Evidence must show that students ...': for instance, 'Evidence must show that students use words according to standard dictionary definitions and the demands of context'. Assessment criteria have to indicate how to determine whether a student has achieved the outcome to a satisfactory standard and what makes the difference between acceptable and unacceptable performance of the outcome.

4.8 Authenticity

The university must be satisfied that the work being assessed is attributable to the person being assessed.

4.9 Sufficiency

The evidence collected must establish that all criteria have been met and that performance to the required standard can be repeated consistently.

4.10 Assessment must be systematic

Planning and recording is rigorous to ensure that assessment is fair. The purpose of assessment should always be made explicit. Assignment results must be communicated clearly, accurately, timeously and meaningfully.

5. GOOD PRACTICES

5.1 Transparency

The outcomes and their associated assessment criteria will be available to students and other stakeholders so the learning and assessment system will be transparent, reliable and accountable. Students will know what is expected of them and employers will know what a person who holds a particular qualification has achieved.

5.2 Grading

Percentages will be awarded to assessment activities, bearing in mind the principle of criterion-referenced assessment. 50% constitutes a pass mark up to Master's level. Higher pass marks require Senate approval. Master's and Doctoral criteria are specified in the Procedures for Studies for Master's and Doctoral Degrees.

5.3 Feedback

Instructional feedback is fundamental to the learning process. Lecturers will provide timely feedback that identifies where misunderstandings have occurred and the ways in which the student can improve, on both marked and self-assessed assignments. Feedback should be individualized to the specific student's attempts whenever possible and practicable. Generic feedback should also be given in answers/guidelines to self-

assessed tasks in study materials and lecturer-marked assignments.

Feedback on assignment or in tutorial letters must reach students before they write summative examinations.

5.4 Weighting of assignments and examinations

Formative assessment at undergraduate level and for Honours and course work Master's as well as postgraduate certificates/diplomas will contribute towards the student's final mark in combination with the examination mark, according to guidelines developed by academic departments and approved by Senate. A subminimum of 40% in the examination is required, below which the year mark will not count. Exceptions to this stipulation require Senate approval. Formative assessment (e.g. assignments) submissions could also be used to determine examination entrance.

5.5 Diagnostic testing

Diagnostic testing will be used from time to time to allow the institution to better know the students and develop appropriate interventions.

5.6 Students with disabilities

The university is committed to ensuring fair treatment for all its students. The Department of Examinations will collaborate with the academic departments to make arrangements for students with special needs resulting from disabilities including aspects such as venues, time for completion of examination and mode of the examination (taped, oral, braille, etc).

5.7 Supplementary examinations

Students will be granted a supplementary examination if they achieve a minimum percentage of 40% as determined by Senate from the combined year mark and examination mark. In the case of a student writing a supplementary or aegrotat examination, the year mark will only be taken into consideration if it benefits the student. This rule includes non-venue based supplementary assessment. The granting of a supplementary examination to all except candidates who failed the main examination but qualified for a supplementary will be subject to rigorous scrutiny.

5.8 Transfer of credits

Procedures will be developed to provide an accountable basis for the transfer of credits from other higher education institutions (formal, accredited learning).

5.9 Recognition of prior learning

Assessment of students for prior learning is governed by the Recognition of Prior Learning Policy.

5.10 Assessment of workplace learning

When applicable, outcomes and assessment criteria for work integrated learning will be planned as for any other delivery mode or site. Assessment will conform to the principles and practices laid down in this policy.

5.11 Scope of this policy

This policy is informed by and supports the UNISA *Tuition Policy*. The *Assessment Policy*

will in turn inform assessment procedures to be developed by Departments/Schools/ Colleges through the Senate.

Colleges/Schools/Departments will ensure the implementation of this policy within the respective disciplines, including all aspects of assessment design, implementation (e.g. complying with the guidelines for *Tutorial Letter 101*), and moderation.

Colleges/Schools/Departments will apply to the Senate if they wish, in exceptional cases, to deviate from the *Assessment Policy*. There must be a strong motivation for such an exception.

5.12 Security

The Department of Examinations and academic departments will develop procedures to ensure the security of question papers and answers.

5.13 Integrity of data

Procedures will be put in place to ensure the integrity of assessment data to ensure the accuracy, consistency and credibility of results so that the university's certification is reliable.

6. ETHICAL AND FAIR ASSESSMENT

UNISA is accountable to students and the society at large for the validity and reliability of its assessment procedures.

UNISA is responsible for ensuring ethical treatment of all students, with regard to fairness in assessment practices, privacy and confidentiality issues, transparency around dispute mechanisms and procedures.

Relevant sections of the policy and procedures will be published in appropriate documentation (e.g. Calendars, the Disciplinary Code for Students).

7. QUALITY ASSURANCE

The Senate Teaching and Learning Committee will oversee and monitor the implementation of the *Assessment Policy*. The culture of ongoing reflection and research into the quality of assessment policies, principles and practices should be consolidated.

7.1 Appropriate quality assurance standards and guidelines

Each functional unit involved with assessment at UNISA, be it academic or administrative, will have a set of approved quality guidelines dealing with all processes of assessment within their ambit of responsibility.

7.2 Assessor and moderator functions and training

UNISA appoints suitably qualified assessors to carry out functions of assessment. All assessors should be trained and certified by the university before assessing students' work. The roles of the different assessors are stipulated in the Assessment Procedural Manual.

8. IMPLEMENTATION PROCEDURES

The Department of Student Assessment and Administration will, in collaboration with the Colleges, the Academic Planner and the Executive Director (Tuition and Facilitation of

Learning), draft a procedural *Assessment Manual* on assessment practices to be incorporated in the *Corporate Manual* on the Intranet, including aspects such as:

8.1   reliable systems of assessment tracking and record keeping that are transparent and defensible to students, lecturers and the wider community;

8.2   guidelines for the submission and security of examination papers;

8.3   guidelines for invigilators;

8.4   *Mark Adjustment Procedures* to be followed by internal and external moderators that are ethical, responsible and responsive to the rights of UNISA students to fair and reliable assessment;

8.5   guidelines on plagiarism, etc.

This set of procedures will be submitted to the Senate for approval.

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TUITION POLICY

1. AIM

The University of South Africa (UNISA) is an African university in the service of humanity. It is a comprehensive open and distance learning higher education institution that offers a wide range of vocational, professional and general formative qualifications. This policy contains the principles pertaining to teaching and learning at UNISA.

2. FUNDAMENTAL PRINCIPLES

UNISA's purpose is to meet Africa's changing needs, foster teaching and research, and provide quality education at higher education level. The university:

2.1 promotes the ideals of democratic and social transformation and of social justice in order to enable academics, students and graduates to contribute to their communities;

2.2 is committed to developing a scholarly culture of teaching and research and to fostering habits of and providing opportunities for life-long learning;

2.3 provides quality vocational, professional and general formative education at higher education level;

2.4 provides opportunities for vertical and horizontal articulation by offering certification up to doctoral level in a diverse range of formal and short-learning programmes;

2.5 strives to provide accessible and affordable learning opportunities to all students regardless of their background;

2.6 is student-centred, providing students with appropriate support in an environment conducive to active learning;

2.7 where appropriate, offers experiential learning opportunities (authentic work-integrated learning and simulated work environments) mentoring and coaching to students.

2.8 uses a team approach in curriculum and learning development and consults and collaborates with relevant stakeholders when developing and offering programmes;

2.9 provides for the integration of information communication technologies (ICTs) in learning programmes and makes effective and innovative use of technology in developing and offering its programmes and improving its teaching methods;

2.10 empowers its lecturing staff to meet internationally-accepted academic standards of teaching and research;

2.11 aims to cultivate students with appropriate graduate attributes as formulated in the Curriculum Policy. Graduateness is the composite set of learning outcomes and attributes which students are expected to have achieved when they have

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completed their qualification successfully. These include discipline-specific knowledge, skills and competencies as well as broader attributes which equip graduates to be innovative and effective in the workplace and active and informed citizens.

3. IMPLEMENTATION OF FUNDAMENTAL PRINCIPLES

From the principles stated above, the following guidelines will direct the day-to-day operational needs and the implementation of teaching and learning at UNISA. These guidelines set out UNISA's purpose and role as a comprehensive university, its flexibility and openness, its teaching and learning approach, the open and distance learning (ODL) design and development process and the assuring of quality ODL teaching and learning.

3.1 UNISA's purpose and role as a comprehensive university

3.1.1 UNISA positions itself on the basic values underlying an open and democratic society, values enshrined in the constitution of the Republic of South Africa.

3.1.2 UNISA is responsive to national policy and is firmly positioned within the realities of the higher education landscape of South Africa and of Africa generally. The university takes cognisance of legislative, legal, social and transformational issues.

3.1.3 UNISA is responsive to the educational and research concerns and needs of the country, the region and the African continent and other international trends.

3.1.4 UNISA's main responsibility is to its students and, through them, to their communities. It recognises the need to meet the demand for knowledgeable, qualified, effective citizens.

3.1.5 UNISA provides a unique example of higher education in the country. The purpose of comprehensiveness is to make a more diverse range of academic programmes available to students, providing for vocational and career-oriented learning, as well as for the professional and general formative types of learning.

3.1.6 UNISA collaborates with professional and vocational bodies to prepare students for registration as professionals and practitioners in their specific fields.

3.1.7 UNISA recognises the impact of the knowledge society and the spread of technology on mass education. It takes into account the diverse needs of, as well as the contributions provided by industry, professional bodies and local indigenous communities towards the production of knowledge.

3.1.8 UNISA adopts a flexible approach to teaching and learning that equips students with the necessary skills to make decisions and solve problems. These skills include the ability to think critically and creatively, to communicate clearly, to use knowledge sources responsibly and effectively and to act ethically as citizens.

3.1.9 In addition, UNISA endeavours to ensure that all students acquire:

a) a commitment to continual self-improvement and lifelong learning;

b) ability to employ skills necessary for creating and using employment

opportunities;

c) an appreciation of and respect for the value of cultural, religious, aesthetic and linguistic diversity;

d) the ability to contribute to economic, intellectual, cultural and scientific life;

e) an appropriate sense of responsibility for, and stewardship of the environment;

f) an ability to use appropriate and sustainable technologies;

g) the appreciation of the world as a set of related systems.

3.1.10 UNISA ensures that appropriate, valid, reliable, ethical and credible systems for the approval and accreditation of academic qualifications are in place to sustain the university as a quality distance education provider (See Programmes and Qualifications Mix and Tuition Model).

3.1.11 UNISA fulfils its obligations to students, the subsidising government and society by endeavouring to improve student through-put rates and graduate capability, and to facilitate and encourage graduate and self employment.

3.2 The flexibility and openness of UNISA

3.2.1 UNISA's policies and procedures provide for:

a) vertical and horizontal articulation that ensures a variety of entry and exit points and different pathways between vocational, professional and general formative education;

b) flexibility of choice for course and programme structures within the constraints of qualification guidelines, course purposes, programme outcomes and available resources;

c) enabling pathways through the system, depending on the students' individual aptitudes, skills, abilities and circumstances.

3.2.2 UNISA provides access to students by:

a) the statutory admission requirements;

b) Senate approved admission requirements;

b) recognition of prior learning.[1]

3.2.3 UNISA issues qualifications at various points that include certificates, diplomas and degrees.

3.2.4 UNISA provides short learning programmes[2].

3.3 An appropriate open and distance learning and teaching approach

3.3.1 UNISA is a student-centred university. The curriculum and the teaching approach take into account the different needs and abilities of students

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[1] See Policy for Admission and Policy for Recognition of Prior Learning.
[2] See the Policy on Short Learning Programmes

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and that they come from a variety of different backgrounds and have differing expectations.

3.3.2 UNISA caters for the needs of students with disabilities.

3.3.3 UNISA provides lecturers with professional learning opportunities that offer a variety of perspectives on open and distance learning and e-learning and adult learning theories.

3.3.4 UNISA's courses provide a variety of rich, active learning experiences that:

a) emphasize that the processes of acquiring and constructing knowledge and the development of concepts, skills and attitudes are of fundamental importance;

b) include opportunities for collaborative learning and individual inquiry;

c) promote higher level thinking skills;

d) promote student communication and articulation in presenting and evaluating opinions, theories and ideas from different perspectives;

e) provide interdisciplinary opportunities to enable students to understand the connections between different fields and real-world applications;

f) use technology to explore knowledge, conduct investigations and produce products.

3.3.5 UNISA's lecturers provide learning activities that focus on:

a) different perspectives and opinions;

b) complex and authentic tasks;

c) interaction with a variety of people and other information sources as described in the Framework for an ODL pedagogy.

3.3.6 UNISA provides opportunities for students to access and use technology.

3.3.7 UNISA encourages students to be active, engaged and involved participants in their own learning processes, reflecting on what and how they learn, and making connections to the workplace and to their broader communities.

3.3.8 The university provides academic and career counseling at undergraduate and postgraduate level as well as an integrated student support system. This includes various types of study materials such as study guides, audio and visual media, tutorial, library and internet-based support.

3.3.9 UNISA takes cognisance of the principles of experiential learning. This includes the development of life skills that prepare students for experiential learning placement and the development of an integrated curriculum that promotes students' understanding of their specific occupations.

3.4 The open and distance learning (ODL) design and development process

3.4.1 UNISA makes use of open and distance learning principles and approaches based on sound research and scholarship when developing and teaching programmes and courses.

3.4.2 The unique nature of teaching at a distance requires the use and systematic integration of various areas of expertise. The design, development and teaching of programmes and courses are the responsibility of course teams whose specific roles and responsibilities are clearly delineated. The teams include members of academic departments and members of relevant support departments. The teams also take into account the perspectives and opinions of various stakeholders including students and employer bodies (See par 3.1.6).

3.4.3 UNISA applies accountable learning design processes based on current and innovative developments in curriculum philosophy and practice, adult pedagogies, as well as academic thinking in the specific subject field as described in the UNISA Curriculum Policy. Team members reflect on, and make informed decisions about what to teach, the reasons for teaching it, and the way in which it is going to be taught.

3.4.4 UNISA makes use of a system of assessment and student support as an integral part of the curriculum. It is consistent with the principles and guidelines outlined above (See Policy for Assessment and Student Support Initiatives). It also facilitates student progress and ensures that the status and value of UNISA's qualifications are guaranteed.

3.4.5 UNISA makes use of a systematic process for the design and development of quality ODL materials. This is a complex process involving

  a) identifying team members

  b) scheduling the process

  c) completion of forms for approval, registration and accreditation

  d) designing a learning strategy consistent with the delivery mode, as well as an assessment and a student support strategy

  e) developing study materials (See Policy for Prescribed and Recommended Books and Policy for Information and Communication Technologies (ICTs)).

3.4.6 When the assistance of external writers/moderators/assessors are required, it is the responsibility of the chairperson/head of the relevant academic department to ensure that the academic qualifications of these specialists comply with the necessary requirements and guidelines as given above (See Policy for External Writers/RPL and Assessment).

3.4.7 Internal and external moderator/s and/or critical reader(s) are contracted to ensure the quality of teaching and learning.

3.4.8 As an integral part of the curriculum, UNISA makes use of a system of assessment consistent with the principles outlined above (See Policy for Assessment). In addition, it facilitates student progress and ensures that the status and value of UNISA's qualifications are guaranteed.

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3.5 Assuring quality

3.5.1 UNISA commits itself to being a leader and innovator in quality, scholarship and research through a support network of highly qualified academic, professional and administrative members.

3.5.2 UNISA is committed to the ongoing improvement of professional practice and development through reflection, discussion, opportunities of sharing, and innovation at all levels. This is done by a series of instruments and procedures, including self-evaluation, departmental reviews, performance appraisal and collegial support.

3.5.3 UNISA encourages its employees to engage in continuous professional development by providing:

a) well-designed development plans to upgrade skills and qualifications; and

b) incentives and rewards to employees who excel as teachers and/or researchers.

This commitment towards continuing professional development facilitates the offering of high quality distance education.

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CURRICULUM POLICY

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Open Rubric

1.   **DEFINITIONS**[1]

For the purpose of this policy, unless otherwise stated, the following definitions shall apply:

Academic programme	is a purposeful and structured set of learning experiences (ie the teaching, learning and assessment activities) that leads to a qualification (degree, diploma or certificate);
Assessment	is the systematic evaluation of a student's ability to demonstrate the achievement of the learning goals intended in a curriculum;
Benchmarking	is within a programme context, a process through which a programme is evaluated and compared against internal and external, national and international reference points, for the purposes of accountability and improvement;
Certificate	is the official document awarded by an accredited provider to a student on the successful completion of any academic programme of study;
Comprehensiveness	means a mix of programmes, including career-oriented certificates, diplomas, degree and professional programmes, general formative programmes, research master's and doctoral programmes;
Context embedded curriculum development	refers to curricula at UNISA *speak from* a specific location of the African continent and the broader contexts of internationalisation and globalisation, and *speak to* challenges and opportunities on the African continent and broader global and international environments;
Cooperative education	is an approach to learning that promotes the concept of enhanced learning based on cooperation between education institutions on the one hand, and industry, commerce and the public sector on the other;
Course review	refers to internal quality assurance procedures that a provider uses to monitor and reflect on the outcomes of the education it provides through a course. The findings from course reviews should feed into the reviews of the programmes of which they form part;
Credit	is a standard quantifying the volume of learning required for a programme/module in terms of the notional study hours required for the average student to master a particular learning outcome. (A measure of the volume of learning required for a programme/module, quantified as the number of notional study hours required for the average student to master the relevant learning outcome);
Credit accumulation and transfer (CAT)	is the process whereby a student's achievements are recognised and contribute to further learning even if the student does not achieve a qualification, and whereby credits obtained at one institution may be recognised by another as meeting part of the requirements for a qualification, or credits for an incomplete qualification may be recognised as meeting part of the requirements for a different qualification, or, where subject to limits, credits for a completed qualification may be recognised as meeting part of the requirements of another qualification (HEQF, 2007);
Credit rating	refers to an estimate of the amount of learning required in order to obtain one credit (10 notional study hours are regarded as equivalent to one credit);

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[1]   Many of these definitions originate from the websites of the Council for Higher Education (CHE) and the South African Qualification Authority (SAQA).

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Critical outcomes	are those generic outcomes determined by SAQA which inform all teaching and learning, including but not limited to:

a) Identifying and solving problems in which responses show that responsible decisions using critical and creative thinking have been made.

b) Working effectively with others as a member of a team, group, organisation or community.

c) Organising and managing oneself and one's activities responsibly and effectively.

d) Collecting, analysing, organising and critically evaluating information.

e) Communicating effectively using visual, mathematical and/or language skills in the modes of oral and/or written persuasion.

f) Using science and technology effectively and critically, showing responsibility towards the environment and the health of others.

g) Demonstrating an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

h) Contributing to the full personal development of each student and the social and economic development of society at large, by making it the underlying intention of any programme of learning to make an individual aware of the importance of:

  (i) reflecting on and exploring a variety of strategies to learn more effectively;

  (ii) participating as responsible citizens in the life of local, national and global communities;

  (iii) being culturally and aesthetically sensitive across a range of social contexts;

  (iv) exploring education and career opportunities;

  (v) developing entrepreneurial opportunities;

Curriculum	is the whole set of learning experiences constituting a particular qualification or module. Curriculum includes key aspects of teaching and learning such as

- what is to be learnt – content
- why it is to be learnt – rationale and underlying philosophy
- how it is to be learnt – process
- when it is to be learnt – structure of the learning process
- how the learning will be demonstrated in creative ways and achievement similarly assessed;

Curriculum design	is the strategic process of informed and deliberate construction of learning opportunities to enable students to achieve the appropriate level and scope of discipline, skills, knowledge and understanding on completion of a unit of study;

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e-learning	is learning facilitated by means of the use of ICT social technologies, communication technologies, online learning platforms and other multimedia devices;
Extended curriculum	refers to the essential components of the curriculum whereby student support is offered to underprepared students who have passed the preregistration assessment;
Formal programme	is an academic programme approved and funded by the Council for Higher Education;
Graduateness	is the composite set of learning outcomes and attributes which students are expected to have achieved when they have completed their qualification successfully. These include discipline-specific knowledge, skills and competencies as well as broader attributes which equip graduates to be innovative and effective in the workplace and active and informed citizens. Unisa's definition in this regard is formulated in a statement on graduate attributes;
Level descriptor	is a standard according to which the varying levels of complexity of qualifications are distinguished. These are guidelines provided by the HEQF for differentiating the varying levels of complexity of modules/qualifications;
Module	is an assessed learning component (building block) within a programme of study for a qualification (sometimes referred to as a subject or module).
Module review	refers to the internal quality assurance procedures that a provider uses to monitor and reflect on the outcomes of the education it provides through a module. The findings of module and course reviews should feed into the reviews of the programmes of which they form part;
National qualification	is a structure within which all qualifications are registered at national level;
Notional hours of learning	refer to the learning time that it should reasonably take an average student to meet defined learning objectives. It includes concepts such as contact time, time spent in structured learning in the workplace and individual learning;
Non-formal module or Programme	is an institution-approved academic module or programme at the University that receives no state funding (sometimes referred to as a non-subsidised academic module or programme);
Non-subsidised academic programme	is an institution-approved academic programme at the University that receives no state funding (sometimes referred to as an extracurricular programme or non-formal programme);
Open educational resources (OERs)	are learning materials that are freely available (largely online) for use, remixing and redistribution. These include learning content, tools and implementation resources. One of the most prominent role players is the Creative Commons, which governs OERs through different licences;
Practicals	are teaching and learning credit-bearing strategies which constitute a formal part of the teaching and learning plan of an academic programme (eg laboratory work, tutorials, research assignments, simulations) and which make provision for the application of theory, techniques and skills. These

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	frequently take place on campus, but are distinguished from work-integrated learning and service learning;
Professional programme	is a programme that has to meet the licensure and other professional and work-based requirements of statutory councils;
Programme	is the purposeful and structured set of learning experiences that leads to a qualification;
Programme-based approach	is a curriculum approach whereby a structured set of learning experiences or outcomes (and related assessment criteria) are coherently developed to achieve the purpose of a particular field of learning which leads to a qualification;
Programme coordinator	is the designated academic responsible for coordinating all the sub-parts or modules (and their associated learning experiences) of a specific programme. A programme coordinator operates within the framework of an agreed-upon mandate and defined procedures and responsibilities;
Programme evaluation	is the external quality assurance processes which are undertaken in order to make an independent assessment of a programme's development, management and outcomes, through the validation of the findings of an internal programme self-evaluation;
Programme team	is the team responsible for the development of academic programme proposals, culminating in the preparation of applications in the correct format to provide the basis for discussion in the approval process;
Qualification	is the formal recognition and certification of learning achievement awarded by an accredited institution;
Qualification-based approach	is an approach in which a structured set of learning outcomes and related assessment criteria are coherently developed to achieve the purpose of a particular field of learning which leads to a qualification;
Qualification coordinator	is the designated academic responsible for coordinating a specific qualification who operates within an agreed mandate with defined procedures and responsibilities in accordance with approved policies;
Qualification descriptor	is the term specifying the exit level of a particular qualification type, its credit rating, purpose and characteristics;
Qualification designator	is the term describing a generic field of study, discipline or profession as stated in the HEQF qualification nomenclature, for example Bachelor of Science (BSc). (This applies to degrees only.);
Qualification qualifier	is the term reflecting the specifications related to a specialised learning field, eg Geology (BSc in Information Technology);
Qualification team	is the team responsible for the development of academic programme proposals, culminating in the preparation of applications in the correct format to provide the basis for discussion in the approval process;

Qualification type	is the national classification of qualifications on the National Qualifications Framework;
Recognition of prior learning	is the formal identification, assessment and acknowledgement of the full range of a person's knowledge, skills and capabilities acquired through formal, informal or non-formal training, on-the-job or life experience;
Service learning	is applied learning which is directed at specific community needs and is integrated into an academic programme and curriculum. It could be credit-bearing and assessed, and may take place in a work environment;
Short learning programme	is an institution-approved non-subsidised programme inclusive of credit-bearing (attendance-based and non-attendance-based) short learning programmes generating less than 120 credits and extending over a period of less than one year;
Signature modules	are modules aimed at achieving Unisa-specific characteristics as defined by Unisa's description of graduateness. These modules

- flow directly from and contribute to the university's values, vision, mission statement and strategic priorities

- are preferably interdisciplinary in nature, though situated in a specific discipline

- are taught and assessed in a specific discipline/department;

Student centredness	is the principle of systematically recognising students' world-views and lived experiences as well as prior learning in the development of curricula that will allow students to reach their learning objectives and aspirations;
Subsidised programme	is approved, funded, registered and accredited structured academic programmes which, on successful completion, lead to the award of a formal qualification (sometimes referred to as a formal programme);
Summative assessment	is formalised assessment which is used to certificate the attainment of a certain level of education. It is used to serve needs extrinsic to the education process;
Threshold concepts	are the core concepts in a curriculum based that students need to grasp before they will be able to progress any further;
Vocational learning	is the education process aimed at the development of vocational skills with view to occupational competence and economic independence;
Work-based learning	is a component of a learning programme that focuses on the application of theory in an authentic, work-based context. It addresses specific competences, identified for the acquisition of a qualification, which relate to the development of skills that will make the student employable and will assist in developing his/her personal skills. Employer and professional bodies are involved in the assessment of experiential learning;

2. ABBREVIATIONS

CHE	means the Council on Higher Education, http://www.che.ac.za
DCLD	means the Directorate: Curriculum and Learning Development
HEQC	means the Higher Education Quality Committee, http://www.che.ac.za
HEQF	means the Higher Education Qualification Framework, http://www.che.ac.za/documents/d000148/
IKS	means the Indigenous knowledge systems
PQM	means the programme qualification mix
RPL	means recognition of prior learning
SAQA	means South African Qualifications Authority, http://www.saqa.org.za
STLC	means the Senate Teaching and Learning Committee
Unisa	means the University of South Africa, http://www.unisa.ac.za
UNGC	means the United Nations Global Compact, http://www.unglobalcompact.org/
WIL	means work integrated learning

3. BACKGROUND TO THE DEVELOPMENT OF THIS DOCUMENT

Since 2007 there has been a concerted drive at UNISA to: *revisit* epistemology as foundational to transformation; *promote* African thoughts, philosophies and interests to counter the legacy of western intellectual hegemony; *highlight* the importance of student centredness as a change agent; practise a critical scholarship focused on African perspectives towards society and knowledge production; *foreground* an awareness of our strengths and opportunities in the market; and *ensure* quality and the importance of research and its centrality in steering UNISA towards transformation. On 17 January 2007 UNISA also became a signatory to the United National Global Impact (UNGC).

To support these drives for change and transformation, several institutional workshops were organised to align UNISA's strategy and curricula to societal, regional and continental needs. Subsequently, processes were put in place to align UNISA's strategy, operations, culture, research, teaching, learning and community engagement with the UNGC principles and to make sure that these principles become part of mainstream UNISA thinking. On 25 February 2009, the Directorate: Curriculum and Learning Development (DCLD) was requested to submit to the UNISA/UNGC Steering Committee a discussion document on the possible review of UNISA's Curriculum Development Guidelines in order to include the UNGC principles.

The DCLD was requested to provide guidance on curriculum issues around the UNGC and around Council's recommendation. At that stage, UNISA only had a document (The framework for a team approach in curriculum and learning development, FTA) which described the processes involved in curriculum development, but gave no clear guidance on principles informing curricula at UNISA. The DCLD drafted a discussion document which proposed, inter alia, that a curriculum framework or policy be developed in order to provide clear principles and guidance regarding the development of curricula at UNISA. During its meeting in May 2009, the UNISA Senate Teaching and Learning Committee (STLC) mandated the development of a UNISA curriculum policy.

The formulation of this policy was undertaken by a workshop (to which all the colleges at UNISA sent representatives), a literature review, and a comparative study of curriculum policies in the South African higher education context. A draft policy was then formulated and circulated among individuals, departments and colleges for comment. The expectation of the Senate Teaching and Learning Committee is that the UNISA curriculum policy will ensure that curriculum development in the different colleges, though distinctive with regard to programme and discipline focus, will give expression to the principles agreed upon.

4. INTRODUCTION

The forces impacting on higher education curricula have multiplied in recent years, with different constitutional, academic, socioeconomic, geopolitical and cultural forces all claiming a stake in higher education curricula. Inevitably, the curriculum is a highly contested space. Where higher education previously enjoyed greater autonomy in determining what it offered and how it was offered, currently it is facing far more intense demands to contribute directly towards innovation and economic development, and to produce graduate attributes and research relevant to the modern knowledge economy.

More and more stakeholders claim their shares in shaping higher education curricula, for example regulatory bodies, market demands, the corporate sector, regional and national development priorities, the internationalisation of higher education, ongoing demands to accommodate cultural pluralities in curricula, changing student profiles, and institutional foci and expertises. Among those different stakeholders there are also different opinions on definitions of graduateness and what a university education should entail.

In the specific context of UNISA, we need to have a common understanding of how the curricula offered by the University should respond to globalisation, internationalisation, national development objectives and the skills shortage, and to the broader crises facing humanity, namely international and regional conflicts, poverty, sustainability, corruption, health priorities and pandemics, economic instability, environmental concerns and living in an increasingly complex and fast-changing world.

As no education is neutral, UNISA will critically and creatively explore its own unique contributions to seeking solutions to the challenges facing communities on the African continent without losing sight of the impact of the internationalisation and globalisation on curricula and the skills required of our graduates. The internationalisation of higher education is notable for the multiple ways in which it has manifested around the world. Although each local, national and regional context presents unique characteristics, several broad trends can be identified globally. These developments include the mobility of people, programmes and institutions; the rising prominence of collaborative research; evolving curricula; approaches to teaching and learning; and an increasingly heightened sense of the interconnectedness of the higher education enterprise across the globe.

Despite and in the midst of all these claims and counter-claims on higher education curricula, UNISA is committed to continuously grow "Towards *the* African university in the service of humanity", and it is envisaged that the UNISA curriculum policy will provide guidance on the principles which will help UNISA achieve its mission and vision.

The policy aims to provide an overview of the principles according to which curricula at UNISA will be developed. These principles, once implemented, will result in UNISA's curricula meeting international good practices in curriculum design, and being responsive and student-centred. The implementation of the policy will provide clear principles to which colleges, schools and departments can refer in determining the validity of the increasing demands on curricula in higher education.

The implementation of this policy will result in UNISA's graduates having characteristics distinguishing them from other graduates. Finally, the implementation of the policy will contribute to UNISA's vision "Towards *the* African university in the service of humanity".

5. **PRINCIPLES GUIDING CURRICULUM DEVELOPMENT**

The policy recognises that the different colleges at UNISA all have distinctive foci, stakeholders and unique challenges to address in their curricula as well as in their curriculum development processes. It is, however, important to state clearly that despite these differences, all UNISA curricula should adhere to the principles stated in this policy. The policy and its principles are broad enough to provide scope for the distinctive character of the different colleges, curricula and foci, but the policy is also clear enough regarding the non-negotiable elements of curricula and curriculum development at UNISA. The policy applies to all academic programmes (subsidised and non-subsidised) and professional or non-professional programmes, as well as vocational and cooperative education programmes.

There are six broad principles guiding curricula at UNISA, namely

5.1 Responsiveness
5.2 Student-centredness
5.3 Accountability
5.4 Curriculum structure
5.5 Quality assurance
5.6 Impact

5.1 **RESPONSIVENESS**

Responsiveness within the UNISA context refers to a sensitivity and continuous awareness of societal expectations, reflected in our qualifications and curricula as they respond to the needs and challenges faced by our students and community. UNISA's curricula are context-based curricula addressing a variety of contexts, from the institutional context to the national context with its priorities and the international context. Each of these contexts is characterised by a number of trends, opportunities and challenges.

Curricula at UNISA respond firstly to our character as a comprehensive open distance learning institution and to our mission and vision. Our curricula secondly also respond to UNISA's immediate (regulatory, political, socioeconomic, environmental and technological) and broader international contexts.

5.1.1 RESPONSIVENESS TO UNISA'S CHARACTER AND VISION

UNISA is a comprehensive ODL higher education institution. The comprehensiveness of our curricula encapsulates a range of offerings, from strictly vocational to strictly academic certificates, diplomas and degrees.

UNISA accepted an ODL Policy in 2008 which provides the rationale and parameters of ODL. UNISA's "openness" and our distance learning character result in many students registering at UNISA who would not have had an opportunity to enrol in higher education if it was not for UNISA. Our student profile is therefore different from the student profiles of face-to-face and residential higher education institutions. This does not imply that our standards should be lower than national and international benchmarks. However, our ODL character implies that our curricula should be carefully planned and structured to ensure a reasonable chance of success for students ranging from the under-prepared but with potential to the sufficiently prepared.

Furthermore, curriculum design and the outcomes of curricula should be aligned with the vision, mission and values of the University. As products of an ODL and comprehensive higher education provider and as a result of UNISA's commitment to serve humanity, UNISA's graduates should have distinctive graduate qualities, with a clear appreciation of our location on the African continent, notwithstanding the increasing internationalisation of higher education. UNISA graduates have, as a result of their successful completion of their studies in an ODL context, unique qualities. These qualities are included the following statement on graduateness.

UNISA graduates

(i)   are independent, resilient, responsible and caring citizens who are able to fulfil and serve in multiple roles in their immediate and future local, national and global communities

(ii)   have a critical understanding of their location on the African continent with its histories, challenges and potential in relation to globally diverse contexts

(iii)   are able to critically analyse and evaluate the credibility and usefulness of information and data from multiple sources in a globalised world with its ever increasing information and data flows and competing worldviews

(iv)   know how to apply their discipline-specific knowledges competently, ethically and creatively to solve real-life problems

(v)   are critically aware of their own learning and developmental needs and future potential

In order to support students to enhance these characteristics, academic departments are prompted to investigate possibilities to

(i)   offer specific modules and/or

(ii)   plan and implement a final capstone assessment in which final-year students can provide evidence of their graduateness

Such signature modules and/or final capstone assessment should have the following characteristics:

(i)   They are interdisciplinary and often inter-college in nature. The issues to be discussed in signature modules are sufficiently complex that the lens of a single discipline or college does not create an adequate picture and, in order to view such issues completely, an image is required that is created from the lenses of multiple disciplines.

(ii) They contribute to the definition of graduateness of the institution.

International practice regarding the offering of signature modules differs. These modules are credit bearing and are mostly offered on first-year level, although some institutions require students to submit a portfolio of evidence before they graduate (as [a] capstone module[s]) of their competence in the outcomes envisaged in the signature modules.

Signature modules at various institutions deal with specific foci like computer literacy, reading, writing, communication and studying skills and using institutional resources (if these modules are offered on first-year level). When signature modules or portfolios of evidence are required before graduation, these modules and portfolios encompass evidence that students can develop their own opinions in well-structured arguments about topical and context-bound issues. They can also use theory-driven arguments from at least two theoretical approaches but not limited to historical, educational, business, political, social, economic, scientific or environmental perspectives.

5.1.2 RESPONSIVENESS TO UNISA'S CONTEXTS

Responsiveness to UNISA's contexts includes, but is not limited to, taking cognisance of the higher education regulatory framework within our national context (3.1.2.1– 3.1.2.2), our continental (3.1.2.3) and international contexts (3.1.2.4).

5.1.2.1 Higher education regulatory frameworks

(i) Each qualification/module will be developed according to the guidelines provided by the HEQF and SAQA.

(ii) Each qualification/module will have its own set of outcomes describing the exit level competencies and abilities of students after they have successfully completed the programme.

(iii) Each module in a programme will be explicitly linked to the exit level outcomes of a qualification.

(iv) Specific outcomes which include knowledge and understanding of a subject, as well as cognitive, general and professional skills and values, should be explicitly stated for each module and qualification and these should be the pivot around which the whole module/qualification is developed.

(v) The specific outcomes will be appropriate to the HEQF level descriptors and will address the critical cross-field outcomes as prescribed by SAQA. Each learning outcome should have its own set of assessment criteria, clearly stating the nature of the evidence that will be used to evaluate competency in the stated outcomes.

(vi) Planned outcomes and assessment criteria are explicitly communicated to students.

(vii) Each academic programme addresses the critical generic outcomes as determined by SAQA.

5.1.2.2 Responsiveness to our local context

UNISA's curricula take cognisance of the following issues in our local context:

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(i)   Skills development

In response to national development needs, UNISA's curricula will specifically address the development of transportable skills in all curricula depending on the focus of the curriculum.

(ii)   Diversity

In planning curricula, departments should accommodate as far as possible the diverse linguistic, cultural and religious backgrounds of students. With the support of UNISA Language Services, academic departments will be responsible for the inclusion of multilingual word/phrase lists in all modules[2].

(iii)   Equity, redress, increasing access and the extended curriculum

UNISA's Admission Policy deals with the minimum criteria for admission (including readmission criteria) to UNISA for all academic programmes offered by the University.

UNISA provides alternative pathways for under-prepared (academic and non-academic) students when they register for academic programmes.

UNISA *as an institution* will be responsible for identifying students at risk, who need additional support. Each college will determine the need for an extended curriculum (and/or other academic support) appropriate for students who, after proper pre-registration assessment, need extra support and additional modules (an extended curriculum).

5.1.2.3   Responsiveness to our continental context

UNISA's vision states unambiguously that UNISA is striving "towards" being *"the* African university in the service of humanity". From a strategic perspective this implies that UNISA is truly part of Africa and will therefore promote African thought, philosophies, interests and epistemologies through inquiry, scholarship and partnership.

Western knowledge and application has often been utilised throughout education systems and policies in the achievement of growth and development on the African continent. The time has however dawned for the African continent to utilise existing and new African knowledge and insights that will enhance and ensure growth and sustainable development. African society therefore needs to seek out knowledge and the application thereof that is relevant and can effectively be applied on the continent to achieve sustainable growth. Thus, the production and application of knowledge will require a rebirth, revision and rehabilitation of African indigenous knowledges.

Africanisation is rooted within the African common identities, largely defined by their histories and a shared struggle against colonialism. These historical legacies have impacted on growth and development, as well as the social, economic and political contexts on the continent. The historical legacies have prompted the development of more democratic governance and sounder economic policies. In addition, a sense of supportive cohesion has been created in terms of which the majority of Africans feel comfortable with embracing mutual collectiveness and ubuntu. UNISA academic departments must interrogate and acknowledge these historical legacies in their approach

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[2]   Academic departments do not necessarily have the expertise to develop these lists themselves, but should accept the responsibility to ensure their development by appropriate persons with expertise.

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to qualifications and course offerings and in their ambition to serve the needs of African society.

Indigenous knowledge systems (IKS) refers to the systems of knowledge in philosophy, science, technology, astronomy, education, mathematics, engineering etc that are grounded in the total "cultural" (very broadly defined) heritage of a nation or society, and maintained by communities as they negotiate their sustenance and livelihoods. These systems are undergirded by an interlocking web of ethical, social, religious and philosophical sub-systems that determine broad patterns of cognition which provide them with a rational essence and emotional tone. In order to acknowledge such systems, UNISA's curricula

(i)   promote African thought, philosophy, interest and epistemology[3]

(ii)   are located and rooted in the African context, addressing African concerns, challenges, opportunities for innovation and critical engagement

(iii)   develop African knowledges and IKS as knowledge systems in their own right

(iv)   offer alternative worldviews to the dominance of Western canons and contribute to a multiplicity of voices, alternative canons and diversity in thought

(v)   do not promote a new hegemony but rather stimulate curricula as spaces for interplay between diverse knowledge systems[4]

5.1.2.4 Responsiveness to our international context

UNISA will take seriously the increasingly international characteristic of our student   profile and the increasing globalisation of the application contexts of our curricula.

Undergraduate and postgraduate qualifications will prepare students for local *and* international application contexts. The University will do this by encouraging the use of different cultural viewpoints, examples and local and international case studies.

5.2   STUDENT-CENTREDNESS

UNISA's ODL Policy states that UNISA places the student at the centre of the entire learning process from the moment the student intends registering through to graduation, and continuing on through to its alumni, who play a vital role in evaluating impact and as ambassadors for the institution. Students are therefore invaluable stakeholders in the development of curricula.

Students' current epistemologies and prior learnings should form an integral part of planning the curriculum. Curriculum development should take cognisance of the life-worlds, experiences and expectations in structuring the curricula in such a way as to not exclude students from the curricula, but to ensure that our curricula start where they are, with regard to the epistemological foundations and outcomes of the curriculum.

UNISA's curricula should contribute to their fulfilment of their educational goals, whether personal fulfilment or preparation for employment.

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[3]   The singular does not imply that African thought, philosophy, interest, and epistemology are homogenous concepts.
[4]   Senex approved on 19 April 2007 a number of recommendations regarding Africanisation.

Approved – Council – 19.11.2010   -13-
Revised – approved Council – 23.11.2012

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5.3 ACCOUNTABILITY

The academic department and College in which a particular curriculum is designed, developed, revised and taught are accountable to UNISA for adherence to this policy and the processes prescribed.

Under no circumstances will the responsibility for the development of a curriculum and accreditation be ceded to any internal or external stakeholder. Although each stakeholder contributes specific expertise to the curriculum process (as stipulated by the *Framework for the implementation of a team approach to curriculum and learning development at UNISA)*, the final initiative and accountability for the academic integrity, teaching and learning quality lies with the academic department. Should external (to the academic department) stakeholders contribute to the development of the curriculum and/or materials, the academic department remains finally accountable for assuring the quality of any contribution.

Where departments use external experts to contribute to or author study materials, the academic department remains accountable to ensure quality and adherence to this policy.

5.4 CURRICULUM STRUCTURE

The curriculum structure refers to the alignment of curricula with the pathways as envisaged and determined by the HEQF as well as the internal coherence and alignment of the different modules.

5.4.1 INTERNAL CURRICULUM COHERENCE

Academic programmes comprise a selection of modules which, together, result in students having reached a satisfactory level of competence in the outcomes envisaged for the total programme. Each of the modules should therefore contribute to the outcomes graduates should achieve at the end of the programme.

Departments ensure that all the compulsory modules in a particular academic programme refer to one another, either as the prerequisites for the follow-up modules or by referring students back to previous modules. The modules build on each other and provide a well-designed journey with a particular focus.

The modules at the start of such a well-designed curriculum, comprising several HEQF levels, form a coherent whole.

5.4.2 CREDITS AND NOTIONAL HOURS

Credits are a means of indicating the time (notional hours) that the student needs to achieve the competencies envisaged in a particular unit of learning. Credits are set for both qualifications and modules and are linked to time frames, the duration of a programme, contact time (where applicable), estimated time required for completion of assignments, learning activities in preparation for assessment opportunities and so forth.

The notional hours encompass all the time students need to work through the curriculum. All activities concerning the curriculum are included, for example formative and summative assessments, contact sessions with lecturers, *my*Unisa, online or multimedia activities, service learning, work integrated learning etc.).

Developing curricula in an ODL context does not preclude adherence to notional hour requirements. Institutional guidelines regarding notional hours are available.

5.4.3 QUALIFICATION LEVEL CURRICULUM PLANNING

The University follows a qualification-based approach and takes cognisance of the portability of the qualification and of the learning pathways of students, either in entering

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the qualification, in its midst, or after successful completion of the qualification. All formal qualifications offered at UNISA should be approved by the CHE and registered by SAQA. All informal qualifications should be internally approved by the Senex.

5.5 CURRICULUM PROCESSES

5.5.1 CURRICULUM REVIEW AND REVIEW CYCLE

The UNISA curriculum reviewing processes should form part of a curriculum plan in order to accommodate new ideas and knowledge as well as to avoid rigidity. Such changes should be informed by developments in the world of learning and by innovation and development in a particular discipline. The curriculum review will address the following aspects:

a) comparability of qualification/programme in comparison with qualifications or programmes offered by other HEIs

b) how the qualification answers/responds to the HEQF and other education legislation

c) how the qualification/programme relates to benchmark statements/criteria by professional bodies/the SETAs (where applicable)

d) relevance to professional and statutory bodies (PSBs) including the requirements of specific nation states (where applicable)

e) classification profiles for students who have successfully completed the qualification (where applicable)

f) trends in the number of students who have completed the qualifications

g) student and employer feedback

h) market needs

Though academics departments are primarily responsible for ensuring the academic relevance and integrity of their offerings, all academic offerings are quality assured by institutional cycles and processes.

5.5.2 STAKEHOLDERS AND CONSULTATION IN CURRICULUM DEVELOPMENT

International good practice in curriculum development provides for the involvement of a range of stakeholders in curriculum development, depending on each stakeholder's expertise and availability. Therefore, UNISA follows a team approach to curriculum design. Consultation with all internal stakeholders and relevant external stakeholders is key to curriculum development at UNISA as prescribed by the *Framework for the implementation of a team approach to curriculum and learning development* (FTA). The FTA consolidates the principles advocated by the UNISA curriculum policy and tuition policy, and serves as operational document to guide the development of learning materials within a team approach.

5.6 CURRICULUM RESOURCES

Curricula at UNISA encompass more than the study guides and (where applicable) additional prescribed materials. A curriculum is the whole learning experience including what is to be learnt (content), the rationale for the learning, the processes by which the learning take place, the structure of the learning process and how the learning will be assessed.

In developing a curriculum, lecturers author, refer to and use a number of resources to enable students to be successful. Resources most used by departments include (but are not limited to):

- study guides
- prescribed textbooks
- prescribed articles and chapters in books
- online resources
- lecturers and tutors

Prescribed textbooks, chapters and articles follow on the design of the curriculum process and do not dictate it. The curriculum of modules cannot be determined or prescribed by available textbooks in the field/discourse. UNISA has approved a *Policy: prescribing books, readers and journal articles and recommending books and journal articles* which provides guidelines on prescribing and/or recommending books, articles and chapters from books.

This policy envisages that UNISA will also seriously consider making increasing use of the following resources:

5.6.1   Open educational resources
5.6.2   Multi-, intra- and transdisciplinary sources
5.6.3   Community resources

5.6.1   OPEN EDUCATIONAL RESOURCES

UNISA commits itself to critically evaluating the appropriateness and availability of OER before prescribing text books. The sourcing and adaptation of OERs are a standard and supported part of the module design and materials development process. UNISA further commits itself to make materials, tools and management resources available to its employees, using the different licence types as proposed and governed by a range of OER providers like the:

a)   Creative Commons,

b)   Comprehensive Knowledge Archive Network,

c)   Connextions,

d)   Google Open Content,

e)   Free/Libre Open Source Software (FLOSS),

f)   MIT Open Courseware,

g)   Open Learning,

h)   the Open Courseware Consortium,

i)   Open Educational Resources Programme (JISC),

j)   Open ICEcat catalog,

k)   UNESCO Open Training Platform,

l)   the Virginia Open Education Foundation,

m) Xpert and others.

UNISA creates and supports processes for the identification and review of potential UNISA OERs and markets and celebrates its OER releases (for example in an open institutional portal).

5.6.2 MULTI-, INTER- AND TRANSDISCIPLINARY APPROACHES

Multi-, inter- and transdisciplinarity concerns that which is at once among the disciplines, across the different disciplines and beyond all disciplines. The goal is to understand the present world, of which one of the imperatives is the unity of knowledge. The creation of knowledge based on these imperatives requires the generation of transformative heuristics. Multi-, inter- and transdisciplinary approaches are encouraged but not at the expense of disciplinary expertise.

Acknowledging the richness of such an approach, the University of South Africa aims to imbed multi-inter-and trans-disciplinarity within its offerings and in so doing add value in achieving our University vision "towards the African university in service of humanity".

5.6.3 COMMUNITY RESOURCES

UNISA acknowledges the richness of the oral traditions and cultural heritage of our students. These oral traditions and cultural heritage often provide alternative explanations and world-views. UNISA will encourage academics and students to explore IKS as curriculum resources, and as IKS resources are identified, UNISA will include these resources as valid epistemologies and knowledge systems.

5.7 CURRICULUM IMPLEMENTATION

5.7.1 INCOME STREAM IMPLICATIONS OF CURRICULA

Financial viability is *one* of the considerations to be taken into account with regard to the development of curricula. Depending on an offering's alignment with the mission, vision and market penetration of UNISA, colleges take into consideration the cost and funding for the development of curricula and teaching strategies in the development of modules and qualifications.

5.7.2 PEDAGOGY AND TECHNOLOGY

The different colleges, schools and departments will evaluate the specific impact of their students' profiles on the use of technologies in their respective contexts. They will also adopt approaches to teaching and learning (including all materials and resources) which foster active learning. An approach of active, authentic, collaborative intellectual engagement will guide the development of such materials.

While the effective use of technologies is one of the key characteristics of graduates, *the use of technology at UNISA is in the service of more effective teaching and learning.* In supporting teaching and learning, UNISA will embed e-learning, m-learning and a range of information and communications technologies (ICTs) as far as possible (considering the student profile) at the centre of the student experience by, *inter alia*,

a) ensuring widespread use of *my*Unisa

b) reviewing production processes and systems to ensure that technological innovation is supported at scale

c) ensuring that employees and students (where appropriate) receive adequate training to play their part in the development, implementation and experience of e-learning/m-learning across the University

d) increasing the use of broadcast digital assets

e) building an online student profile, while driving personalised learning opportunities and student support

f) focusing and increasing our active investigation and development of innovative e-learning pedagogy and next-generation distance learning across the University and ensuring the dissemination of outcomes

g) benchmarking the use of e-learning/m-learning in higher education institutions (HEIs) and other organisations internationally, taking into account differences in student profiles, contexts etc.

h) enhancing our quality assurance mechanisms for e-learning/m-learning and the use of ICTs

i) monitoring student and customer behaviour online as a key market and business intelligence resource.

An excellent resource for determining the optimal use of a range of technologies is the *Handbook for Emerging Technologies for Learning* (Siemens & Tittenberger, 2009).

5.7.3 RECOGNITION OF PRIOR LEARNING

UNISA's policy on the recognition of prior learning (RPL) establishes guidelines, principles, responsibilities, processes and criteria for the implementation of an organisational RPL strategy at UNISA. As such it offers a point of departure for the development of departmental operational strategies for RPL best suited to the needs and requirements of individual subjects, modules and training programmes within UNISA. UNISA curricula will take into account students' prior learning and experiences and, where possible, accredit students for the prior learning based on valid and appropriate evidence.

5.7.4 WORK-INTEGRATED LEARNING

UNISA approved the Experiential Learning Policy which provides clear guidelines on the scope and development of WIL elements in a curriculum.

Where applicable, a work-integrated learning component should be included in the curriculum. A work-integrated learning (WIL) curriculum process must necessarily involve bodies and persons outside the university that have an interest in the outcomes of the curriculum process and of the qualification. Where programmes lead to the registration of graduates with professional bodies, institutional and departmental mechanisms must be established to involve such parties in the curriculum process. Advisory committees are one way of facilitating the participation of all interested parties/stakeholders.

The actual practice of a vocation does not necessarily follow the logical guidelines underlying science, but is often a combination of potential fields of application of a number of related or even unrelated scientific/academic disciplines. The approach required for dealing with the practice of a vocation successfully involves, to a lesser extent, the theoretically scientific basic principles approach, but to a greater extent, the ability to apply the practical outcome of scientific principles that they may be of use to the particular vocation or industry. The unique feature of vocational education is that the needs of the actual practice of the vocation are to a great extent determinative of the structure and content of the related university vocational qualification. The education is therefore not structured around a scientific discipline. University vocational programmes are often multidisciplinary and fully integrated packages for the application of technology/vocational practice and are specifically vocation-oriented.

To comply with this requirement, sufficient liaison mechanisms should be maintained with the industry sector and, where applicable, with the vocational councils/bodies for every WIL programme.

5.8 QUALITY ASSURANCE

The institutional audit and qualification/programme accreditation requirements, as stipulated by the HEQC to assure the quality of academic qualifications/programmes with a view to continuous improvement, include the management of the quality of the planning, development and design of these qualifications/programmes. Quality of curricula is assured by institutional cycles of quality audits and review and include the following:

a) The management of the quality of qualifications/programmes and the planning, development and design, in accordance with the HEQC criteria, requirements and procedures, is the responsibility of Qualification/Programme Coordinators, Heads of Departments, School Directors and Executive Deans of Colleges.

b) Colleges ensure that there are quality structures and mechanisms in place to monitor quality and report to the Directorate: Quality Assurance and Promotion.

c) The relevant college and department qualification/programme teams are responsible for the development and design of qualifications/programmes in accordance with the agreed criteria, the implementation thereof and the monitoring of processes and practices.

d) College tuition committees are responsible for ensuring the appropriateness and readiness of proposals.

e) College boards are responsible for approving the proposals for submission to the Senate Teaching and Learning Committee on the basis of the college's academic and strategic plan, the strategic resources required for the successful delivery of the proposal and the adequacy of the documentation. College boards are responsible for submitting proposals to professional boards if required.

f) UNISA's Senate is responsible for approving proposals.

5.9 ENVISAGED IMPACT OF THE CURRICULUM POLICY

5.9.1 It is envisaged that this policy on curriculum development will have a positive transformative impact on UNISA curriculum practices and the effectiveness of our teaching and learning.

5.9.2 Colleges, schools and departments will

a) re-evaluate academics' key priorities and allocation of time to allow for sufficient time to develop quality curricula and learning materials designed according to the principles as embodied in the UNISA tuition and assessment policies.

b) encourage, acknowledge and appreciate scholarship in curriculum and teaching and learning development as valid research outputs and as valid grounds for promotion.

c) provide sufficient support to academic employees responsible for curriculum development and review.

d) encourage interconnectivity and alignment between research, community engagement and curriculum development.

5.10 RESPONSIBILITY FOR THE POLICY

The Vice Principal Academic: Teaching and Learning is responsible for the implementation of the Policy, its future amendments and updating, ensuring that all persons affected by the Policy are aware of the Policy and any amendments and the electronic availability of the Policy.

6. CONCLUSION

6.1 This policy is the culmination of several processes to transform UNISA to achieve its mission "Towards *the* African university in the service of humanity". This policy provides guidance on the core of *being* UNISA, namely our curricula.

6.2 The policy provides a number of principles according to which all curricula at UNISA will be developed. These principles, based on good international practices in curriculum design, result in our curricula being responsive and student-centred. Colleges, schools and departments should refer to the policy in determining the validity of the increasing demands on curricula in higher education.

6.3 The litmus test for this policy will be our graduates' appraisal by an increasingly critical global higher education landscape and our graduates' ability to serve humanity.

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Tutorial letter 101/0/2018

Instructional Techniques and Multimedia in Adult Education (DTE Postgraduate)

INTMAEU

Year module

Department of Curriculum and Instructional Studies

IMPORTANT INFORMATION:

This tutorial letter contains
important information
about your module.

NOTE: This is an online module, and therefore your module is available on myUnisa

Define tomorrow.

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Tutorial Letter 101/0/2017

PGCE and BEd (Senior Phase and FET) Subject Didactics Economics

SDEC00N

YEAR MODULE

COLLEGE OF EDUCATION

Department Curriculum and Instructional Studies

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Tutorial Letter 101/0/2018

CURRICULUM DEVELOPMENT AND ASSESSMENT IN ADULT EDUCATION

CUDAAEE

Year module

Department of Curriculum and Instructional Studies

This tutorial letter contains important information about your module.

Note: This is an online module and, therefore, your module is available on myUnisa. However, in order to support you in your learning process, you will also receive some study material in printed format.

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APPENDIX N: E-PORTFOIO RUBRIC

Criteria	Description
Module Content: Description, Analysis and Reflection	**30%**
Outline	Organisational, structural approach, logic clarity, compliance with assignments specifications
Introduction Presentation of the learning activities	Introduction and description of the learning activities, clarity of the portfolio and learning and learning activity structure, creativity in presentation
Development and process	Relevance of the module work and process for completion, evaluation and presentation of results
Theory –practical relevance	Relationship to practice, theory-practice transfer use of instruments and methods, quality of instruments, presentation and interpretation of results
Autonomy and judgement	Independent analysis and evaluation, independent reflection and problem solving, level of aspiration, clear and comprehensive argumentation, reflection on experiences
Analysis and reflection	Ability to follow analysis / reflection and learning progress comprehensive error/best practices analysis, clear justification and selection of elements to analyse /reflect upon
Completeness of learning activity results	Complete selection of learning activities, incorporation of feedback from teaching team, well organised presentation
Learning activities	**40%**
Essays (40%)	Objective content/information and analysis, fully addresses topic effective, appropriate use of scholarly references, clear and professional writing and

	organisation, APA, and technical requirements followed.
Assessment tasks (40%)	Correct and through completion , demonstration of skills competence, active participation and contribution (e.g. in group and discussion forum) technical requirements met
Learning journal reflections (20%)	Reflects on new knowledge and experiences, responds for reflection, critical and logical thinking, reflection on own learning process/approach and skills competencies , timely reflections appropriate use of scholarly references, clear and professional
Presentations	**10%**
Form	Appropriate scientific research approach, citation, and references
Writing	Spelling, style readability, expression, grammar technical language
Design	Presentation and organisation, clear graphics, summaries transitions, layout
Participation/ Teamwork	**20%**
Teamwork	Collaboration and contribution to the group project content and process (quality and content) cooperation and communication, teamwork, reliability (e.g. meeting deadlines)
Discussion forum participation	Responds to topic questions, constructs ideas/ knowledge clearly and logically, practices netiquette, minimum of two postings per module, references effectively and correctly incorporated, spelling grammar