

University of KwaZulu-Natal

Exploring the use of e-Learning platforms by Postgraduate Nursing students in a selected Higher education institution

A dissertation submitted to the School of Nursing and Public Health,
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DECLARATION

I, Lindeni Ivy Buthelezi declare that this dissertation entitled “**A DESCRIPTIVE STUDY**”ON Exploring the use of e-Learning platform by Postgraduate Nursing students in a selected Higher education institution, is my own unaided work. It is being submitted for Masters Degree in Nursing Education at the University of KwaZulu-Natal, Durban. It has not been submitted for any other purpose. All resources have been acknowledged by means of referencing.

Student’s signature (L.I. Buthelezi)

Date

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Supervisor’s signature:

Date

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DEDICATION

This dissertation is dedicated to my beloved father Absalom Mbukiseni Buthelezi, my brothers and sisters, my operational manager Khanyisile Shange at King Edward Hospital, to the Academic Co-ordinator of the Nursing Department, the Registrar of UKZN, and to the lecturer Mrs Makhosazane Dube for all their love, encouragement and support.

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ABSTRACT

Background: E learning is one of the latest trends in nursing education to enhance learning and flexibility in the teaching and learning process. Literature however shows that while undergraduate students adjust easily to the use of technology, postgraduate students tend to struggle due to their lower levels of computer literacy computer literacy and unfamiliarity with eLearning.

Study aim: To explore and describe the use of e-Learning platforms by postgraduate nursing students' at a selected higher educational institution within KwaZulu-Natal.

Methods: A quantitative approach and descriptive exploratory design were adopted in this study. About 60 postgraduate nursing students registered in 2016 participated in this study. Data was collected using a self-report questionnaire. Ethical clearance was obtained from the University Ethics Board; protocol number HSS/1718/016M and ethics principles were observed throughout the study. Data was analysed statistically using frequency distributions and the Chi-square test to assess the associations between each item on the perceptions and challenges with the socio-demographic factors.

Results: The participants positively viewed the use of technology and e-learning in the postgraduate programme. About 70% reported exposure for the first time to Moodle at the university, 62.1% reported training in the use of Moodle, and 68.3% had access to the computer at home for learning purposes. The majority however expressed discomfort with the use of Moodle, and this was associated with the technical challenges they had due to limited IT skills. There was a statistically significant association between ability to use Moodle and proficiency in English, computer literature, availability of technical support and access to computer

Conclusion: E-learning has value in a postgraduate programme and has a potential to yield positive outcomes if the students are introduced early during their undergraduate studies, if they are trained on the use of Moodle and have technical support available when necessary.

ABBREVIATIONS

HE	Higher Education
UKZN	University of KwaZulu-Natal
MOODLE	Modular Object Orientated Dynamic Learning Environment
LMS	Learning Management System
TAM	Technology Acceptance Model
ICT	Information Communication Technology

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Chapter One

1. Introduction and Background

The origins of the term e-learning is not certain, there is no single evolutionary point of origin for e-Learning, but evidence suggests that early forms of e-learning existed as far back as the 19th century (Kid, 2010, p.1; Moore, Dickson-Deane, Galyen, 2010, p.129). Despite there being no single international definition of eLearning, the principles behind eLearning are well documented (Gogos, 2013, p.1). These principles include: Andragogy, which states that adults must have a hand in the design and development of their learning experience, experience should be at the root of all e-learning tasks and activities, real life applications and benefits must be tied to the e-learning course and give adult learners the opportunity to absorb information rather than memorising it (Pappas, 2014, p.2).

E-Learning is currently a very common term not only to higher learning institutions but also among people of almost all organisations (Hyeontaek, Sang Hong, JunKyun and Jing Hong, 2015, p.4). There seems to be worldwide recognition of the value of e-Learning. In Asia, for example, government funded projects related to literacy development in rural areas is a major driver to the introduction of e-Learning (Hyeontaek, Sanghong, JunKyun and Jinhong, 2014, p.11). In the Middle East, governmental interventions play a critical role in the dissemination of e-learning material as an educational method, this is directed not only at students but also employees within the public sector (Hyeontaek, Sanghong, JunKyun and Jinhong, 2014, p.11).

In some African countries, universities are making a difference when it comes to investment in e-Learning. Schools and corporations are investing time and money in the development of

alternative educational methods supported by e-learning platforms to replace the traditional types of learning systems (Salem and Salem, 2015, pp.17-18). These institutions are willing to provide a broad offering to their students in order to help them boost their careers and improve the educational level of citizens to meet the needs of the country. In African countries, in general, the introduction of mobile technology and the use of social networks have been, and continue to be, major drivers to change (Hyeontaek, Sanghong, JunKyun and Jinhong, 2014, p.11).

Before the internet age distance learning, critical to upscaling skills initiatives within countries of large geographical areas, was via correspondence; learning materials and students' submissions were dependent on postage and or courier companies. In 1924, the first testing machine was invented and allowed students to test themselves (Gogs, 2013, p.1). In 1954, B.F. Skinner, a Harvard Professor, invented the teaching machine, today recognised as the computer, which enabled schools to administer programme instruction to their students. It wasn't until 1960, however, that the first computer-based training programme was introduced to the world affecting business, the education and training sectors, and the military in different ways (Gogos, 2013, p.1; Kidd, 2010, p.2).

This computer-based training programme was known as PLATO (Programmed Logic for Automated Teaching Operations). It was originally designed for students attending the University of Illinois and spread to schools throughout the area (Gogos, 2013, p.1). Each student was provided their own keyset and television display. The keyset enabled the student to control the sequence of materials presented to him by the machine, as well as to transmit to the computer answers to its questions, the computer communicated to each student via closed-circuit television (Bitzer, Braunfeld and Lichtenberger, 2007, p.1).

The origins of e-Learning within higher education stems from the insightful work of Bitzer (1962) and Suppes (1964). While others such as Porter (1959) and Uttal (1962) were also active early in this field, it was Bitzer and Suppes who clearly situated the use of technology within a broader technological agenda (Kid, 2010, p.1). The first e-learning systems were set up to deliver information to students, only in the early 70's did e-Learning became more interactive (Kid, 2010, p.2). Britain's Open University, a primarily distance learning institution, was keen to take advantage of e-learning and began to offer a wide range of interactive educational experiences, as well as faster correspondence with students via email and other learning management systems (Gogos, 2013, p.1).

The global use of e-Learning continues to grow (Papas, 2015, p.1). In 2011 the worldwide market for self-paced e-learning reached \$35.6 billion, increasing in 2014 to \$56.2 billion and projected to double by 2015 (Gogos, 2015, p.8). However, Gabel, Kupriyanova, Morais and Coluci (2013, p.25) report that European higher education students' uptake of e-learning platforms as approximately 96 per cent. These authors report that 238 out of 245 European higher education institutions are using e-learning, the respondents from these six countries (France, Italy, Portugal, Russia, Spain and Turkey) report themselves to be in the early stages of development, and only one institution is reported to not be engaged with e-learning at all. Lwoga (2012, p.92) reports a greater use of Web 2.0 technologies within higher education in the developed world due to advanced technical expertise and good infrastructure. A multi-site qualitative survey in higher learning institutions which included five countries (Australia, Netherlands, South Africa, UK, and USA) revealed that Web 2.0 is deployed across all areas in higher education including academic, administrative and support areas (Lwoga, 2012, p.94). South Africa continues to keep pace with international e-learning development, within sub-Saharan Africa, interest and expertise is expanding (Janssens-Bevernage, 2015, p.1).

The notion of e-Learning, commonly understood as learning facilitated online through network technologies, has emerged across African, specifically Southern African, higher education institutions since the 1990's (Bichsel, 2013, p.5). As in other national contexts e-learning practices appear together with an entirely new vocabulary, institutional policies and structures, and substantial institutional budgets (Bischel, 2013, p.17). Today e-learning appears as one of many information computer technology (ICT) enhanced practices in universities, that range from the provision of email, online journals, and network libraries to the development of creative software solutions for information management tasks in teaching, research and institutional administrative systems for online registration, finance, human resources, student performance data, course evaluation and so on (Bichsel, 2013, p.13).

In South Africa, the National Department of Education published its White Paper on e-learning Education in 2004 for the purpose of its implementation in higher education and this has continued to gain momentum. In 2005, they facilitated e-learning in order to improve electronic communications and computer skills of staff in Africa (Janssens-Bevernage, 2015, p.1). In 2006, the National Department of Education called together a think-tank based on an overview of research and delivery needs related to the rollout of e-learning in schools, thereby facilitating the familiarity of this platform in prospective university students (Moll, Adam, Backhouse and Mhlanga, and 2007, p.1). In 2006, the first E-Learning Africa conference had over 830 participants, with more than 630 from Africa itself. By 2011 this had risen to over 1,700 delegates with more than 1,410 participants coming from Africa. In South Africa, available literature reveals that the implementation of e-Learning at South African higher education institutions has been varied and reflects the variety of organisational culture and approaches as well as the varied learner communities served by the different

institutions (Lwoga, 2012, p.94). The 2013 Educause Centre Analysis Research study revealed that nearly all institutions (98 per cent) have at least some departments, units, or programmes with major interests in e-learning (Bichsel, 2013, p.7). South African case studies document a range of web supplemented, web dependent, and some fully online courses in its universities (Lwoga, 2012, p.92).

It has been pointed out frequently that the majority of research, and even straightforward documentation, of e-learning initiatives in South African higher education consists of case studies addressing habitus and digitals. (Czerniewez and Brown, 2012, p.1). These can broadly be placed into groups. Firstly, those higher education institutions that use primarily operational material, in that they have commenced with the implementation of established, widely researched e-learning tools, with a greater or lesser degree of success (Moll, Adam, Backhouse and Mhlanga, 2007, p.3). Secondly, those which are research driven institutions, in that they involve experimentation with new or unproven technologies and approaches. The South African higher education institutions also focus on students' technological habitus (Czerniewez and Brown, 2012, p.1).

The adoption of various learning technologies in developing countries and Africa in particular has shown a gain in popularity. Studies by Unwin *et al.* (2010) reveals that from 25 African countries, 174 respondents (49 per cent of the total sample) has used an e-learning management system for teaching (Lwoga, 2012, p.95). Similarly, a previous study of 54 tertiary institutions from 27 African countries revealed that only 47 per cent of respondents had installed e-learning applications. This makes it clear that most African universities have established e-learning systems in their institutions (Lwoga, 2012, p.95).

The University of KwaZulu-Natal in South Africa formally implemented MOODLE in 2009 (Chipps, Kerr, Brysiewicz and Walters, 2015, p.72). Learning management champions within the discipline of Nursing commenced using MOODLE in selected units in Nursing and Health Sciences in 2010 to support online student collaborative and interactive learning, to act as an accompaniment to traditional classroom teaching, to improve the teaching and learning experiences for students, and to provide support and resources for rural learners (Chipps *et al.*, 2015, p.72) The discipline of nursing also offers an advanced midwifery diploma programme to rural students as part of a strategy to address the millennium development goals. The support of these students in their home settings was a key driver for implementing MOODLE (Chipps *et al.*, 2015, p.72). Similar findings on the use of learning management systems in Africa, show that nursing lecturing staff and students experience a number of problems in the use of the management learning system, thus resulting in poor uptake (Chipps *et al.*, 2015, p.72). A number of students in nursing are considerably older than the norm for university students, having returned to study after the completion of their initial professional nurse training. The students anecdotally report lower levels of computer literacy and general unease in using technology.

Local university students also report problems in having to compete for computers in the computer laboratories and receiving inadequate support while becoming familiar with the learning management systems (Chipps *et al.*, 2015, p.72). Some higher education institutions see information technology related approaches as the central solution to the problems experienced by the disadvantaged students, specifically by increasing access (Hornsby, 2015, p.1).

The researcher's experience is that increased access has not addressed the very real issue of a lack of student use due to no computer knowledge or limited computer skills. As the white paper states, equity of access must be complemented by a concern for equity of outcomes (White Paper, 1997, p.1), hence providing resources does not necessarily mean that they will be used. There is a concern that increased access, and insistence of use of e-learning platforms within higher education, should not lead to high failure and dropout rates, specifically within post basic programmes. Similar to findings on the use of LMS in Africa, nursing lecturing staff and students experienced a number of problems in using the learning management system, resulting in poor uptake (Chipps, Kerr, Brysiewicz and Walters, 2015, p.72).

The postgraduate students who had been away after the completion of their first degree had problems adapting to the current university norm. They reported lower levels of computer literacy and difficulty in using the new technology (Chipps *et al.*, 2015, p.72; Damnjanovic, Jednak and Mijatovic, 2015, p.497). Those who were from rural areas faced the challenge of poor access to computers and the internet, low bandwidth, and difficulties in accessing the learning management system (Chipps, Kerr, Brysiewicz and Walters, 2015, p.72). Local university-based students reported a shortage of computers in the postgraduate computer laboratories. They also complained of inadequate support while becoming familiar with the learning management system. Furthermore, postgraduates who had been away from the university post their initial degree have a perception of unease in the use of information technology (Chipps, Kerr, Brysiewicz and Walters, 2015, p.72).

1.1. Positioning the Researcher

The researcher, an MN (nursing education) student, has observed fellow postgraduate students who seem to not use online learning systems, from library databases to learning platforms used to facilitate programme and module accessibility. A specific example includes the researcher in 2013 witnessing students de-register from a module based on their inability to complete online tests and load assignments onto a learning management system. The programme facilitator seemed oblivious to the students' lack of information technology sophistication. In addition, prior to these students' de-registration, they approached other more ICT sophisticated students within the programme for assistance.

The researcher chatted with the department of information of computer technology (ICT) with regard to student support services to discover that there are no specific services for student support with regard to teaching students how to use specific learning platforms. The procedure is that the ICT department conduct a workshop for lecturers who are then expected to disseminate the information to their students. According to the report by Professor Vithal (2015), within this specific education institution online learning platforms will be supporting every programme and module by 2018, a three-year 'phase-in' process is planned in order to maximise teaching and learning.

1.2. Problem Statement

Despite the e-learning software packages, specifically learning platforms, being available to postgraduate nursing students, the uptake is argued to be limited. (Chipps, Kerr, Brysiewicz and Walters, 2015, p.72). Higher education support for the use of e-learning, specifically for postgraduate students returning to the education environment after several years, is argued to

be limited, with the result that these students do not master these online learning resources; with their inability leading to ‘poor’ academic performance and/or de-registration (Chipps *et al.*, 2015, p.72; Damnjanovic *et al.*, 2015, p.497). A study by Chipps and colleagues (2015, p.72), and Damnjanovic *et al.* (2015, p.498) used the Technology Acceptance Model to confirm the hypothesis that individual factors such as age, and computer literacy have an impact on perceived ease of use of technology such as learning management systems. It seems pertinent to explore and describe postgraduate student experiences to inform institutional policy re-orientation and support for the use of these learning platforms.

1.3. The Purpose of the Study

The purpose of the study is to explore and describe the use of e-Learning platforms by postgraduate nursing students’ at a selected higher educational institution within KwaZulu-Natal.

1.4. Research Objectives

- i. To explore postgraduate nursing students’ perceptions on the use of e-Learning platforms.
- ii. To explore postgraduate nursing students’ perceived challenges on the use of e-learning platforms.
- iii. To explore postgraduate nursing students’ demographic factors associated with e-learning platform use.

1.5. Research Questions

- i. What are postgraduate nursing students' perceptions on the use of e-Learning platforms within their programme?
- ii. What are postgraduates' perceived challenges in the use of e-Learning platforms?
- iii. What are postgraduate nursing students' demographic factors associated with learning platform use?

1.6 The Significance of the Study

The significance of the study was organised using the following:

Nursing Education

The findings may influence Higher Education Institution's curriculum developers to include e-Learning on the training modules in order to facilitate post graduate students ICT knowledge and skills, and also increase positive credentialing outcomes. It may also assist the educators to develop orientation and facilitation processes to introduce the increase use of LMS to ensure student confidence. Furthermore, it can also highlight the specific demographics of "in need" postgraduate students and increase support to this specific group.

Policy Makers

Findings in this study may influence the policy developers to review the current policy in order to include MOODLE as a compulsory innovative teaching strategy.

Nursing Practice

The findings may influence practice that encourage the use of e-Learning in record keeping and smooth running of service delivery.

1.7. Operational Definitions

E-Learning: This refers to all learning involving the use of web-based information and communication technologies to support both learning and teaching. (Gabael, Kupriyanova, Morais and Colluci, 2014, p.17). Within this study, e-Learning refers to the use of a specific online learning management system, which is Moodle.

Learning Management System (LMS): These are the technologies in the field of education that provide a convenient platform that allows collaboration of the various stakeholders such as students, teachers, authors and administrators (Goyal and Tambe, 2015, p.14). Furthermore, LMS is defined as a learning management system with the infrastructure to deliver and manage instructional content, identify and assess individual and organisational learning or training goals, track the progress towards the achievement of these goals, and collect and present data for the supervision of the learning process of an organisation as a whole (Salem and Salem, 2015, p.18).

Moodle: Is a Modular Object Oriented Dynamic Learning Environment, which is an open source learning management system, which can be freely accessed. It is free in a sense that the user can modify it for custom use (Goyal and Tambe, 2015, p.14). Within this study, Moodle refers to a specific learning management system that presents information per educational module and allows registered students access to learning material and module facilitators, as well as peer support.

1.8. Theoretical Framework

The theoretical framework of this study is based on Donabedian's Tripartite model. This model is about laying a foundation for recognising that quality is measurable, and that quality assessment depends on the three components known as a Donabedian Quality Triad which comprises of the structure, process and outcome standards (Grossbart and Agrawal, 2011, p.13; Haj, Lamrini and Rais, 2013, p.20; Kunkel, Rosenqvist and Westerling, 2007, p.1; Donabedian, 2005, p.1). The structure refers to the characteristics of the institution and providers. The process refers to the activities and interaction amongst the providers, and between them and their clients.

Furthermore, it looks at how services can be delivered in terms of appropriateness, acceptability, completeness or competency (Donabedian, 2005, p.1). The outcome refers to the evidence of goal achievement for the client and service provider's satisfaction and competence (Grossbart and Agrawal, 2011, p.13; Haj, Lamrini and Rais, 2013, p.21). Donabedian discusses the significance of structure and process and how they serve as the determinant of outcome standards for an organisation (Donabedian, 1988, pp.46-52).

Structure, process and outcome are seen as important yardsticks in quality improvement and quality assessment (Wilson, 2013, p.1). As presented in figure 1, structural standards in Donabedian's description are expressed in terms of the infrastructural facilities, organisational modalities such as financing, policy and equipment; and aspects of human resources that include not only number and qualifications but also personal qualities such as beliefs and attitudes. Process standards are explained as the action taken, the behaviour of those within the organisation, while the outcome is described as the result attained via the

structural and process standards; what is available to provide the service; and how the service is actually provided (Donabedian, 1988, p.50; Forster and van Walraven, 2012, p.77)

Application to this Study

In essence, the application of the model focuses on the three core concepts;

Structural standards are viewed as the organisational input such as ICT training, and policy and programmes to facilitate the use of learning platforms and ICT software, human resources and their knowledge skills, availability and attitudes. In addition, students form part of the human resources in that their own existing knowledge and attitudes towards new learning and the use of computers and learning platforms is a core structural standard to the outcome, and thus the quality of the offering.

Process standards refer to the actual implementation of training and support services for students, and students' actual use of the online learning resources available.

Outcome standards are viewed as student progress and throughput.

In the application of this model to the study the researcher will be focusing on a description of the structure and process only related to students' engagement with ICT, specifically learning platforms such as Moodle. The outcome standards are assumed to be linked to progression throughout, and the researcher will not be measuring those as data collection because it is beyond the scope of this study to access and analyse UKZN institutional statistics. The application is depicted in the figure below. It looks at the variables that literature suggests may influence the use of ICT such as the UKZN support structures and

their availability, and students' knowledge and attitudes of these support structures (all structural standards as they relate to the model). Furthermore, the researcher will look at students' actual engagement with MOODLE (the process standard).

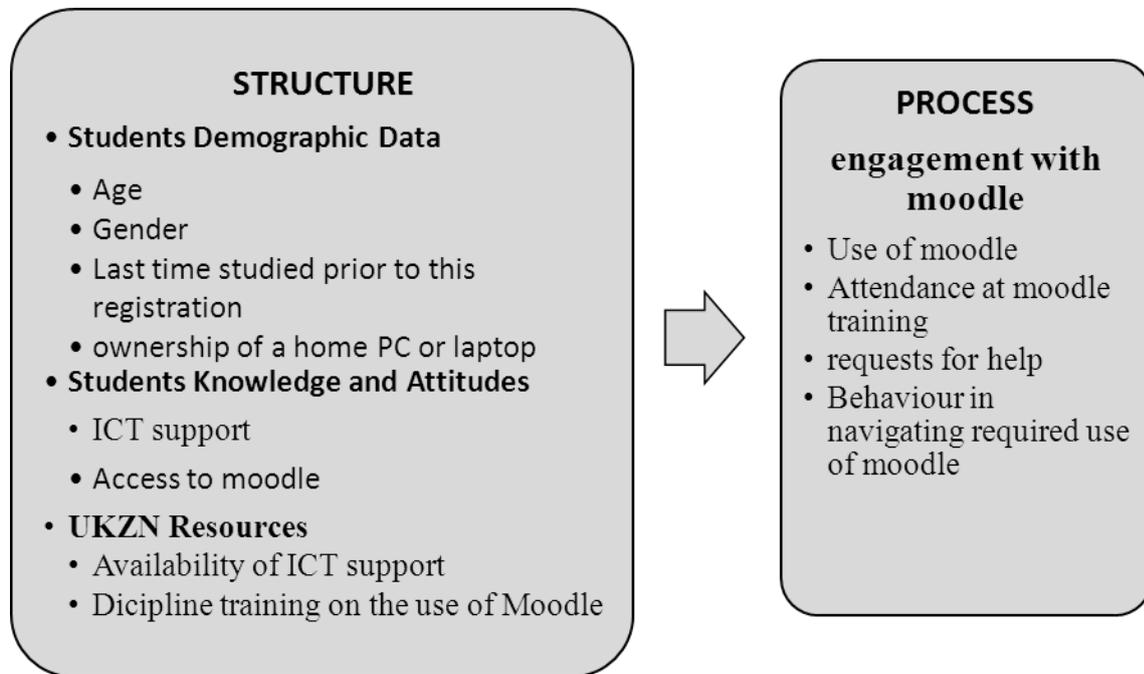


Figure 1: Structural and Process standard variables

1.9. Outline of the dissertation

This dissertation is organised into the following five chapters:

Chapter one presents an introduction and the background to the study, the research problem, aim, objectives and research questions. It outlines the significance to the study, defines key terms, and presents the conceptual framework, an overview of the study and the conclusion.

Chapter two reviews the related literature, which involves identification, location and analysis of documents or materials containing information related to the research problem.

These are organised into themes, which are presented as subheadings.

Chapter three focuses on the methodology, outlining the research method, the study population and the instruments used for data collection. This chapter also describes the process of data collection and finally presents the methods used for data analysis.

Chapter four presents the findings from this study. *Chapter five* discusses the findings from the previous chapter in relation to the relevant literature. This chapter also concludes the study and presents recommendations that will inform the use of e-learning by postgraduate nursing students.

1.10. Conclusion

The purpose of the study is to explore and describe postgraduates nursing students' engagement with and use of e-learning platforms at a selected higher educational institution within the KwaZulu-Natal (KZN) Province, South Africa. The problem statement to this phenomenon has been provided. Aims, research objectives, research questions, significance to the study, definition of key terms and the conceptual framework have been presented and discussed. The next chapter will explore the literature with respect to e-learning utilization.

Chapter Two

Literature Review

2.1. Introduction

A literature review involves the identification and location of information on a particular topic or topics (Babbie, 2009; Cronin, Ryan and Coughlan, 2008). Prytherch (2000) argues that a literature review is a survey of the progress in a particular aspect of a subject over a given period, and may range from a bibliographical index or a list of references, to a general critical review of original publications. Gash (2000), on the other hand, defines a literature review as a systematic and thorough search of all published literature in order to identify as many items as possible that are relevant to a particular topic. In this literature review, the topic directed the exploration of the use of e-learning by postgraduate nursing students as an academic tool to establish ways of enhancing its utilisation, with the search including information on higher tertiary institutions.

The review includes both local and international material, and covers a number of topics: the definition of MOODLE; students' perceptions with regards to MOODLE use; challenges in the use of Moodle; advantages and disadvantages in the use of MOODLE; obstacles and theories of Moodle use; and Moodle as an open learning system and legal framework. A brief description of MOODLE in education is provided, as a method of learning, access to internet resources, search engines and catalogues, and the factors which influence the effectiveness of Moodle use in education. The literature search includes information ranging from 2012 to 2016, and this is mainly based on the historical, professional and educational use of MOODLE. The literature search includes the following computer-assistance, data-based

bibliographies namely; MEDILINE (Medical Literature Online), Academic Search Premier, Nexus, CINAHL (Cumulative Index to Nursing and Allied Health Literature), Google and Google Scholar.

2.2. Conceptualisation of Moodle

Moodle is a Modular Object-Orientated Dynamic Learning Environment which is an open-source learning management system. Learning management systems are software systems designed for lecturers to deliver learning content to students, which can also be used to enhance conventional classrooms or distance learning (Chipps, Kerr, Brysiewicz and Walters, 2015; Goyal, Tambe, 2015). Furthermore, the study findings by Goyal and Tambe (2015), Sun, Chen, Zhang, Zhao, Wang and Wang (2015), and Gogan, Sirbu and Draghici (2015) state that Moodle can be freely downloaded. The study by Gogan *et al.* further defines Moodle as a course management system or virtual learning environment. Furthermore, they define a virtual learning environment as a tool for creating a dynamic online website and interaction for students and educators. According to the study findings by Alvarez, Candamio and Corti (2014) VLE refers to software systems designed to support teaching and learning.

2.3. Students' Perceptions of MOODLE

The study findings by Chipps *et al.* (2015, p.71) reveals that in spite of the positive attitude toward the use of MOODLE, there are concerns from a few institutions using Moodle for instructional or assessment purposes, with regard to how learning management systems can be used for course management, document access, and management of course grades. This is thought to be related to the experience levels of staff in the use of management systems tools.

The study by Dixon *et al.* (2014) reveals that older people are digital strangers and as a result they are ambiguous in the use of technology compared to the digital era generation. This is supported by the study findings of Czerniewicz (2012, p.2) who states that this is due to the limited background of computer exposure.

Furthermore, a study by Chipps *et al.* (2015) agrees with the study findings by Dixon *et al.* (2015) and Czerniewicz (2012) which reveal by using the Technology Acceptance Model that the students' perceptions of the ease of use and usefulness is influenced by individual factors such as age, and computer literacy as having an impact on the perceived ease of use of technology such as a learning management system. This results in difficulties in using the management learning system, lower levels of computer literacy, and lower perceptions of its usefulness. As a result, Chips *et al.* (2015) recommend an increased need for training and support.

The study findings by Horvat, Dobora, Krsmanovic and Cudanov (2015, p.516) state that the perception of students' learning experiences can bear an influence on their decision to continue with the course and can affect the level of satisfaction with their overall online learning experiences. This is in line by study findings by Chipps *et al.* (2015) who state that students' satisfaction is the most important factor to continued learning. The study findings by Hu, Lei, Iseli-Chan and Chu (2015, p.23) reveal the notion that the impact of training and support would affect the perceptions of the ease of use and usefulness of the learning management system. According to Hu *et al.* (2015) it has been discovered that students believe that learning is through social interaction and collaboration. These researchers also believe that knowledge construction begins when they engage themselves in collaborative activity, hence educators interact with them through the use of MOODLE.

Furthermore, students' perspectives are that mobile learning through Moodle is beneficial for accessing emails, forums, and chats via mobile devices. They perceive mobile learning as an effective method in the communication between teachers and students. Furthermore, study findings by Hu *et al.* (2015) reveal that students also prefer to use the mobile system to view course content pages, submit assignments, and access a number of Moodle functions including news forums, feedback, quizzes, etc. Furthermore, other students indicate that mobile phones are not a preferred method to access MOODLE because of the limitations with regard to engagement with complicated tasks such as wiki edits and discussion forums.

Though students' views of mobile learning are not conclusive, a number of publications of edited books on mobile learning in subsequent years have been done. These publications include Kukulska-Hulme and Traxler (2005), *The Advanced Mobile and Ubiquitous Learning Environments for teachers and students* (2006) (Parsons, 2014, p.5). The study by Parsons (2014, p.5) reveals that in 2007 in the UK the Mobile Learning Network Project claimed to be the world largest implementation of mobile learning to date with 50, 000 learners and 4000 staff members. Furthermore, there are findings that in 2009 the *International Journal of Mobile and Blended learning* was issued. These findings are similar to the study findings from Hu *et al.* (2015) where some of the students perceive mobile learning as the best method. Furthermore, in 2011 the UNESCO symposium on mobile learning came with the fact that mobile learning is of global interest and is recognised as a tool for educational access in developing nations. In the following year, because of the rising interest in the potential of massive open online courses, the first MOOC on mobile learning was issued (Parsons, 2014, p.6). This resulted in a transition with regard to the way mobile learning was deployed in schools and higher education institutions with a rise in the uptake of students providing their own devices (Parsons, 2014, p.6). The study findings by Hu *et al.*

(2015) reveals that students complain about the complexity of some Moodle activities and express the need for instructional help on the use of certain activities. A study by Chipps *et al.* (2015) agrees with Hu *et al.* (2015) who reveal that the nursing respondents who received more support and orientation reported to find LMS very useful. Furthermore, recommendations were made for training and support to ensure uptake.

The study findings by Damnjanovic, Jednak and Mijatovic (2015, p.497) reveal that there are some difficulties involved in the use of Moodle due to a lack of ability, knowledge and skills for its use. The study findings by Olmos-Miguelanez, Martinez-Abad, Torrecilla-Sanchez and Mena-Marcos (2014, p.3) recommend that the usefulness perceived by the user is extremely important for the success of a technological tool such as the LMS. The study by Damnjanovic *et al.* (2015) describes Moodle as an e-learning system that offers students flexibility as well as convenience. It is recommended that in designing, developing and delivering educational courses students' needs should be central, to avoid low levels of student involvement and motivation.

The study by Jednak and Mijatovic (2015, p.497) agrees with the findings by Horvat *et al.* (2015) by stating that the perception of a student's learning experiences can bear an influence on their decision to continue with the course. Furthermore, an argument by the American Distance Education Consortium is that students' satisfaction is an essential key to continued learning. The rise in student satisfaction is based on the acquired skills, and this facilitates the lecturers to use MOODLE for the students' cause. The findings by Horvat, Dobrota, Krsmanovic and Cudanov (2015, p.516) report three key figures which are identified as central to students' online satisfaction; these are instructors, technology and interactivity.

The study findings by Damnjanovic, Jednak and Mijatovic (2015, p.497) report two core critical factors for student satisfaction in e-learning which are the environment and teacher

qualifications. Furthermore, other components include communication with all other course constituents, course management issues, and the course websites or course management systems used (Horvat, Dobrota, Krsmanovic and Cudanov, 2015, p.516). According to the study by Horvat *et al.* (2015), positive perceptions towards technology and autonomous learning modes do influence student satisfaction. Furthermore, Horvat *et al.* (2015) report that students' perceptions of task value and self-efficacy, social ability, the quality of the system and multimedia instruction are identified to be an essential construct.

The studies by Horva *et al.* (2015), Damnjanovic *et al.* (2015) and Chipps *et al.* (2015) agree that bearing in mind the knowledge of the factors contributing to students' satisfaction in an online learning environment, there should be an action to provide appropriate support and to design appropriate online learning environments, which would positively impact students' satisfaction and their engagement with learning. Students prefer combined group learning as it enhances their satisfaction. Furthermore, satisfied learners in higher education are more likely to be successful in their academic achievement as well as determining what is relevant to the learner. There is an argument that online technology is male dominated with women constrained in its use by the need to juggle jobs and family commitments. The findings by Damnjanovic, Jednak and Mijatovic (2015, p.497), and Horvat *et al.* (2015) also report congruency based on previous researchers' findings who viewed e-learning as user-friendly and very low costing.

Furthermore, previous researchers report that students believe that an e-learning system's quality will be more useful to them if it is easy to use. However, system quality characteristics are significant for e-learning acceptance and use: reliability and accessibility, system functionality, interactivity and response. However, information quality impacts

directly on satisfaction and indirectly on perceived usefulness (Damnjanovic, Jednak and Mijatovic, 2015:499). This is supported by Czerniewicz (2012) when stating that learner ICT experience is important in influencing learning outcomes. Furthermore, performance expectations and learning climate are the two main determinants of learning satisfaction in a blended learning system.

2.4. Challenges of E-Learning

2.4.1. Lack of Skills

The study findings by Baro, Edewor and Sunday (2014, p.876), and Chipps *et al.* (2015, p72) report a lack of technological skills as one of the hindrances in the use of e-Learning. Furthermore, these study findings agree on the fact that the non-digital era requires training in technology in higher education. Furthermore, the findings by Lwoga (2014, p.190) recommend voluntary workshops for both students and faculty in information literacy and the integration of information literacy into the university curricula. According to the report by Vithal (2015) UKZN also has the same plan in place to be implemented in 2016 so that students become familiar with Moodle as a LMS in e-learning (Vithal, 2015). The findings by Lwoga (2012, p.94) state that most higher education institutions are at a novice stage when it comes to technology use in education. This study recommends the importance of assessing the level at which these technologies are used to support teaching and learning in the African context.

2.4.2. Power Failure

According to Baro *et al.* (2015) the libraries in the digital era are failing to operate successfully without an adequate power supply. Furthermore, it is recommended that there should be a standby generator in place to provide stable electricity in the libraries (Baro, Edewor and Sunday, 2015, p.877; Lwoga, 2014, p.197). The researcher has identified that at UKZN there seems to be no standby generator because when there is a problem with the power, students are unable to use the library and that is disruptive to their learning.

2.4.3. Lack of Facilities

According to Baro, Edewor and Sunday (2014, p.877), and Chipps *et al.* (2015) a lack of computer literacy, unavailability of computers, and internet facilities are the main hindrances to adapt IT skills. The studies by Chipps *et al.* (2015), Lwoga (2012, p.97), and Bagarukayo and Kalema, (2015, p.171) agree with the above-mentioned researchers on the perspective regarding facilities by revealing that students who are in rural areas encounter problems with regard to access to computers. Furthermore, it is noted that only a few universities have stable and reliable access to the internet in their libraries (Baro, Edewor and Sunday, 2015, p.877). It has been noted that poor technological infrastructure, inadequate awareness, shortage of trained ICT and library staff, lack of supportive policies or guidelines, attitudes towards e-learning, lack of ICT technical support for e-learning initiatives and lack of local expertise in curriculum development for e-learning are also challenging the application of e-learning in higher education institutions (Lwoga, 2012, p.101; Lwoga, 2014, p.197; Baro, Edewor and Sunday, 2015, p.873).

2.4.4. Lack of Time

The study by Baro *et al.* (2015), and Lwoga (2014:188) report that librarians lack the time to respond to students' queries. Furthermore, it is recommended that guidelines need to be created in relation to the time taken to respond to students' questions on social networking platforms. The guidelines must address staff absences and vacations so that the social networking services remain consistent while still allowing them to take vacations or attend conferences (Baro *et al.*, 2015).

2.4.5. Pedagogical E-Learning Challenges

According to Islam, Beer and Slack (2015, p.105) and Bagarukayo and Kalema (2015, p.171), students and facilitators who are used to a more traditional method of teaching and learning find it difficult to adapt to e-Learning. Furthermore, it is also noted that academics who are not technically equipped to handle the development of materials and deliver online modules hinder the progress. However, skills development is greatly recommended (Islam, Beer and Slack, 2015, p.105). Furthermore, Bagarukayo and Kalema (2015, p.171) have the same perspective as Islam *et al.* (2015) in terms of pedagogical challenges in the use of e-Learning which include varying learners' academic preparedness, large classes, multilingualism in a first language context, diversity in school background and academic ability.

2.5. Gender and Technology

The findings by Dixon, Correa, Straubhaar, Covarrubias, Graber, Spence and Rojas (2014, p.993) reveal that technology awareness varies in terms of gender. There is an argument that

technology alone cannot be fully understood without reference to gender (Dixon *et al.*, 2014, p.993). According to Hilbert (2011, p.7), the digital differences in technology are associated with gender inequality in terms of employment, income and education in developing countries. Furthermore, a larger number of women in developing countries suffer gender related discrimination than in developed countries. Similarly, women are recognised as more technophobic compared to males when they are assessed under an uncontrolled situation (Hilbert, 2011, p.3). According to Dixon *et al.* (2014) domestic technologies are strongly associated with women and femininity.

These researchers further reveal that computers were initially associated with males; however, gendering began to change as more women in diverse roles began to use computers and go online. However, this gender inequity in the use of the internet/computers disappeared by the late 2000s (Dixon *et al.*, 2014, p.994). This resulted in irrevocable social, productive, political, and cultural transformations which are based on a global communication infrastructure that includes innovations like the internet, mobile telephony and social networking applications in all shapes and sizes. Furthermore, perceiving technology as gendered depends on the ways women and men are socialised from childhood at home and at school (Dixon *et al.*, 2014).

The study by Hilbert (2011) is in contradiction with Dixon *et al.* (2014) when revealing arguments from the studies by Heeks *et al.* (2004), Davis (2007), and Bodman and Berazneva (2007) who reveal that empowering women is a worldwide trend, and it is not only in the developing countries. In South Africa under an uncontrolled environment 20.2 per cent of men are online users, while 11.3 per cent are women (Hilbert, 2011).

2.6. Advantages of E-Learning

According to Bichsel (2013) and Islam et al. (2015), e-Learning initiatives in higher education institutions have a number of advantages for both institutions and students that include, enrollment growth, an increased or additional revenue stream, enhanced reputation and streamlined curricula.

2.6.1. Enrollment Growth

The study findings by Bichsel (2013, p.8) reveal that e-learning increases access. Furthermore, courses and programmes offered online expand access to be reached by students in a broader geographical extent. It is further stated that, through e-learning, institutions ensure a flexible education so that age, academic background and experiences are not a hinderance to the pursuit of academic studies (Islam, Beer and Slack, 2015, p.103). Furthermore, the offering of courses online also increases students' retention and this type of business model ensures more flexibility for students (Bichsel, 2013, p.8; Bervernage, 2015, p.4; Patel *et al.*, 2015; Viera *et al.*, 2014).

2.6.2. Increased or Additional Revenue Stream

The study by Bichsel (2013, p.8) reveals that the rise in online courses and programmes offered often provides extra dollars for individual departments for IT, and for the institution in the form of tuition and technology fees. The findings by Bichsel (2013, p.8) and Baro, Edewor and Sunday (2014, p.866) state that in for-profit universities the more courses offered online can result in an improvement in efficiency and a decrease in costs by limiting the reliance on often scarce physical classroom space, and the services are able to reach the users

who are at a distance. According to Islam *et al.* (2015), e-Learning produces a return on investment to the institution. The study findings by Arkorful and Abaidoo (2014, p.401) agree with study findings by Bichsel (2013) and Baro *et al.* (2014) in their view that e-learning is cost effective in terms of saving students from travelling. Furthermore, in terms of infrastructure it is cost effective because it offers opportunities for a maximum number of learners without the need for many classrooms.

2.6.3. Flexibility

The previous study findings reveal that e-learning provides students with increased flexibility, for both courses offered and access to course resources in order to enable them to learn without interruption at any time or place (Bichsel, 2013, p.10; Busikova and Melicherikova, 2013, p.54; Vieira, Lopes and Soares, 2014, p.750; Garcia-Alvarez, Varela-Candamio and Norvo-Corti, 2014, p.1447; Raoul and Abaidoo, 2014, p.401; Bagarukayo and Kalema, 2015, p.169). Furthermore, in cases where there is relocation in terms of work or family, e-learning maintains constant educational progress. The use of e-learning allows self-pacing, either slow or quick. It helps to compensate for a shortage of academic staff such as facilitators, lab technicians etc. (Arkoful and Abaidoo, 2014, p.401).

Furthermore, an e-learning environment makes it possible for learners to be independent for the reason that the facilitators are no longer the sole dispenser of knowledge, they only guide and advise. According to a study by Rajasingham (2011, p.4), it assists in the preparation of society globally to communicate and dialogue with others. Furthermore e-learning provides disabled people the opportunity to further their education regardless of geographical distribution.

2.6.4. Improved and Revitalised Teaching

The findings by Islam, Beer and Slack (2015, p.107) state that facilitators who are motivated have an encouraging attitude towards the e-learning technology and they enable a positive learning outcome. The study by Bichsel (2013, p.10) agrees with Islam *et al.* (2015) when revealing that in their findings there are senior instructors who are committed to curriculum innovation where they rejuvenate and redesign the course thus improving pedagogy associated with the incorporation of e-learning initiatives.

2.6.5. Enhanced Learning Experience

According to Bichsel (2013, p.10) it is stated that students are able to compare their progress with others, which has been revealed to promote innovation in learning and increase students' accountability for their learning experience and engagement in the course. Furthermore e-learning promotes opportunities for collaboration amongst students. The study by Arkoful and Abaidoo (2014, p.401) states that e-learning enhances the efficacy of knowledge and qualifications via the ease of access to a huge amount of information. Furthermore, Arkoful *et al.* (2014) are in line with Bichsel (2013) in their findings when revealing online learning as providing the opportunities for relations amongst the learners via the use of discussion forums.

Furthermore, e-learning helps eliminate barriers that have the potential to hinder participation, including the fear of other learners. It motivates students to interact with others as well as exchange information. It also makes communication easier and improves the relationships that sustain learning (Arkoful and Abaidoo, 2014, p.401). Furthermore, it also increases students' experience in education by way of interactivity suitable to community education, cultural diversity, globalisation and eradicating boundaries of place and time (Arkoful and Abaidoo, 2014, p.402). These researchers are in line with Busikova *et al.* (2013)

and Bagarukayo *et al.* (2015) study findings when highlighting flexibility as a factor to promote learners' experience in e-learning. The study by Wagner *et al.* (2008) notes that e-learning makes available extra prospects for interaction between students and teachers during content delivery (Arkoful *et al.*, 2014).

2.6.6. Play-way Spirit and Learning by Doing

According to Behera (2013, p.69) learning experiences via simulation and game techniques provide the advantage of getting a richer experience in the useful pedagogical footings of the play-way spirit and learning by doing. This promotes the motivation of digital natives, hence they are fluent in the digital language of computers, video games, smart phones, and the internet (Bagarukayo *et al.*, 2015). The previous studies by Bervernage (2015, p.4), Patel *et al.* (2014), and Viera *et al.* (2014) view online learning as a convenient tool that is broadcast over different social networks including the internet while improving e-learners skills on IT in a flexible and suitable manner, at a place and time convenient to any individual.

2.7. Disadvantages of E-Learning

2.7.1. Requires Knowledge and Skills.

The studies by Behera (2013:71) and Chipps *et al.* (2015) reveal that the users of e-Learning who lack knowledge and skills for the use of multimedia internet and web technology are at a disadvantage in the use of online learning. This is supported by Baro *et al.* (2015) and Lwoga (2014) as they recommend the development of skills for all the patrons. According to Arkoful (2014, p.403), the absence of knowledge and skills in this technology may prove futile in taking advantage of the valuable services of e-Learning. Furthermore, this researcher states

that the facilitators might have an excellent knowledge in academics, but they may not have the necessary skills to deliver their acquired knowledge to others.

2.7.2. Lack of Equipment

The study by Behera (2013, p.71) states that majority of schools are not ready, willing and equipped for making use of e-learning in the appropriate interests of the teachers and students. This is in agreement with the study findings by Lwoga (2012), Lwoga (2014) and Baro *et al.* (2015), where they state that an inadequate infrastructure is one of the hindering factors in the use of e-learning. However, in some areas there are a small number of self-financing public schools which are meant for children with rich parents.

2.7.3. Costly

According to Behera (2013, p.71) e-Learning is more expensive compared to traditional education. This researcher also reveals that the tools involved in e-learning are costly, and their repair is money consuming. Lwoga (2012) and Bervernage (2015) contradict Behera (2013) by saying that online learning is cheaper in terms of travelling. This is in agreement with Patel *et al.* (2014) when stressing the great advantage for e-learners on the issue of not buying books. They do not have the resources to buy electronic equipment. Furthermore, e-learning may lead to congestion or excessive use of some websites. This may lead to the disadvantage of unanticipated costs of both time and money. (Arkoful, 2014, p.403).

2.7.4. Feelings of Isolation and Missing Social Contact

The study findings by Behera (2013, p.71) state that the users of e-learning encounter feelings of isolation; this is the main defect that is quite obvious in any system of distance learning including e-learning. There is no face-to-face interaction and humanistic approach as in the case of a traditional classroom setting. However, the poverty of social participation and community sharing of experiences may prove a handicap to students of e-Learning in their physical, emotional and social development. Furthermore, there is an argument that the complete absence of vital personal interaction is an identified condemnation not only among the learners and instructors, but also amongst colleagues (Arkoful, 2014, p.402).

The study by Behera (2013) agrees with the study findings of Arkoful (2014) in the view that e-learning as an educational strategy makes the learner undergo contemplation, remoteness, and lack of interaction or relations with others. Furthermore, it is less effective with respect to clarifications, offers of explanations, as well as interpretations. It has a negative effect with regard to the improvement of the communication skills of the learners. It may deteriorate the institution's socialisation role as well as the role of the facilitators as the directors of the process of education (Arkoful, 2014, p.403).

2.7.5. Negative Attitude

The study by Behead (2013, p.71) reveals the findings of an overall attitude amongst the learners, teachers, parents and educational authorities. The findings by Islam, Beer and Slack (2015, p.104) reveal that the traditional method of learning in this postmodernism era is inadequate. According to Rabiee, Nazarian, Gharibshaeyan (2013, p.6) there are professors

and personnel in charge of educational affairs who are not mentally prepared to accept ICT and lack basic training about e-learning. The study by Czerniewicz *et al.* (2012) reveals that the learners who are digital strangers do not have enough information about e-Learning, this results in difficulties related to the development of a culture and structures for e-learning.

2.7.6. Lack of Co-Curricular Activities

According to Behera (2013, p.71) co-curricular activities are not in the field of e-learning education, however they seem to be neglected. Furthermore, it is not all disciplines or programmes that can employ e-learning techniques in education. The purely scientific fields that require practical involvement cannot be properly studied through e-learning. The study by Arkoful (2014) echoes the researcher's argument that e-Learning is more appropriate in social and human sciences, than in disciplines such as pharmacy and medical science where there is a need to develop practical skills. This is contrary to most studies where the view is that e-Learning is a convenient method of learning that takes place anytime and anywhere regardless of geographical area.

2.7.7. Technical Defect

The study by Behera (2013) views e-Learning as based on technology, and when there is a technical error e-learning stops. This results in the continuity of learning being broken, and the progress of e-learning stops. This is in agreement with the study findings of Islam *et al.* (2015), Chipps *et al.* (2015) and Arkoful (2014), who reveal that a lack of training for academics leads to their failure to learn e-Learning features, in order to function correctly and to use them effectively. However, this is stressful and time consuming.

2.8. Moodle - An Open-Source Learning Management System

According to Goyal and Tambe (2015, p.14) learning management systems are technologies in the field of education, whereby the integration of various features, provide an excellent enriched media for learning. Furthermore, Moodle is one of the LMS that provide a convenient platform for enabling the creation and distribution of teaching materials, ease of communications between the different users, and allows for collaboration. Furthermore, LMS provide a uniform interface to various stakeholders including students, teachers, authors and administrators, and is widely used as a source of learning materials. It allows flexibility with regard to space, and time by permitting advanced interactions between instructors and learners and ease of access to learning resources.

The study by Goyal *et al.* (2015) states the fact that Moodle, as noted by Georgiakakis *et al.* functions as a single window for all kinds and levels of interactions for students, teachers and administrators, and as a LMS it is widely used by institutes to manage their teaching and learning resources. The study by Al-Busaidi and Al-Shihi (2010) reveals that the emphasis is on the fact that the success of LMS in the institutional environment is largely dependent on the acceptability of the tool by the faculty since they in turn influence the use of LMS by students (Goyal and Tambe, 2015, p.14).

Furthermore, several institutions have started using LMS to augment their existing resources and enable distance learning (Goyal and Tambe, 2015, p.14). According to Gogan, Sirbu and Draghici (2015, p.1144) Moodle's emphasis is always focused on giving educators the best tool to manage and promote learning, it is designed to help teachers create effective online

communities for true learning. It is an e-learning platform based on resources and activities. Furthermore, the main source is the training based on weekly lessons and activities. It allows the user to go page by page or to go from one chapter to another using the quick jump. The study by Gogan, Sirbu and Draghici (2015, p.1144) reveals that Moodle allows the utilisation of a large range of resources, from chats and forums to online booklets, a variety of questions, collections of problems and exercises, lecture notes, including multimedia resources such as graphics, videos or audio or PowerPoints. This is supported in the study by Sun, Chen, Zhang, Zhao, Wang and Wang, 2015, p.222). According to Gogan *et al.* (2015) Moodle is offered to professors and academics as the best tool to manage and promote learning and allows for the organising, managing and delivering of course materials, thus creating a friendly environment. Furthermore, academics can provide students with a large number of resources that they cannot usually show in the classroom due to time constraints (Gogan Sirbu, Draghici, 2015, p.1145). this is also supported by Owen (2010)

2.9. Obstacles of E-Learning

2.9.1. Socio-Cultural Obstacles

According to Alhareth, Dighrir and Alhareth (2015, p.14), and Rabiee, Nazarian and Gharibshaeyan (2013, p.6), it is reported that decision makers in the developing countries are not unified in respect of the cultural and political consequences of internet use, and this results in a lack of trust in using the internet for educational purposes which subsequently causes delay. This is in line with the study by Ravjee (2007, p27.)These researchers view socio-cultural obstacles as the main barrier to the implementation of e-learning. Furthermore, in Arabian countries there is gender inequity prevailing in the use of e-learning whereby

females are not allowed to interact with male facilitators online during their studies. The study findings by Dixon *et al.* (2015) and Hilbert (2011) agree with the above mentioned by reporting their perspectives of gender inequity as a cultural obstacle to e-learning from childhood because girls are socialised to do domestic work while boys are exposed to computer use. In South Africa it was discovered by Bagarukayo *et al.* (2015) that e-learning was violated by the post-apartheid era which segregated educational services.

The study by Islam *et al.* (2015) states that teachers who are used to didactic traditional methods of teaching and learning and who are socialised to be knowledge experts, also contribute to becoming obstacles that lead to a delay in the processes of e-learning. This is confirmed by the findings of Kent (2014) who recommends that the academics who are digital strangers need to be trained in ICT in order to avoid poor performance when rendering their service to their students. A study conducted by Rabiee *et al.* (2013) reveals the following components ranking within socio-cultural obstacles: pessimism of the custodians towards the internet global network (5.43 per cent), lack of national preparation and determination to launch online training (5.08 per cent), perceived lack of efficiency of online training compared with traditional methods of instruction (4.94 per cent), custodians' willingness to impose limitations on using the internet (4.42 per cent), students' willingness to participate in classes (4.03 per cent), students' concern over perceived lack of socialisation associated with virtual universities (3.99 per cent), and a lack of public familiarity with virtual education (3.52 percent).

Furthermore, the findings reveal that although the Saudi Arabian government is in the transformation period to address the inequality in education where males are prioritised, the cultural pattern is the major obstacle that is delaying the government to operate according to the objective they want to reach in education. Furthermore, the findings by Alhareth *et al.*

(2015) shows that at Saudi universities, even though the government has provided the access, statistics at the universities for both female instructors and students show that females are still in the minority compared to males in the years 2003, 2004, 2006, 2007, 2008, 2009, 2011 and 2012.

2.9.2. Structural Obstacles

In the developing countries, techniques, communication and telecommunication foundations are few and this is also considered an obstacle for e-Learning. Furthermore, developing countries, such as Iran, are facing different international boycotts, as a result they don't have enough capacity to develop e-learning (Rabiee, Nazarian and Gharibshaeyan, 2013, p.6). The study findings by Rabiee *et al.* (2015) reveals the following percentages of components which show significance within structural obstacles and include: inappropriate telecommunication infrastructure in the country (3.21 per cent), poor coordination for using the internet at an international level (2.94 per cent), learners' need for having access to the internet (2.15 per cent), lack of preparation of institutions (1.69 per cent).

The above-mentioned findings are in agreement with study findings by Lwoga (2014), Lwoga (2012), and Bessel (2013) who report infrastructure as being the main obstacle for e-learning for most of the universities in developing countries. However, they recommend that e-learning must be geographically accessible regardless of place and time. This is supported by Beverage (2015), Patel *et al.* (2014), and Behera (2013), who indicate that geographical accessibility is convenient and easy to be used by a large number of social networks.

2.9.3. Educational Obstacles

According to Rabiee *et al.* (2013), the political and cultural determinant is an obstacle to education in terms of gender, hence decision makers have different views when it comes to e-learning, which results in a lack of trust in using the internet for educational purposes. Furthermore, another obstacle for e-Learning is that learners do not have easy access to computers with the appropriate hardware, software or connectivity to the internet. Moreover, cultural, structural, and economical obstacles turn into educational barriers. The study by Bagarukayo and Kalema (2015, p.171) report that there are some professors and personnel in charge of educational affairs with no mental readiness for education systems, who lack basic education with regards to e-learning resulting in difficulties in the use of communication technology, and who are regarded as obstacles to e-learning.

The previous findings by Bagarukayo *et al.* (2015), Islam *et al.* (2015) agree with Rabiee *et al.* (2013) by reporting that the qualitative study conducted supports the above mentioned facts by stating that e-learning is not widespread in elementary and high schools, students and professors are not familiar with e-learning and learners do not have enough information about e-learning, this results in serious difficulties related to developing the culture and structures for e-learning. Furthermore, e-learning is not free of charge and this is an obstacle for e-learning in some countries. A previous study reveals the following component percentages as educational obstacles as selected in frequency by the respondents. They include: resistance by a number of faculty members to online training (4.45 per cent), difficulty in studying online materials compared with printed ones (3.48 per cent), lack of sufficient familiarity of the students with the research tools (3.46 per cent), lack of necessary training of the teachers and lecturers from educational institutions (3.5 per cent), problems with practical and laboratory

courses (3.22 per cent), low records of virtual education in the country (Rabiee, Nazarian and Gharibshaeyan, 2013, p.5). The previous findings by Alhareth *et al.* (2015), reveal that in Saudi Arabia interaction and collaboration with social networking systems is limited by the norms of cultural patterns whereby females cannot interact with a male facilitators in the virtual learning environment unless they are relatives.

2.9.4. Pedagogical Obstacles

The study by Alhareth *et al.* (2015) reports that in some countries like Saudi, women are passive recipients of information. There is no creativity allowed from them, no forum for discussion is allowed, they must only memorise. Furthermore, they must only accept what their teachers deliver to them. They are entitled to use textbooks. Furthermore, even at higher education institutions learners are not allowed to do research; they are expected to rely on their teachers for learning. The education for women is prescribed via use of passive methods, where it is stated that teachers merely reflect their own experiences in their method of delivery.

In South Africa the findings of the study by Lwoga (2014, p.197) and Lwoga (2012, p.103) reveal the lack of awareness and attitude towards e-Learning. Furthermore, these researchers report the lack of expertise in curriculum development for e-learning and the lack of ICT technical support to support e-learning initiatives in their findings as the cause of pedagogical obstacles. These studies agree with study findings by Chipps *et al.* (2015) and Kent (2014) when recommending skills development in the use of ICT for digital strangers for both facilitators and students.

2.9.5. Economic Obstacles

The study by Rabiee *et al.* (2015) states that online learning for higher education institutions is not for free in some developing countries and this becomes an obstacle. Furthermore, the low socio-economic status results in a failure to access computers, appropriate hardware, software or connectivity to the internet. These researchers in their studies show the percentage frequency from respondents with regards to the components within the economic obstacles as follows: high expense of studying in virtual universities for students (3.8 per cent), lack of interest of private sectors in investing in virtual education (3.04 per cent), high cost of administering online training for the institutions (2.98 per cent), lack of adequate financial support from the government (2.98 per cent). The very same study findings report that in other African countries, though the government has increased funds on education to ensure the quality of women's education, the challenge is that people who look at things that will not affect their power make the decision.

However, there is no female involvement in determining the appropriate education forms through decisions. The previous findings by Bagarukayo and Kalema (2015, p.169) reveal that in South Africa they are continuously transforming education where gender equity is dealt with at large and in education. Furthermore, the above study findings report that the White Paper for E-education published in 2004 with no discrimination involved as it was during the post-apartheid era. The findings by Bagarukayo *et al.* (2015) agree with the study findings by Lwoga (2014) when they recommend that institutional policies and guidelines on ICT be put in place.

2.9.6. Legal Obstacles

Bagarukayo and Kalema (2015, p169) report that although in 1994 e-learning policies were formulated to open educational opportunities to disadvantaged groups, the challenge is that the new education policies in South Africa are not prescriptive in higher education institutions. The findings by Lwoga (2014) report the fragmentation with regards to the use of e-learning in higher educational institutes globally, as not all of them are using e-learning optimally. The study by Rabiee *et al.* (2013) reveals that differences in the use of policies in the higher education system are obstacles for the private sector to participate in e-learning education and this results in a decrease in competition. The research findings by Rabiee *et al.* (2013) highlight the following legal obstacles as reported by respondents in their studies. They include a lack of compliance with international norms and standards of using the web, infringement of copyright and lack of adequate security and protection in electronic systems. The previous findings by Alhareth *et al.* (2015) reveal that in the Islamic countries, although government has passed policy for equality in women's access to education, the challenge is that there is a strong relationship between culture and learning because men have to be their guardian wherever they go, and women are not even allowed to drive. Furthermore, it is stated that one of the Saudi women's rights activists, when interviewing a Saudi woman, stated that it is like they are in a jail because they are faced daily with five types of obligations: tribe, family, religious institutions, political organisation and society. However, the policy makers are obliged to take into consideration the culture and religion in all aspects so that they can be successful in the implementation of new policies and innovation in African countries, as happened in South Africa during the post-apartheid era (Bagarukayo *et al.*, 2015; Alhareth *et al.* 2015).

2.10. Theories of E-Learning

According to Gutierrez (2016, p.1) and Gutierrez (2014, p.1) there are three distinct motivational theories that have been developed by scientists and psychologists in order to motivate the learners. These theories are all concerned with explaining motivation and its impact on the learning process. Furthermore, these researchers state that motivation is a fundamental requirement so that students, during their online experience, do not approach learning as rote and compulsory.

2.10.1. Flow Theory

The study by Gutierrez (2014, p.2) describes this theory as the state in which intrinsic motivation occurs. Furthermore, this researcher reveals the definition by a theorist by the name of Csikszentmihaly who defines flow as the optimal experience that occurs when the learner is in a mental state of complete engagement with an activity. The findings by Behera (2013) agree with Gutierrez (2014) by saying that when students learn by doing, they get a richer experience with online learning. He further promotes the motivation for digital natives, whereby students become fluent in the digital language, as opposed to digital strangers. This is in line with Viera *et al.* (2014) who say that e-learning flow takes place when the learner is fully and voluntarily engaged with the course with the ability to control the pace and flow of learning according to her/his choice. According to Gutierrez (2016, p.4) and Gutierrez (2014, p.2) when creating a flow of experiences in e-Learning it is useful to promote a sense of control, satisfaction and fulfillment. They further say that flow requires a dynamic process in which online learners meet individual challenges while learning new skills. What they are saying is in line with Islam *et al.* (2015) who state that training on the use of online technology is a challenge to be addressed in order to enable the academia to learn.

Furthermore, the perspective of these researchers is that, eventually more skills are mastered, which results in the challenge of it becoming even more difficult to keep motivation levels high. According to Baro *et al.* (2014), who agree with Gutierrez (2016), as learners dedicate themselves to learning they can put more effort into overcoming challenges and mastering skills.

2.10.2. Self-Determination Theory

The findings by Gutierrez (2014, p.3) reveal the fact that this theory puts the emphasis on the self-determined behaviour of the learner. He further states that this allows the learner to perform out of interest and clearly established goals, and this is in agreement with Busikova *et al.* (2013) when putting emphasis of online learning as being flexible to online learners. According to Gutierrez (2014), intrinsic motivation emerges from the learners as they become connected to the understanding that their learning system is useful and meaningful. The studies by Gutierrez (2014, p.4) and Gutierrez (2016, p.5) view the self-determination theory as being focused on human beings' natural tendencies and psychological needs. The findings by Behead (2013) agree with the above-mentioned researchers when revealing that online learning has become available even to children who are at a disadvantage of being disabled. According to Gutierrez (2014), the self-determination theory deals with three basic needs, namely: autonomy, competence and relatedness. According to Gutierrez (2014), autonomy is about the learner being provided with a level of individual control as they complete the course. This is in line with Bervernage's (2015) opinion that online learning is convenient for the e-learners to decide about the duration they need to take in order to complete the course. The findings by Gutierrez (2014, p.4) and Gutierrez (2016, p.7) describe competence as the development of confidence instilled to the learners because of the

way the e-learning designers have designed the course. This tallies with the study by Hu *et al.* (2015) and Patel *et al.* (2015) who recommend that the trained academics be involved in designing courses for online learning. According to the report by Vithal (2015), UKZN has already started this process, as there are some IT courses in the 1st and 2nd year students' curriculum in order to ensure competency in IT use.

According to findings by Gutierrez (2014, p.4), relatedness is about the planning to be done for learner interaction and discussion. He further recommends that planning done should include forums and discussion groups, which has also been stated by Bagarukayo (2015) in his findings where e-learners revealed that online learning ensures discussion forums and charts which promote flexibility, creativity, communication and collaboration with their peers and facilitators.

2.10.3. Path-Goal Theory

According to studies by Gutierrez (2016, p.8), and Gutierrez (2014, p.3) this theory asserts that a learner's performance and motivation is directly influenced by the behaviour of the instructor or facilitator. They further state that e-learning instructors and course developers are expected to implement meaningful tasks, provide support and utilise behaviour that suits the learner's needs and expectations. Eventually if the student sees herself/ himself to be successful in the course he will develop more motivation in her/ his performance. The findings by Baro *et al.* (2015) and Lwoga (2012) agree on the fact that both students and facilitators must be skilled in ICT so that they are able to master what they are both assigned to do with regard to academic activities.

2.11. Legal Framework of E-Learning

The study by Bagarukayo and Kalema (2015, p.169) state that after the post-apartheid era, South Africa formulated educational policies for the promotion of access to educational opportunities for the previously disadvantaged groups. Furthermore, as from 1994 educational transformation has been a priority in order to promote equality among all races. Some developments have been made in terms of educational legislation, policy development, curriculum reform and the implementation of new modes of education delivery. However, challenges of students' outcomes and the labour market still exist. These researchers further reveal that the new National Curriculum Statement emphasises a learner-centered and outcomes-based education approach. They state that the inception of Curriculum 2005 brought changes in the South African school system, as a result there is a need for the retraining of teachers to prepare them for the newly introduced technology for subjects.

According to Dumbraj *et al.* (2013), the purpose of developing policies is to teach curricula based on e-learners regardless of their own socio-economic environment, and to equip them with skills that can be applied in real life situations (Bagarukayo and Kalema, 2015, p.169). This is supported by Lwoga (2014, p.199) and Lwoga (2012, p.101) who reveal that the educational policies in South Africa are not prescriptive, however the National Department of Education published its White Paper on e-Education in 2004, based on an overview of research and delivery needs related to the roll-out of e-learning in schools. This requires teachers to provide opportunities for learners to learn effectively and this can be achieved through the use of information and communication technologies such as e-learning. According to Bagarukayo *et al.* (2015), Lwoga (2014, p.198) and Lwoga (2012, p.102), the SA national plan for higher education has put the emphasis on university activities to develop

an information society, through the use of technology for knowledge advancement to improve education and support the new education system.

Furthermore, there is a need for the integration of ICT in SA higher institutions to compete globally in terms of innovation, addressing learning styles and choices of the digital generation who are eager to learn actively in an authentic environment. According to Rohleder *et al.* (2008), SA post-apartheid policy documents advocate for equal opportunities in the education sector, however practice varies from policy (Bagarukayo and Kalema, 2015, p.171). The previous findings by Busikova and Melicherikova (2013, p.55) reveal that there is fragmentation prevailing with regard to the level of use of technology in SA, as well as globally, due to challenges such as technological skills and institution. The previous findings by Allen and Seaman (2010) state that in countries like Slovakia the institutions' e-learning is less due to the challenge of teachers and students who are not skilled in the use of e-learning. They only use and support students who are in class due to inexperience with regard to online learning. Furthermore, it is stated that not all countries have e-learning policies in place to be implemented as prescribed in their institutions (Bagarukayo and Kalema, 2015, p.168; Baro, 2014, p.867; Lwoga, 2014, p.185; Morais and Colucci, 2014, p.19; Lwoga, 2012, p.99).

The previous findings for South African universities in 2006 reveal the following information regarding ICT policies in certain universities: The University of Pretoria, Stellenbosch, Western Cape had formal ICT policies completed, strategic plans, regulatory frameworks and statements of policy principles. The University of Cape Town, Tswane had formal ICT policies and strategic documents with clear principles and intentions, however they had no

operational nor implementation documents at that time. The University of Fort Hare, Free State, only had draft policies. Durban University of Technology had ICT policies incorporated into related policy documents. The University of Johannesburg and KwaZulu-Natal were found to be merged institutions where it was not clear whether policy from one institution applies across the new institution.

The HEIs including Cape Peninsula of Technology, Nelson Mandela Metropolitan, Rhodes, North West, and Venda had no frameworks, however they had relevant institutional structures regarding ICT (Moll, Adam, Backhouse and Mhlanga, 2007, p.24). Furthermore, Wits University had no ICT policy reported to be in place, however it is stated to be providing a rich ICT environment for students that includes computer laboratories, access to the internet, online library resources and relevant software (Moll, Adam, Backhouse and Mhlanga, 2007, p.7). Furthermore, the National Department of Education published the White Paper on Education in 2004 that is concerned with research delivery needs related to the roll out of e-learning at schools (Bagarukayo and Kalema, 2015, p.169).

Chapter Three

Research Methodology

3.1. Research Approach and Paradigm

A quantitative approach, which is guided by the positivist paradigm, was adopted in this study. According to Polit and Beck (2004), traditional, positivist ‘scientific method’ refers to a general set of orderly, disciplined procedures used to acquire information. A quantitative approach was the best approach in this study because the research question dictates that the data collected is best analysed from a statistical perspective. The emphasis was on measurable quantitative information, which generated findings that are grounded in reality. A quantitative research method focuses on measuring a range of social and individual objects, events and processes (Polit and Beck, 2004).

3.2. Research Study Design

According to Burns and Grove (2012, p.465), the purpose of the research design is to achieve a greater control of the variables, thus improving the validity of the study in its examination of the research problem. For this study, an exploratory descriptive survey was conducted. According to Polit and Beck (2008), exploratory research is an extension of descriptive research. Also, according to Polit and Beck (2004), a descriptive exploratory design is employed when little is known about the topic and provides information about the phenomenon as it naturally occurs. In the context of this study, the views of postgraduate nursing students on student engagement has never before been documented at the selected campus or in South Africa, especially in nursing.

It involves examining the data descriptively to familiarise oneself with it (Burns and Grove, 2012, p.463). This study was exploratory in nature because the researcher intended to explore the use of e-learning by postgraduate nursing students at UKZN. In descriptive research, the researcher selects a specific event, condition or behaviour and makes observations and records of the phenomenon. Descriptive design describes the phenomena in real situations (Burns and Grove, 2012, p.24).

3.3. Setting

The data was collected at a selected university in the KwaZulu-Natal Province of South Africa, in the School of Nursing and Public Health at Howard College, from postgraduate nursing students who are currently registered for 2016. The study was conducted in the programmes of all postgraduate nursing students who are currently registered for 2016.

3.4. Population and Target Population

According to Polit and Beck (2012, p.462) population is defined as the total set from which the individuals or units of the study are drawn. The target population is an entire aggregation of cases that meet a designated set of criteria. According to Burns and Grove (2012, p.463), an accessible population is the portion of the target population to which the researcher has reasonable access. The population that was used in this study were all postgraduate nursing students. The target population was postgraduate nursing students registered with the Discipline of Nursing for a core module in 2016.

3.5. Sample and Sampling Technique.

Sampling as described by Polit and Beck (2008) is a process of selecting a portion of the population to represent the entire population so that an inference can be made, while a sample

is a subset of the population elements. The study used probability sampling as according to Polit and Beck (2008) it involves a random selection of elements from a population and is more respected as it places greater confidence in the representativeness of probability samples. Probability sampling involves a selection process whereby each element in the population has an equal and independent chance of being selected (Polit and Beck, 2008).

Random sampling on the other hand involves a selection process in which the sampling frame is established, the technical name for the list of elements from which sample will be chosen (Polit and Beck, 2012, p.280). Random sampling from this study was decided upon, as the number of students is sufficient to yield the desired outcome. Convenience sampling was used to select an institution of higher learning. The reason for this is related to researcher access, and the fact that this institution has the largest postgraduate student nursing population within KwaZulu-Natal. In addition, a core module within the postgraduate nursing programme was purposefully sampled to facilitate a large potential of respondent numbers.

The sample size was N=60 postgraduate nursing students.

Inclusion criteria included:

- Current registration for a core nursing module for all postgraduate students
- Availability on the day of data collection
- Willingness to respond to the data collection instrument

3.6. Data Collection Instrument

There was one self-report questionnaire (Appendix 5) containing structured response formats with limited choice close-ended questions that provided the primary quantitative data. The

questionnaire was presented in English only, as the teaching medium is English at UKZN and there is an assumption that the comprehension of English is adequate. The questionnaire contains questions addressing the study objective, specifically the research questions. Content validity was established and is displayed in table 1. The self-report questionnaire includes items adopted and modified from Celik and Yesilyurt (2013) and Daneshmandnia, (2013). The title of the questionnaire is about exploring the use of eLearning platforms by Postgraduate Nursing students in a selected Higher Education Institution. The validity by Celik *et al.* (2013, p.151) includes latent variables of attitude to technology, perceived computer self-efficacy, computer anxiety and the attitude towards doing computer supported education.

The reliability coefficient of the instrument was calculated through Cronbachs Alpha and was found to be 0.928. The validity by Daneshmandnia (2013, p.62) included suitability of design on-screen and in-system, ease of course procedure, inter-operability of system and suitability of academic administration, ease of instructional management and appropriateness of multimedia use, flexibility of interaction and user accessibility. The reliability of the questionnaire of usability evaluation was calculated through the Cronbach Alpha coefficient. The overall Cronbach Alpha score was 0.922 which suggests that the questionnaire was concise and the questions regarding the usability categories evaluated in this research had reliability (Daneshmandnia, 2013, p.70). The attribute of independence was added based on the researcher and research supervisor's experience. Section A of the questionnaire asks for demographic data – race, age, gender, and language, receipt of learning platform training, computer access at home, and frequency of use and prior exposure to e-learning before registering with the university. Section B presents a set of 26 statements which survey respondents were asked to indicate their response to using a four item Likert type scale with

one (1) representing ‘strongly agree’ and five (5) representing ‘strongly disagree’ with the statement. Within this section, there are seven attributes that are measured, namely; independence with five questions, learnability with three questions, operation ability with three questions, efficiency with three questions, memorability with three questions, errors with three questions, satisfaction with three questions, and attractiveness with three questions.

Research question	Specific construct	Self-report questionnaire item number
5.1.1	Structured standard	Section A: 2,3,5,6,7,8,9 Section B: 1,2,3,6,7,8,9,10,11,12,13,15,17,18,19,20,21,22
5.1.2	Process standard	Section A: 5,6,7,8 Section B: 1,2,3,4,5,7,8,9,10,11,12,13,14,16,17,18,19,20,21,22,23
5.1.3	Structured standard	Section A: 1,2,3,6

Table1: Content validity of the data collection instrument

3.7. Data Collection Process

The University of KwaZulu-Natal Ethics Committee provided approval for data collection. After the ethical clearance was granted, the researcher communicated with the College of Health Sciences office (Annexure 2), the Dean of the School of Nursing and Public Health, and the Head of the Discipline of Nursing to obtain permission to collect data on UKZN premises. Having received the permission, the researcher met with and negotiated dates for data collection with the lecturer who was teaching a core module within the MN programme. The researcher then:

- Attended the class at the pre-arranged time.

- Gave a brief overview of the study and the respondents' rights in study participation.
- Handed out the information sheet to the potential respondents (Annexure 1)
- Ten minutes was given for reading and then ten minutes for any questions that potential respondents may have had.
- After stressing that participation was voluntary, the researcher handed out the informed consent sheet (Appendix 4) and collected those completed sheets as she handed out the self-report questionnaire and a pen to respondents who agreed to participate.
- Respondents were asked to place the completed questionnaires in the box provided.
- The researcher distributed the information and consent sheet to students.

The researcher remained in the room until the last questionnaire had been posted in the box provided to ensure safe storage of the raw data.

This data collection process was planned to facilitate the respondents' assurance regarding confidentiality and anonymity. The names of the students who participated were not recorded. Furthermore, anyone who did not give consent was free to not fill in the questionnaire.

3.8. Ethical Considerations

A letter requesting approval for conducting the study was written to the ethics committee of the University of KwaZulu-Natal requesting ethical clearance to conduct the study. The ethical clearance was obtained, and permission to conduct the study was requested from the Head of the Nursing School at UKZN and the lecturer, and then the researcher provided informed consent for data collection (Botma and Greef, 2012, p.56). The researcher met with

her supervisor and the lecturer who was teaching a core module in order to plan the time for data collection that did not interfere with normal lectures. The participants were given a written informed consent form, which explained the nature of the research, risks and benefit to them, reason for the study and how the information collected will be used. Participants were provided with an opportunity to ask questions about any issues they were not clear on concerning the study. This was to ensure that participants would be giving consent after fully understanding the information on the consent form.

They were provided with the researcher's contact details to facilitate informed written consent. Participants were informed of their right to withdraw from the study at any time should they wish to do so. Participants were informed that there were no penalties involved if they refused to participate in the study. In this study, beneficence was achieved by respecting the participants' autonomy, voluntary participation and ensuring the participants' confidentiality. This study caused no risk to the participants. In this study the researcher stored data in a safe and secure place where only the researcher will have access. Confidentiality and anonymity was maintained by coding the data collected from participants to protect their identity. There was no sharing of data beyond the purpose of the study. The researcher identified herself and discussed the aims, instruments and methodology with the fellow participants. The researcher ensured that the environment was safe and private for interviews with no interruptions or distraction.

3.9. Ethical Principles for Protecting Study Participants

3.9.1. Beneficence

In this principle, the researcher complies to minimise harm and maximise benefits during the research process with regards to the following dimensions:

3.9.1.1. The right to freedom from harm and discomfort

The researcher maintained non-maleficence in this study by ensuring that participants were not subjected to physical or emotional harm.

3.9.1.2. The right to protection from exploitation

The researcher ensured that participants' involvement in the study did not put them at a disadvantage or expose them to harm. Participants were assured that their participation in the study would not be used to their disadvantage (Polit and Beck, 2012, p.153)

3.9.2. Respect for human dignity

In this study, this ethical principle was assured to the participants. It is a dual dilemma which comprises the right to self-determination and the right to full disclosure (Polit and Beck, 2012, p.154).

3.9.2.1. The right to self determination

The researcher treated humans with autonomy. People made their own choices as to whether they were participating in the study or not. They had the right to ask questions, to give information or refuse, or withdraw from the study. They were free from coercion, which means that there was no threat from the researcher by forcing them to participate in the study. There was no stipend or incentive from the researcher to the participants, nor were the students, from a historically disadvantaged group in higher education financially incentivised to participate.

3.9.2.2. The right to full disclosure

The researcher fully explained the nature of the study and her responsibility and made it clear to students the facts about their right to refuse to participate. She disclosed the risks and benefits of participating in the study. This assisted the participants to make an informed decision about their consent. The technique of covert data collection and the controversial technique was not used in this study (Polit and Beck, 2012, p.154).

3.9.3. Justice

In this principle, the researcher respected participants' rights to fair treatment and their right to privacy.

3.9.3.1. The right to fair treatment

The researcher ensured justice by selecting the participants based on study requirements. The benefits and burdens of the research was equitably distributed regardless of historically disadvantaged backgrounds. There was no exploitation or discrimination to any of the participants. The researcher honoured all the decisions taken by the participants based on their choices regarding participating or not participating in the study, hence they had a right to do so (Polit and Beck, 2012, p.155).

3.9.3.2. The right to privacy

The researcher maintained confidentiality and anonymity regarding the particulars of participants who participated in the study. She complied with the privacy rule of April 14, 2003. There was no intrusion regarding anyone's personal life, and the research was objectively based on the study requirements (Polit and Beck, 2012, p.156).

3.10. Risk or Benefit Assessment

The researcher ensured the protection of the study participants by conducting a risk assessment so that their participation in the study would not interfere with their study programme. She communicated with the lecturer so that she could access the participants during their spare time or free study period. The participants were informed about the benefits of participating in the study as it was about Moodle in which most of them were not familiar, since it was a new phenomenon that was not popular in the past (Polit and Beck, 2012, p.156).

3.11. Data Storage, Dissemination and Disposal

The findings of this study will be presented to the University of KwaZulu-Natal as a hard copy and another copy will be made available to the Department of Nursing where this study was conducted. The researcher and the supervisor will also publish the findings in an accredited scientific nursing journal. The names of the participants and the institution that is used as a research setting in this study will be kept confidential.

3.12. Validity of the Instrument

Validity refers to the degree to which an instrument measures what it is supposed to measure (Polit and Beck, 2008). Validity is defined as a determination of the extent to which the tool reflects the abstract constructs being examined (Burns and Grove, 2009, p.380). The tool must be pre-tested before the data is collected so that it can be corrected according to their views or recommendations. The researcher ensured the validity of the instrument by: avoiding selection biases - the same measuring instrument was given to all participants; using several criteria in the constitution of the instrument to standardise the evaluation; keeping the

questions as simple as possible; giving sufficient time to complete the questionnaire; and making the instructions as clear as possible regarding the completion of the questionnaire. The researcher used a four-point Likert scale questionnaire, one (1) being 'strongly agree' and four (4) being 'strongly disagree' which was adapted from other authors. The questionnaire was adapted from studies by Celik and Yesilyurt (2013), Sun, Tsai, Finger and Chen (2008), Wilkinson, While and Roberts (2009), Wilkinson, Roberts, and While (2010), Babara, Lowenthal, Miskiewicz, Ruiz-Primo and Marczyński (2011) as a guide to develop relevant questions to suit the context of the proposed study. Other questions were generated from the literature.

3.13. Reliability of the Instrument

Reliability is the extent to which a measuring instrument is repeatable and consistent (Polit and Beck, 2012, p.157). This means that the same instrument, if used at different times or administered to different subjects from the same population, will yield similar findings. According to Polit and Beck (2004, p.170), the reliability of the instrument can be assessed in different ways. The researcher ensured the reliability of the instrument by: asking questions that the people would understand and asking about issues that were relevant to the subject. The reliability of the instruments from which the questions were adapted and modified in this research were obtained from the literature that was used in the formulation of a questionnaire as mentioned above regarding the validity of the study.

3.14. Data Analysis

Data was pruned and organised using the Statistical Package for Social Science version 24. Analysis comprised of descriptive statistics, which allowed the researcher to come up with

ways that provided understanding and enlightenment, and that will examine the phenomenon from a variety of angles. Frequency distribution was used to organise the data. Measures of the central tendency were used to describe data (mode, mean, median). The data has been analysed using independent simple tests namely, the Anova test and chi-square test, in order to assess the associations between each item of the perceptions and challenges with the socio-demographic factors.

3.15. Conclusion

This chapter focused on the research paradigm and approaches, the research design, the research instrument, and the validity and reliability of the research instrument. This chapter explained the research setting and the study population, the sampling and the sample size. This chapter described how data were collected, the methods used for data analysis and the ethical considerations involved in this study. The data management and the dissemination of the results were also explained.

Chapter Four

Presentation of the Findings

4.1. Introduction

This chapter presents an analysis of the findings of the research. The findings presented in this chapter are in the following categories: demographic data, students' perceptions and challenges with regard to the use of e-Learning. To reiterate, the aim of this study was to explore the utilisation of e-Learning as an academic tool among postgraduate masters nursing students in a selected tertiary institution in KZN, in order to establish ways of enhancing its use. The questionnaire was the primary source of data collection and it was completed by 60 respondents. The SPSS package, Version 24.0 was used to organise and analyse the raw quantitative data. Descriptive statistics that described one variable at a time were used that is; the mean, the unvaried standard deviation, contingency tables and correlation indexes, and the frequencies of two or more variables were cross-tabulated. The relationships between variables were established using co-relational procedures.

4.2. Sample Realisation

Regarding this study, 60 postgraduate nursing students were given questionnaires and they all responded. This means that the response rate was 100 per cent, which according to Polit and Beck (2004) is an acceptable response and is regarded as good by Burns and Grove (2005).

4.3. Socio-Demographic Characteristics of Respondents

4.3.1. Gender

It was found in this study that 76.7 per cent (n=46) of the respondents were females, and 23.3 per cent (n=14) were males.

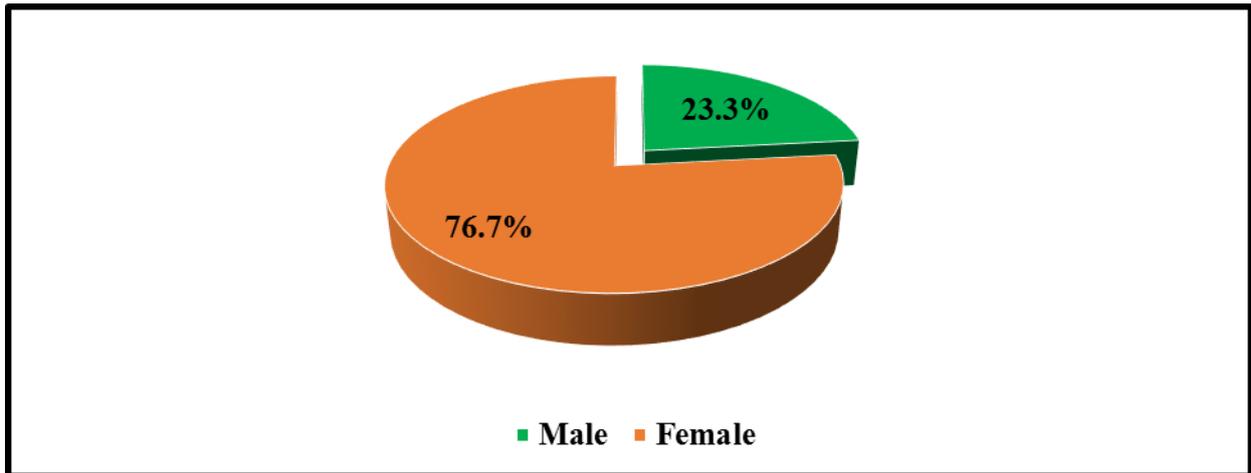


Figure 4.1: Gender of the respondents

4.3.2. Age group of the respondents

In this study, of 57 respondents, 36.8 per cent (n=21) were aged between 21-30 years, 35.1 per cent (n=20) were aged between 31-40 years, 26.3 per cent (n=15) were aged between 41-50 years and 1.8 per cent (n=1) were between 51-60 years.

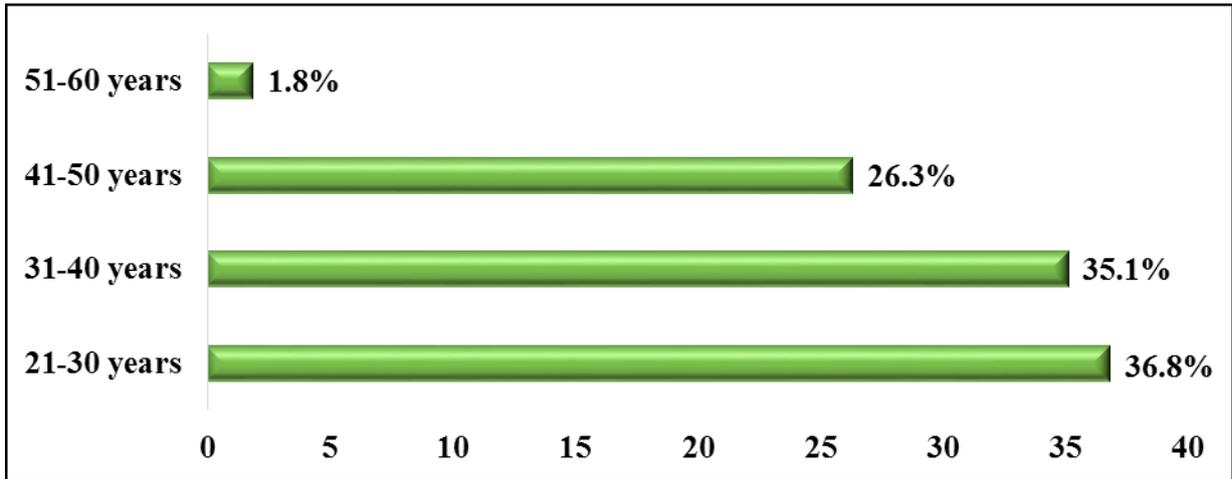


Figure 4.2: Age group of the respondents

4.3.3. Race of the respondents

The findings in this study indicated that the majority of the respondents (94.9 per cent, n=56) were Africans, 3.4 per cent (n=2) were Whites, and 1.7 per cent (n=1) were Coloureds.

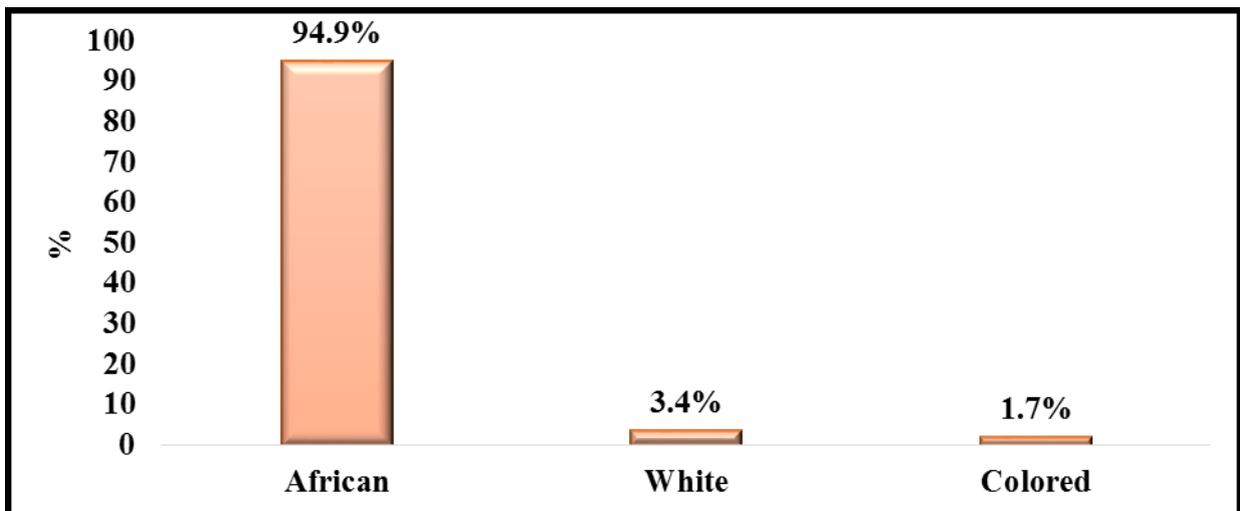


Figure 4. 3: Race of the respondents

4.3.4. Proficiency in English

This study reflects that out of 58 respondents, 96.6 per cent (n=56) reported that they considered themselves to be proficient in reading English, while 3.4 per cent (n=2) reported that they were not proficient in the language.

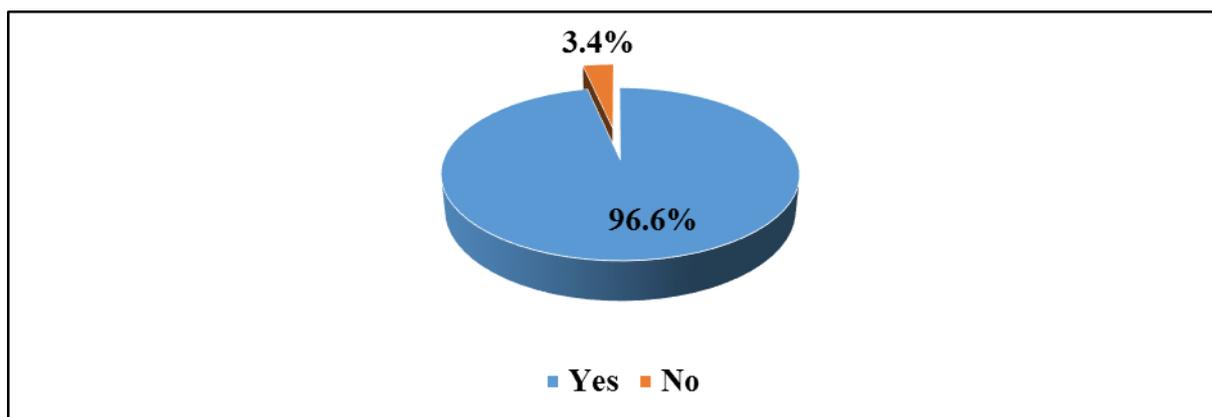


Figure 4. 4: Proficiency in English

4.3.5. Summary of the socio-demographic characteristics

Table 4.1: Summary of the socio-demographic characteristics

	Variables	Frequency	Percentage
Race	African	56	94.9
	White	2	3.4
	Colored	1	1.7
Age group	21-30 years	21	36.8
	31-40 years	20	35.1
	41-50 years	15	26.3
	51-60 years	1	1.8
Gender	Male	14	23.3
	Female	46	76.7
Proficient in reading English	Yes	56	96.6

4.4. Training and Accessibility to MOODLE

4.4.1. Number of respondents who received training on the use of MOODLE

In this study, 62.1 per cent (n=36) reported that they had received training from their lecturers on the use of MOODLE, while 37.9 per cent (n=22) reported that they did not receive

training on MOODLE.

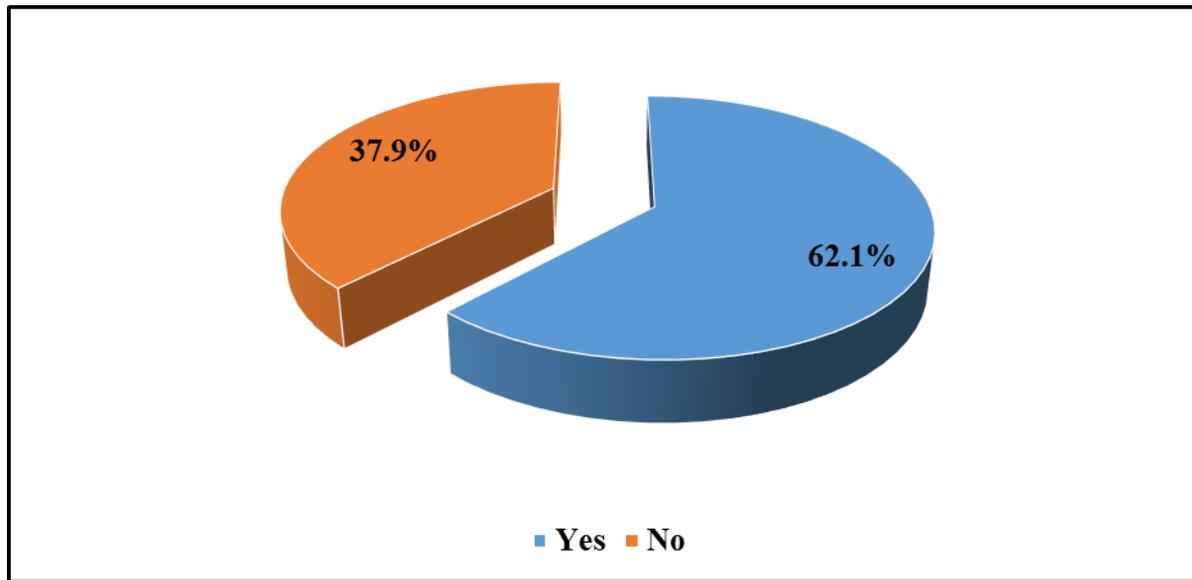


Figure 4.5: Number of respondents who received training

Pearson's chi-square test was run in order to establish the association between the socio-demographic characteristics and the training on MOODLE, and the results from the test indicated that there was no association: race ($X^2=3.334$; d.f=2; $p=0.145$); age ($X^2=0.942$; d.f=3; $p=0.927$); gender ($X^2=0.188$; d.f=1; $p=0.756$) and proficiency in English ($X^2=0.195$; d.f=1; $p=0.605$).

4.4.2. Duration of training

The findings of this study revealed that 37.8 per cent ($n=14$) of the respondents reported having received 30+ minutes of MOODLE training, 32.4 per cent ($n=12$) reported having had 15 minutes or less training time, and 29.7 per cent ($n=11$) reported having had 16-30 minutes of training on MOODLE.

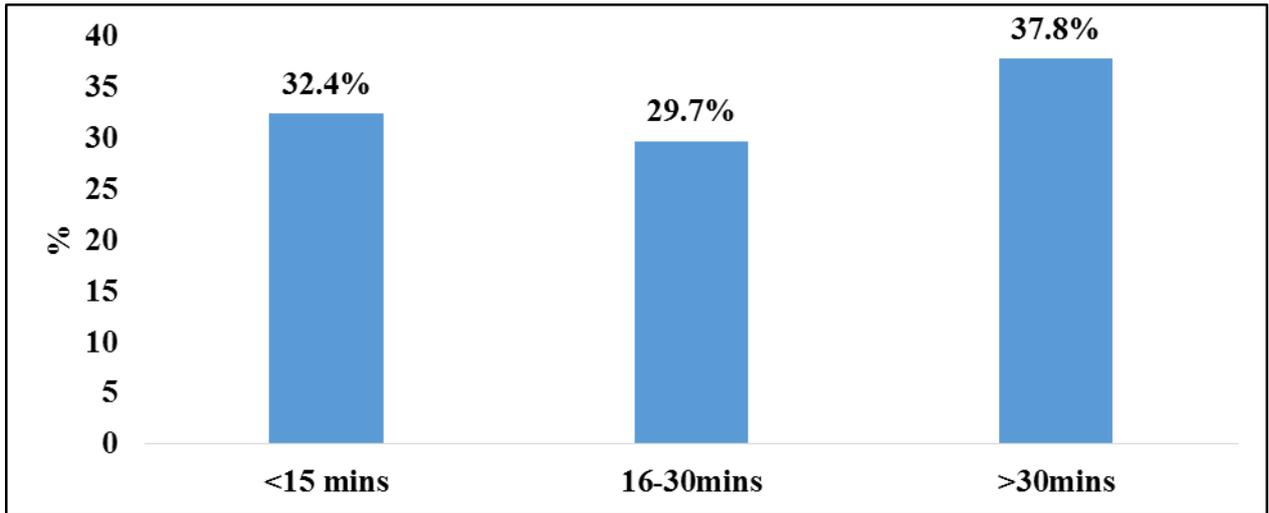


Figure 4.6: Duration of the training

4.4.3. Access to a computer at home

This study's findings indicated that 68.3 per cent (n=41) of the respondents reported that they had access to a computer, while 31.7 per cent (n=19) reported that they did not have access to a computer at home.

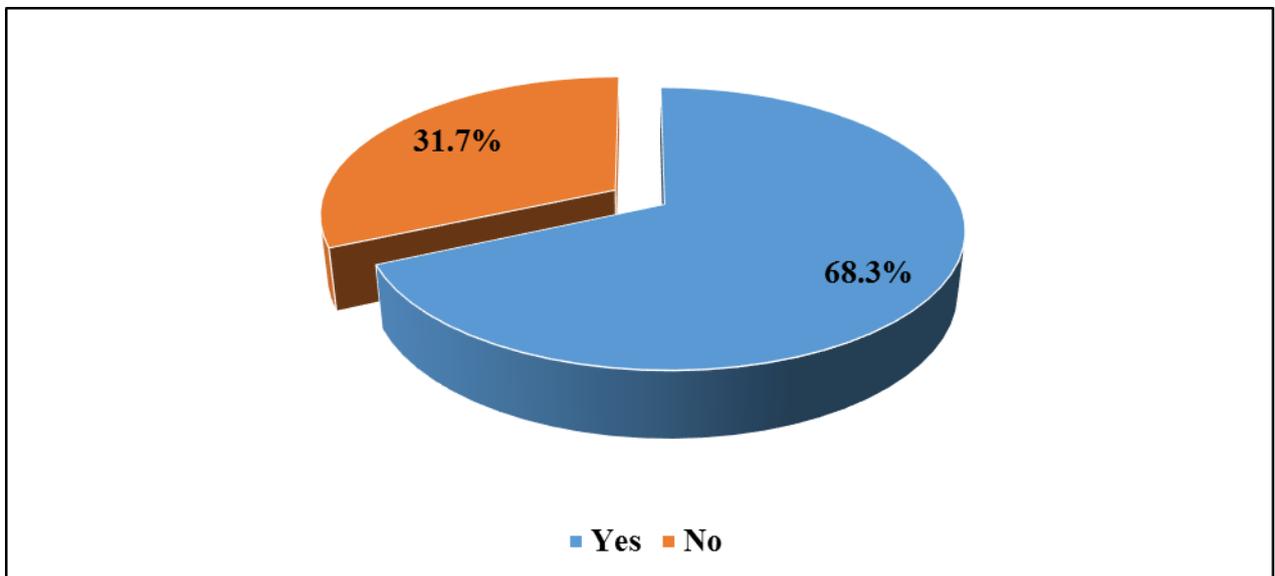


Figure 4.7: Accessibility to a computer at home

4.4.4. The frequency of access to MOODLE

The majority, 47.4 per cent (n=27), reported that they used computers to access MOODLE daily, 28.1 per cent (n=16) reported the frequency of access to MOODLE as once a week, while 24.6 per cent (n=14) reportedly used computers mainly on the weekends.

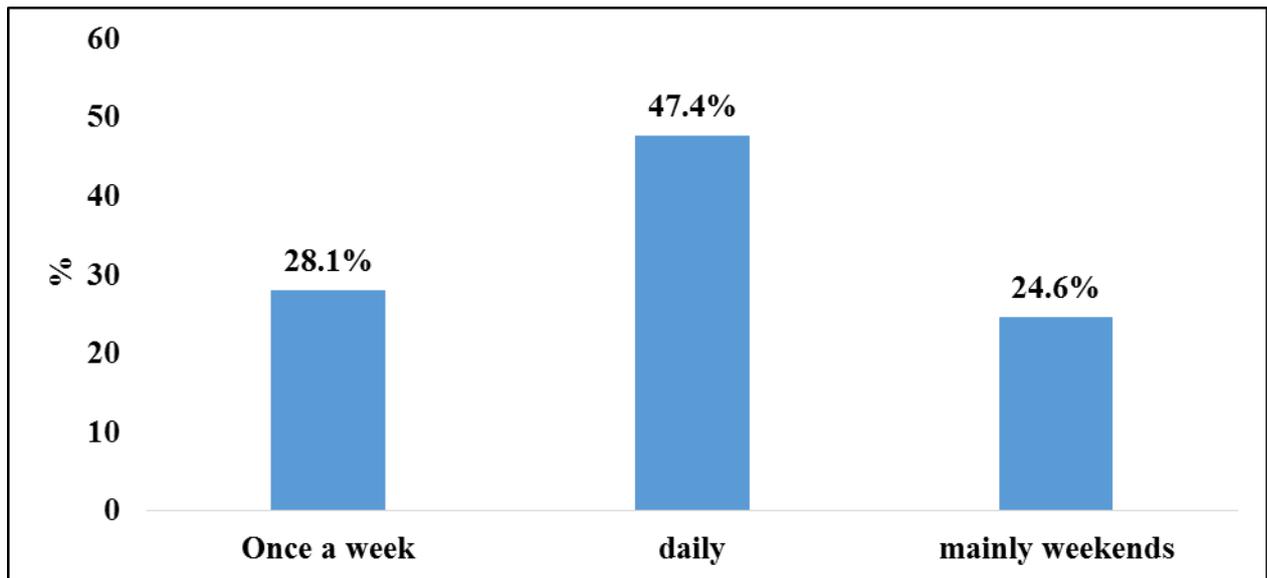


Figure 4.8: Frequency of accessibility to Moodle

4.4.5. Exposure to MOODLE before registering with the university

The study findings showed a large number of students, 70 per cent (n=42), who reported that they were not exposed to online learning prior to enrollment at the university, while 30.0 per cent (n=18) reported that they had been exposed to online learning before registering at the university.

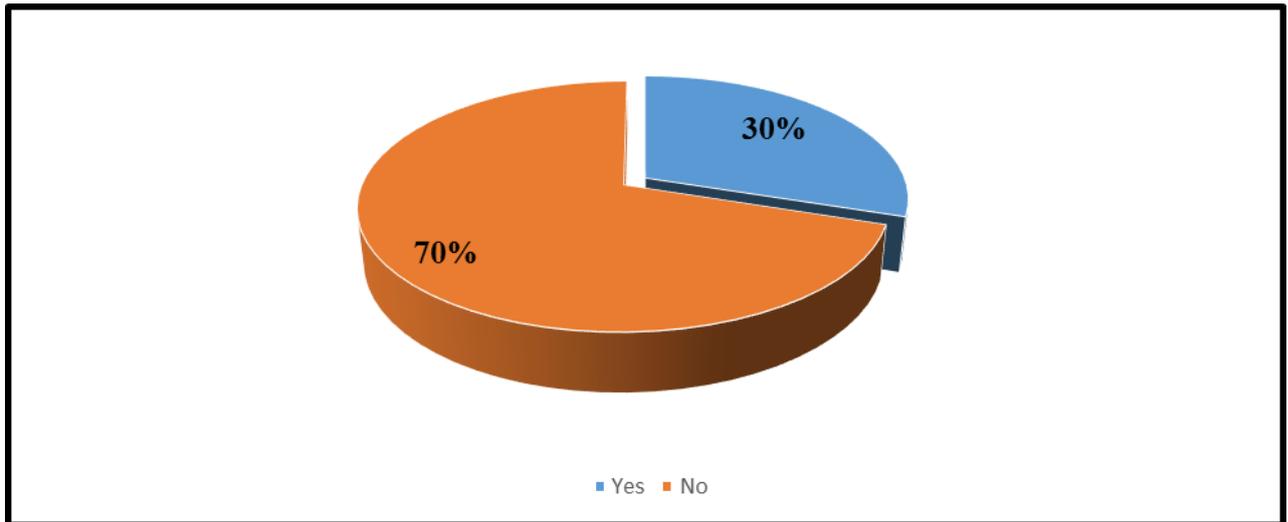


Figure 4.9: Exposure to MOODLE before registering with the university

4.5. Perceptions about the Use of E-Learning

In this study, 37.5 per cent (n=21) of the respondents agreed to feeling that there was a need for technical support when using MOODLE, 28.6 per cent (n=16) disagreed that technical support help was needed, 19.6 per cent (n=11) strongly agreed that it was necessary, and 14.3 per cent (n=8) strongly disagreed with the need for technical support in order to be able to use MOODLE effectively.

The majority of the respondents in this study, 54.5 per cent (n=30), agreed to feeling comfortable using MOODLE, 32.7 per cent, (n=18) strongly agreed that they were comfortable, 7.3 per cent (n=4) disagreed, and 5.5 per cent (n=3) strongly disagreed with the statement. In this study 38.6 per cent (n=22) of the respondents agreed that they felt at ease using MOODLE, 33.3 per cent (n=19) strongly agreed that this was the case, 22.8 per cent (n=13) disagreed with the statement and 5.3 per cent (n=3) strongly disagreed.

While 59.6 per cent (n=34) of the respondents disagreed that MOODLE was a difficult programme to use and 15.8 per cent (n=9) strongly disagreed with this statement, whereas

17.5 per cent (n=10) agreed that it was difficult and a further 7.0 per cent (n=4) strongly agreed that it was difficult to use.

In response to the statement that MOODLE was a flexible learning management software, 59.6 per cent (n=34) of the respondents agreed with the statement and 22.8 per cent (n=13) strongly agreed, however 14.0 per cent (n=8) disagreed and 3.5 per cent (n=2) strongly disagreed that the software was flexible.

The majority of the respondents (63.2%, n=36) agreed that Moodle utilised simple and natural dialogue, and a further 15.8 per cent (n=9) strongly agreed that this was the case. 19.3 per cent (n=11), however, disagreed and a further 1.8 per cent (n=1) strongly disagreed with the statement.

As to the statement that MOODLE error messages were helpful; 45.6 per cent (n=26) of the respondents agreed with this, 40.4 per cent (n=23) disagreed, 10.5 per cent (n=6) strongly agreed, and 3.5 per cent (n=2) strongly disagreed. A majority of 57.9 per cent (n=33) disagreed with feeling that the error messages were confusing, while 28.1 per cent (n=16) agreed that they were; 7.0 per cent (n=4) strongly agreed that these messages were confusing and another 7.0 per cent (n=4) strongly disagreed that this was the case.

The findings from this study indicated that out of 56 respondents, 51.8 per cent (n=29) agreed to being satisfied with the easy use of MOODLE, 23.2 per cent (n=13) strongly agreed with the statement, 23.2 per cent (n=13) disagreed, and 1.8 per cent (n=1) strongly disagreed with the statement.

Out of 57 respondents, 54.4 per cent (n=31) agreed to the statement that the information provided on MOODLE was easy to understand, while 28.1 per cent (n=16) strongly agreed, 15.8 per cent (n=9) disagreed, and 1.8 per cent (n=1) strongly disagreed with the statement.

Table 4.2: The perceptions of students about MOODLE

Perceptions	Strongly agree	Agree	Disagree	Strongly disagree
Technical support	19.6%	37.5%	28.6%	14.3%
Comfortable to use MOODLE	32.7%	54.5%	7.3%	5.5%
MOODLE is easy to use	33.3%	38.6%	22.8%	5.3%
MOODLE as a difficult program to use	7.0%	17.5%	59.6%	15.8%
MOODLE as a flexible Learning Management System	22.8%	59.6%	14.0%	3.5%
MOODLE has simple and natural dialogue	15.8%	63.2%	19.3%	1.8%
MOODLE error messages are helpful	10.5%	45.6%	40.4%	3.5%
MOODLE error messages are confusing	7.0%	28.1%	57.9%	7.0%
Satisfaction with MOODLE	23.2%	51.8%	23.2%	1.8%
Easy to understand information on MOODLE	28.1%	54.4%	15.8%	1.8%
Easy to read MOODLE characters	23.2%	58.9%	14.3%	3.6%
Organisation of information on MOODLE is clear	22.8%	61.4%	14.0%	1.8%
MOODLE is user friendly	24.1%	59.3%	14.8%	1.9%

In this study the majority of the respondents (58.9 per cent, n=33) agreed that while using MOODLE it was easy to read the characters on the screen and a further 23.2 per cent (n=13) strongly agreed; while 14.3 per cent (n=8) disagreed and 3.6 per cent (n=2) strongly disagreed with the statement.

This study also showed that out of 57 respondents, 61.4 per cent (n=35) of them agreed that the organisation of information on MOODLE was clear, and 22.8 per cent (n=13) strongly agreed that it was clear; while 14.0 per cent, (n=8) disagreed and 1.8 per cent (n=1) strongly

disagreed that the information was organised in a clear manner.

Finally, out of 54 respondents, 59.3 per cent (n=32) agreed that Moodle was user friendly and 24.1 per cent (n=13) strongly agreed that it was, but 14.8 per cent (n=8) disagreed and another 1.9 per cent (n=1) strongly disagreed that it was user friendly software.

A Pearson chi-square test was run in order to establish the association between the socio-demographic variables and the items related to the perceptions about the use of MOODLE mentioned above. There were significant associations between the following: Proficient in English and feeling the need to use technical support ($X_2=302$, $df=3$, $p=0.040$); proficiency in English and feeling that MOODLE is easy to use ($X_2=9.839$, $df=3$, $p=0.020$); proficiency in English and feeling that MOODLE is a flexible learning management system ($X_2=16.074$, $df=3$, $p=0.001$); proficiency in English and feeling that MOODLE has a simple and natural dialogue ($X_2=8.481$, $df=3$, $p=0.037$); proficiency in English and overall satisfaction about the use of MOODLE ($X_2=28.657$, $df=3$, $p=0.000$); proficiency in English and information provided in MOODLE is easy to understand ($X_2=30.189$, $df=3$, $p=0.000$); proficiency in English and easy reading of characters while using MOODLE ($X_2=13.058$, $df=3$, $p=0.005$); proficiency in English and the feeling that the organisation of information in MOODLE is clear ($X_2=30.593$, $df=3$, $p=0.000$);

Proficiency in English and the feeling that MOODLE is user-friendly ($X_2=26.321$, $df=3$, $p=0.000$); duration of training and the organisation of information on MOODLE is clear ($X_2=9.824$, $d.f=4$, $p=0.043$); accessibility to a computer and the need to use technical support help in order to use MOODLE ($X_2=10.036$, $d.f=3$, $p=0.018$); accessibility to a computer and MOODLE being flexible Learning Management Software ($X_2=11.789$, $d.f=3$, $p=0.008$) and

finally; accessibility to computers and the information provided on MOODLE is easy to understand ($\chi^2=9.351$, d.f=3, $p=0.025$).

4.6. Overall Perception of the Students on the Use of MOODLE

An overall score of the students' perception about the use of MOODLE was calculated and the 13 items above were considered. The responses ranged from 1=strongly disagree, 2=disagree, 3=agree, to 4=strongly agree. The higher the score, the more positive the perception of the respondents about the use of MOODLE. The minimum score was 24, and the maximum score was 47. The mean was 37.30 and the standard deviation was 5.148. The median and the mode were 37. Overall, an average of 50 per cent of the respondents had a score of 37, which indicated a positive perception about the use of MOODLE.

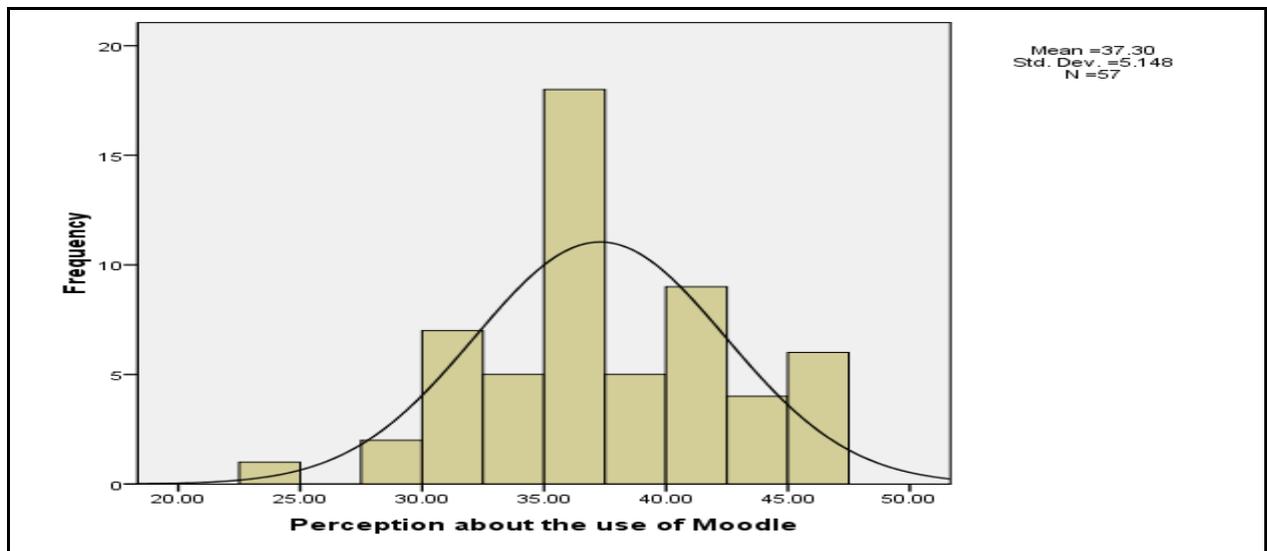


Figure 4.10: Histogram of the perception about MOODLE

4.7. Challenges regarding the Use of E-Learning

This study showed that out of 56 respondents, a majority of 55.4 per cent (n=31) agreed and a further 14.3 per cent (n=8) strongly agreed to completing tasks with little need for help when using MOODLE; while 25.0 per cent (n=14) disagreed and needed help, and the remaining 5.4 per cent (n=3) strongly disagreed with the statement.

The majority of the respondents 59.6 per cent (n=34) disagreed that there was a need to remember a lot of information when using MOODLE and 10.5 per cent (n=6) strongly disagreed with the statement; while 28.1 per cent (n=16) agreed and another 1.8 per cent (n=1) strongly agreed that they had to remember a lot of information when using MOODLE.

Another finding related to the challenges associated with using this e-learning tool was that out of 57 respondents, 54.4 per cent (n=31) disagreed that when returning to MOODLE after a few days it was not easy to find their way around the programme, while 21.1 per cent (n=12) strongly disagreed. In contrast, 17.5 per cent (n=10) agreed and another 7.0 per cent (n=4) strongly agreed that they experienced this difficulty.

Out of 54 respondents, 57.4 per cent (n=31) disagreed with the statement that they found it difficult to recover after having made errors when using MOODLE, and 18.5 per cent (n=10) strongly disagreed; 16.7 per cent (n=9) and 7.4 per cent (n=4) agreed.

Of the 57 respondents who responded to the statement regarding the recommendation of MOODLE as software for course management to a friend, 49.1 per cent (n=28) agreed that they would recommend it and a further 24.6 per cent (n=14) strongly agreed; but 17.5 per cent (n=10) disagreed and another 8.8 per cent (n=5) strongly disagreed and would not recommend it.

With regards to the statement that it was difficult to adapt to the culture of using MOODLE as a learning tool, 54 participants responded as follows: 44.4 per cent (n=24) disagreed that they found it difficult, 27.8 per cent (n=15) strongly disagreed; while 20.4 per cent (n=11) agreed that they found it difficult to do so and another 7.4 per cent (n=4) strongly agreed with this.

When asked to indicate whether or not they had the necessary skills to use MOODLE, 56 respondents answered as follows: 37.5 per cent (n=21) agreed to having the necessary skills and another 19.6% (n=11) strongly agreed that they did; while 32.1 per cent (n=18) disagreed and 10.7 per cent (n=6) strongly disagreed that they were skilled enough.

When asked if they only had limited knowledge of using computers, 42.1 per cent (n=24) disagreed and 24.6 per cent (n=14) strongly disagreed, indicating that the majority of the 57 participants who responded to this statement knew how to use computers adequately. 28.1 per cent (n=16) agreed, and another 5.3 per cent (n=3) strongly agreed that their computer knowledge was limited,

This study's results also indicated that out of 57 respondents, 40.4 per cent (n=23) agreed to having learned to use MOODLE quickly and another 26.3 per cent (n=15) strongly agreed to having done so; while 28.1 per cent (n=16) disagreed, 5.3 per cent (n=3) strongly disagreed with the statement.

Finally, with regards to being able to explore the features of MOODLE by trial and error: Of the 55 respondents who answered the statement 61.8 per cent (n=34) agreed, 10.9 per cent (n=6) strongly agreed, 16.4 per cent (n=9) disagreed and 10.9 per cent (n=6) strongly disagreed that this was possible. Regarding the respondents questionnaires some of the data were missing, they did not respond for reason not mentioned.

Table 4.3: Perceived challenges regarding the use of MOODLE

Challenges	Strongly agree	Agree	Disagree	Strongly disagree
Completing the task with little help	14.3%	55.4%	25.0%	5.4%
A need to remember a lot of information	1.8%	28.1%	59.6%	10.5%
Can't easily their find their way around after a few days of not using MOODLE	7.0%	17.5%	54.4%	21.1%
Difficult to recover after having made errors	7.4%	16.7%	57.4%	21.1%
Recommending MOODLE to a friend	24.6%	49.1%	17.5%	8.8%
Difficult to adapt to this culture of learning	7.4%	20.4%	44.4%	27.8%
Have the necessary skills for MOODLE	19.6%	37.5%	32.1%	10.7%
Limited knowledge of computer use	5.3%	28.1%	42.1%	24.6%
Learned to use MOODLE quickly	26.3%	40.4%	28.1%	5.3%
Able to explore the features of MOODLE by trial and error	10.9%	61.8%	16.4%	10.9%

A Pearson chi-square test was run in order to establish the association between the socio-demographic variables and the items related to the challenges regarding the use of e-learning and there was an association between the following: Age and making errors ($X^2= 13.407$, $df=6$, $p=0.03$); age and finding it difficult to adapt to the culture of learning ($X^2=17.675$, $df=9$, $p=0.039$); proficiency in English and learning to use MOODLE quickly ($X^2=9.420$, $df=3$, $p=0.024$); access to computers and learning to use MOODLE quickly ($X^2= 9.41$; $d.f=3$; $p=0.024$); access to a computer and exploring features of MOODLE by trial and error ($X^2=17.120$; $d.f=3$; $p=0.001$); exposure to online learning platforms before registration and the need to remember a lot of information when using MOODLE ($X^2= 9.695$; $d.f=3$; $p=0.021$).

4.8. The Students' Overall Perceived Challenges Regarding the Use of MOODLE

An overall score of the students' perceived challenges regarding the use of MOODLE was calculated and the ten items above were considered. The responses ranged from 1=strongly disagree, 2=disagree, 3=agree, to 4=strongly agree. The higher the score, the more the respondents perceived those factors as challenges associated with using MOODLE. The minimum score was 14 and the maximum score was 24. The mean was 24.93 and the standard deviation was 5.148. The median was 24 and the mode was 23.

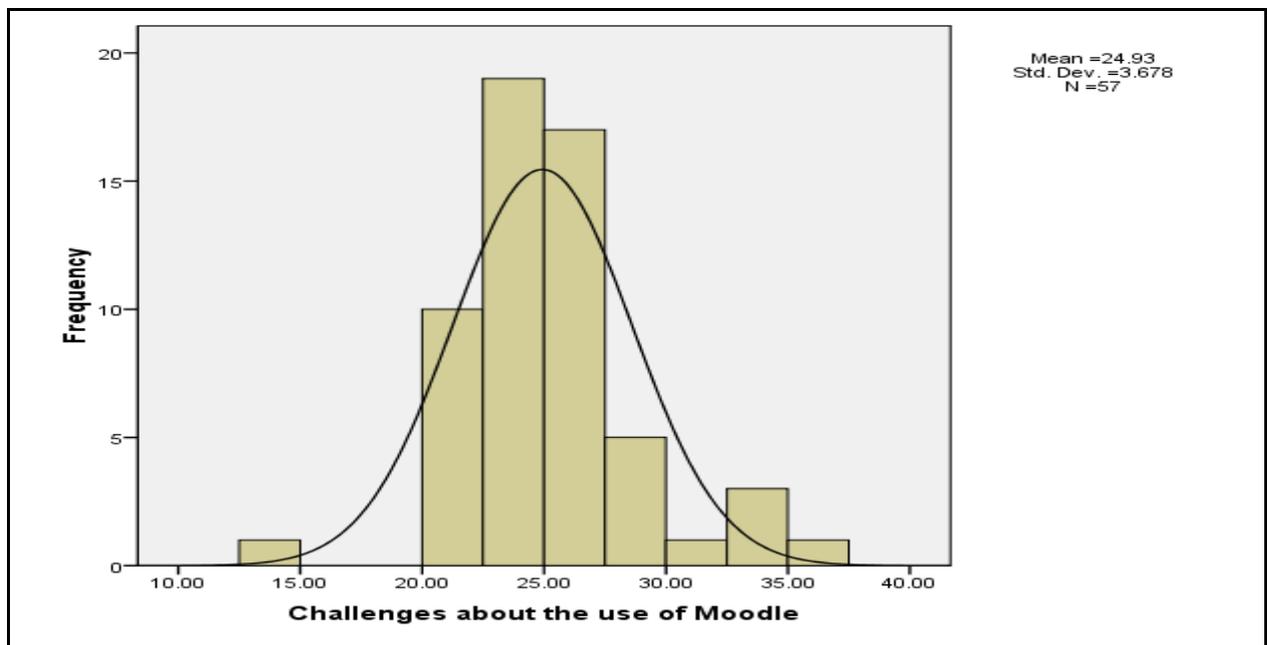


Figure 4.11: Histogram of the perceived challenges about the use of MOODLE

A T-test was run in order to establish the association between the socio-demographic variables and the overall score of the challenges related to the use of MOODLE. There was a significant association with proficiency in English ($t=-2.249$, $d.f=54$, $p=0.029$) and exposure to online platforms before joining the university ($t= -2.285$; $d.f=55$; $p=0.026$).

4.9. Postgraduate Nursing Students' Demographic Factors Associated with E-Learning Platform Table

Factors associated with demographic factors in e-Learning have been explored. They include perceptions and challenges. On the research tool, they are found on section B and are named as B1 to B23. The demographic factors that have no association related to perceptions and challenges on e-Learning are not presented in this cross-tabulation table.

Table: 4.4. Cross tabulation

Demographic factors	Perceptions and Challenges	P-value
Age	If I make an error, I find it difficult to recover from it.	0.03
Age	I find it difficult to adapt to this culture of learning.	0.039
English proficiency	I feel that Moodle is easy to use.	0.020
English proficiency	I feel I need to use technical support in order to use Moodle.	0.040
English proficiency and B5	I feel that Moodle is a flexible learning management software.	0.001
English proficiency	I feel that Moodle has a simple and natural dialogue.	0.037
English proficiency	Overall, I am satisfied with how easy it is to use Moodle	0.000
English proficiency	The information provided on Moodle is easy to understand.	0.000
English proficiency	While using Moodle, it is easy to read characters on the screen.	0.005
English proficiency	I feel that the organisation of information in Moodle is clear.	0.000
English proficiency	I learned to use Moodle quickly.	0.024
Duration of training and B12	I feel that the organisation of information in Moodle is clear.	0.043
Accessibility to a computer	I feel I need to use technical support in order to use Moodle.	0.018
Accessibility to a computer	I feel that Moodle is a flexible learning management software.	0.008
Accessibility to a computer	I learned to use Moodle quickly.	0.024
Accessibility to a computer	I can explore features of Moodle by trial and error.	0.001
Accessibility to computers	The information provided on Moodle is easy to understand.	0.025
Exposure to online learning platforms before registration	When using Moodle, I need to remember a lot of information.	0.021

Chapter Five

Discussions of the Findings, Recommendations, Limitations and the Conclusion

5.1. Introduction

This chapter presents the discussion of the findings, the recommendations, limitations and the conclusion of the study. To reiterate; the purpose of the study was to explore and describe postgraduate nursing students' engagement with e-learning, and the use of an e-learning platform (MOODLE) at a selected higher education institution within the KwaZulu-Natal (KZN) Province, South Africa. The research aimed to meet the following objectives:

- (a) To explore postgraduate nursing students' perceptions of the use of an e-learning platform.
- (b) To explore postgraduate nursing students' perceived challenges regarding the use of e-learning platforms.
- (c) To explore postgraduate nursing students' demographic factors associated with e-learning platform use.

The findings were discussed in relation to the research and the conceptual framework used in this study, as well as the literature and previous studies on this topic. A quantitative exploratory and descriptive design was used to conduct the research and a questionnaire was used as the data collection tool. Utilising a survey for its exploratory purpose enabled the researcher to obtain the information related to exploring the postgraduate nursing students' engagement in the use of the MOODLE e-learning tool. Random sampling was used to select a sample of 60 postgraduate students.

5.2. Perceptions about the use of E-Learning

Regarding the need for technical support in order to be able to use MOODLE; 37.5 per cent of the respondents agreed that such help was needed. This was in line with studies by Lwoga (2012); Lwoga (2014); Baro, Edewor and Sunday (2014) and Chipps *et al.* (2015), who state that technical support needs to be provided for the users of such platforms. They further recommend that adequate infrastructure be in place to facilitate ease of use, and Kent (2014) and Chipps *et al.* (2015) strongly recommend that technical support be provided for students who have been away from university for about 20 years because they are more used to the traditional method of teaching. This is supported by Czerniewicz and Brown (2012), who reveal that students reported themselves to be digital strangers and experienced problems with the use of advanced technology.

This study's findings show that 54.5 per cent of the respondents agreed to feeling comfortable using MOODLE, and this was in line with the study findings of Czerniewicz and Brown (2012) and Chipps *et al.* (2015) which reveal that the digital era generation was comfortable with the use of information technology, whereas the older generation was not comfortable. To better equip people to deal with modern technology, Lwoga (2012); Daneshmandnia (2013); Kent (2014) and Bagarukayo *et al.* (2015) thus recommend IT training in order to develop technological skills in the use of e-learning; and based on these findings, it appeared that technical support and training on ICT was a global recommendation.

In this study, 38.6 per cent of the respondents agreed to feeling at ease with the use of MOODLE. This finding supports those of Hilbert (2011); Czerniewicz and Brown (2012);

Dixon *et al.* (2014); Bornman (2015); Chipps *et al.* (2015) and Robinson *et al.* (2015), who state that the ease of use of ICT is dependent upon the age, gender and race of the students, and the level of technological assistance provided by the higher education institutions. These authors further stress that the provision of technological assistance regarding the use of ICT is important.

In this study 7.0 per cent of the respondents strongly agreed to feeling that MOODLE was a difficult programme to use, and Lwoga (2012) and Lwoga (2014) also previously reported that it was not easy to use MOODLE without sufficient technical support. These authors, together with Kent (2014) and Bagarukayo and Kalema (2015), recommend that technical support and training be given to all users including lecturers, librarians and students. Islam, Beer and Slack (2015) add that there are some gender-based cultures in certain racial groups which contribute to the lack of digital skills in females, citing Saudi Arabia as an example. There females use online services under controlled conditions, in the sense that they are only allowed to interact with the same gender when using online platforms, and this affects their technological ability in e-learning.

A total of 59.6 per cent of the respondents in this study agreed to feeling that MOODLE was a flexible learning management software programme. This echoed the findings of Busikova *et al.* (2013); Garcia-Alvarez *et al.* (2014); Raoul *et al.* (2014); Vieira *et al.* (2014) and Bagarukayo *et al.* (2015), who view MOODLE as a flexible learning management system regardless of time, place and accessibility of resources. Behera (2013) adds that the flexibility of MOODLE is such that it even caters for disadvantaged children with disabilities.

The majority of the respondents (63.2 per cent) agreed to feeling that MOODLE was simple and had a natural dialogue, and Bagarukayo *et al.* (2015) and Chipps *et al.* (2015) previously reported that online learning became simple provided students were experienced and orientated with it. Islam, Beer and Slack (2015) add that e-learning is problematic when the users have technical skills deficits, as it then becomes time consuming and stressful for both academics and learners, thus highlighting the importance of providing technological skills to online users of this learning platform.

In this study 3.5 per cent of the respondents strongly disagreed with the statement that MOODLE error messages were helpful, and this was in line with the findings of Islam, Beer and Slack (2015) who state that when there is a technical error it interferes with e-learning and work progress stops. It was for this reason that Arkoful (2014) states that it is necessary for academics to be skilled in IT, so that they can assist their students when these errors occur. Rosato's (2007) study reveals that there tends to be a lot of error messages when students are not assisted and Daneshmandnia (2013) reports that 25 per cent of the students who participated in that study recorded that their number of error messages decreased after their facilitator, who was skilled in technology, assisted them.

In this study the majority of the respondents (57.9 per cent) disagreed with the statement that error messages were confusing, implying that they had technical knowledge of the software, and this was in line with the study findings of Czerniewicz *et al.* (2012), who state that only digital strangers to technology have difficulty with the operation of the MOODLE software. Behera (2013) asserts that those who are used to a more traditional method of learning develop a negative attitude to this post modernism method of learning, while Islam, Beer and Slack (2015) further add that there are some senior academics who do not have basic training

in e-learning and are thus negative towards it and not prepared to get rid of modernism; a situation that proves very frustrating for their learners. Daneshmandnia (2013), using the characteristics of a software usability model, evaluated whether or not students had gained insight into the use of MOODLE and determined that the requirements for user satisfaction with the programme includes learnability, easy operation, efficiency, memorability, satisfaction and few errors.

Of the participants in this study, a total of 51.8 per cent agreed to overall satisfaction with the usability of MOODLE, and Horvat *et al.* (2015) previously reported that students' satisfaction was the most important factor for the continuity of learning. This thus implies that the majority of the students in the present study were well equipped for continued learning and this platform was an effective learning tool for them. Once again, familiarity with online learning technology (the digital generation) created user satisfaction whereas those not familiar with it (the digital strangers) would not be satisfied (Czerniewicz *et al.*, 2012; Kent, 2014; Chipps *et al.*, 2015).

54.4 per cent of the study's respondents agreed that the information provided on MOODLE was easy to understand. Arkoful (2014) also reports that MOODLE was easily understood by the majority of learners and academics after they had been trained, and that they thereafter did not need constant coaching. Pimmer *et al.* (2014) had similar findings and state that the positive use of MOODLE was common in skilled users, both students and academics.

In this study the majority of the participants (58.9 per cent) agreed that while using MOODLE it was easy to read the characters on the screen. Daneshmandnia (2013) agreed that MOODLE characters could easily be read on the screen based on seven usability

characteristics of MOODLE's Usability Model, namely: Learning ability, operation ability, efficiency, memorability, errors and satisfaction. Lwoga (2012) and Kent (2014) are not in total agreement with this, however, stating that as long as the user of MOODLE is not knowledgeable on the use of technology, utilising the software would lead to frustration.

A total of 59.3 per cent of the respondents agreed that MOODLE was user-friendly. While Chipps *et al.* (2015) state that it is only the younger generation who are used to technology that view MOODLE as user-friendly, and Czerniewicz *et al.* (2012) assert that online users who are technically proficient view MOODLE as user-friendly.

5.3. Challenges Regarding the Use of E-Learning

In this study, the majority of the respondents (55.4 per cent) agreed that completing tasks with little need for help when using MOODLE was important, and this implies that technical training and support was therefore important to achieve this. Pimmers *et al.* (2014) agree that with this, adding that technical support and training make life easier for academics to progress with learning. Islam, Beer and Slack (2015) support the above-mentioned statement by stating that a lack of technical support in a teaching organisation hampers the progress of both academics and e-learners, and Damnjanovic *et al.* (2015) also emphasise the importance of training on ICT for users.

With respect to being unable to find their way around MOODLE easily when returning to it after a few days, the majority of the respondents (54.4 per cent) disagreed that this was the case. Daneshmandnia (2013) shows that upon expert inspection, users are successful when logging on to MOODLE and searching for their syllabi, provided that the seven

characteristics of the MOODLE Usability Model are adhered to, thus time lapse is not an issue. Rosato (2007) agrees, stating that difficulties experienced by students when navigating their way around to post a discussion message or when submitting an assignment are more as a result of them not being sufficiently trained than because of a time lapse. Daneshmandnia (2013) further supports the findings by stating that all tasks were completed successfully when the moderator had offered to help the users, and other studies also recommended technical support and training, stating that it would assist with the smooth use of technology (Lwoga, 2012; Lwoga, 2014; Pimmer *et al.*, 2014; Baro *et al.*, 2015; Chipps *et al.*, 2015).

The majority of the respondents, totalling 57.4 per cent, disagreed with having difficulty recovering after having made errors when using MOODLE. Kent's (2014) study supports this with the assertion that the digital generation experience smooth running of their learning activities when using ICT, and Islam, Beer and Slack (2015) agree, arguing that those who lacked training could only survive after making errors with technical assistance.

Of the respondents in this study, 49.1 per cent agreed that they would recommend MOODLE to a friend as course management software. Other studies suggest the reason for such a recommendation to be the fact that MOODLE is a flexible learning system in terms of time and geographical accessibility, which is beneficial for users with disabilities and travelling expenses (Bichsel, 2013; Busikova *et al.*, 2013; Garcia-Alvarez *et al.*, 2014; Raoul *et al.*, 2014; Vieira *et al.*, 2014; Bagarukayo *et al.*, 2015). Other researchers also recognise MOODLE as a convenient learning method (Arkoful, 2014; Patel *et al.*, 2014; Sibanda, 2014; Bervernage, 2015), however, Hu *et al.* (2015) caution that mobile devices limit the use of MOODLE due to bundle shortages, as well as the out datedness of the devices. Busikova *et al.* (2013) caution further that there existd the possibility for academic fraud, as another

person could log on as the student and write their exams for them.

With regard to finding it difficult to adapt to the online culture of learning, the majority of the respondents (44.4 per cent) disagreed. Bornman *et al.* (2015) report age, race and gender as the main causes that differentiate the levels of adaptation to online learning. Dixon *et al.* (2014) and Robinson *et al.* (2015) expand on the race aspect, stating that compared to Blacks and Indians, Whites comprise the highest number of users of e-learning. Rabiee *et al.* (2013) and Alhareth *et al.* (2015) add that the religious and cultural patterns of other racial groups, such as Islam, contribute to gender differences in the adaptation to this culture of learning, the reason being that women are forced to conform to pedagogy in the use of online learning.

This study revealed that 37.5 per cent of the respondents agreed to having the skills necessary to use MOODLE, and Czerniewicz *et al.* (2012); Lwoga (2012); Lwoga (2014); Baro *et al.* (2015) and Chipps *et al.* (2015) recommend that those lacking skills need training and technical assistance in order to master the operation of the learning software. Kent (2014) informs that European countries actually have policies in place to eliminate technical incompetence for certain sectors, as there is a legal responsibility to ensure that all course material presented is accessible to both academics and students. Pappas (2015) adds that proposals to develop people from the traditional generation (including those from the rural areas) in ICT seem to be a global issue that has been affecting the smooth running of processes in communication, businesses and education; and Kidd (2010) and Gogos (2013) also discuss skills development in ICT education, showing the implementation processes and recommendations that have the same objective of ICT skills development in education.

42.1 per cent of the respondents disagreed with having limited knowledge of computer usage. This is in line with the previous findings of Chipps *et al.* (2015), who report that computer knowledge is limited in students who have last attended school twenty years ago while obtaining their first degree, as they were used to the traditional method of teaching. Added to this, Islam, Beer and Slack (2015) report that there are some senior academics who are hesitant to support innovative technical changes in learning because of their prevailing traditional psychological orientation, and because they have never been given proper support when orientated about the use of technology in learning. Bagarukayo *et al.* (2015) and Baro *et al.* (2015) recommend that both academics and e-learners be supported by means of training, and that the government provide financial support so that infrastructure could be adequately developed in order to serve the purpose of online learning.

40.4 per cent of the respondents agreed that they learned to use MOODLE quickly, and according to Hilbert (2011); Dixon *et al.* (2014) and Islam Beer and Slack (2015), the speed with which a user learns to use MOODLE depends on whether the learner is from the digital generation or is an older digital stranger. Dixon *et al.* (2014) add that there is also a gender digital divide, as males are more skilled in the use of computers because of the way that boys and girls are socialised while they are young.

Bischel (2013) reports that 238 out of 245 European Higher Education Institutions were using e-learning, and the respondents from the six countries included in the study (France, Italy, Portugal, Russia, Spain and Turkey) reported themselves to be in the early stages of development, while only one institution reported not being engaged in e-learning at all. Lwoga (2012) reports a greater use of Web 2.0 technologies within higher education in the developed world due to advanced technical expertise and good infrastructure while, in

developing countries that includes African countries and Arab countries, educational institutions' processes are in place with regard to online training. In South Africa, the higher education institutions in all the provinces are actively involved in ICT skills development for needy individuals, according to Bichsel (2013) and Baro *et al.* (2015).

Lastly, 61.8 per cent of the respondents agreed that they were able to explore the features of MOODLE by trial and error. Previous study findings of Daneshmandnia (2013); Garcia-Alvarez *et al.* (2014); Lwoga (2014) and Ailincal *et al.* (2015) state that there are four main features of MOODLE that promotes students' learning in a virtual environment. These include interactivity, flexibility, scalability and standardisation.

5.4. Postgraduate Nursing Students' Demographic Factors Associated with E-Learning

Factors associated with demographic factors in e-learning were explored using the Pearson chi-square test. The results indicated that there was no association between the socio-demographic characteristics and the training on MOODLE. Regarding the postgraduate students' perception about MOODLE, the Pearson chi-square test was done in order to establish the association between the socio-demographic variables and the items related to perception. The results indicated that there was a significant association between proficiency in English and the perceptions about MOODLE for the following: Information provided in MOODLE was easy to understand, $P=0.000$; feeling that the organisation of information was clear, $P=0.000$ and feeling that MOODLE was user-friendly, $P=0.000$.

This was validated by the SANC's (2012) support of English as the medium of communication in order to avoid a language barrier that could hinder the understanding of

ICT skills (Bottiani *et al.*, 2012); whereas Arumugam *et al.* (2014) states that globally there are opposing views of the use of English as the medium of instruction. Examples of this are Dugartsrenova *et al.* (2016), who states that students who are proficient in English access online texts more easily, and Ali *et al.* (2016) who states that nurses who are recruited to work abroad are only considered if they are bilingual as this would be beneficial to clients who are not proficient in English.

A Pearson chi-square test was run in order to identify the association between the socio-demographic variables and the items related to challenges about the use of e-learning. The results show that there is an association between the age of the learners and the following challenges: Making errors and finding it difficult to adapt to the culture of learning. This was in agreement with Kent (2014) and Chipps *et al.* (2015), who report that the older generation experience more problems with the use of ICT in comparison to the younger, digital generation since the older students are used to the old pedagogical method of teaching. Furthermore, an association was found between the socio-demographic factors and certain challenges, namely proficiency in English and learning to use Moodle quickly $p=0.024$. Ali *et al.* (2016) also state that language proficiency promotes communication, which in turn leads to understanding. Another association is the exposure to online learning platforms before registering with the university and the need to remember a lot of information when using MOODLE $p=0.021$.

5.5. Recommendations for Further Research

The findings from this study clearly indicate the need for ICT skills development among postgraduate nursing students, and as such, the following recommendations are made:

- The higher education institution must employ an adequate number of personnel skilled in IT, so as to assist the students.
- They must increase the number of computers on the LAN in order to support students' accessibility.
- The librarians must also undergo regular training through seminars, in order to keep them updated with technology for the benefit of students.

The university must provide training for academics so as to enable them to assist students.

- The ICT Department should keep statistics of students in order to ensure that the service is used to support educational activities.
- The university must have awareness programmes for students with regard to the use of the ICT available for student support.

There should be more training offered to students on how to use the e-learning platform and its services to support educational activities, as some students rated their ability to use the online technology as poor and thus requested more training.

5.6. Limitations of this Study

Data was collected from postgraduate nursing students only in one Higher Education Institution, and did not include undergraduate students. Such information may have added clarity about how undergraduate perceive e-Learning in the HEI. It is recommended that future studies should include all nursing students.

5.7. Conclusion

The study produced valuable information and the researcher was in a position to propose recommendations, which, it is hoped, would be used by institutions to promote a healthy

culture of the use of e-Learning. The wealth of knowledge produced from this study could be used in curriculum development to integrate ICT into the teaching and learning process, by taking into consideration the identified strengths and weaknesses in using this e-learning platform. From the body of knowledge in this study, it is envisaged that postgraduate nursing students would access the online platform for specific reasons and from an informed point of view, rather than just out of boredom. The use of e-learning as an academic tool could contribute to the quality of nursing education as it would develop problem-solving skills, creative and critical thinking skills, and self-directed learning skills in students. The students would assume the role of researchers by sharing knowledge with one another through online learning environments. This study provided information for postgraduate nursing students regarding the use of the MOODLE software and this could encourage research and evidence-based practice, so that decisions could be made to improve the quality of health care by using online technologies.

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ANNEXURE 1: RESEARCH INSTRUMENT

INSTRUCTION: DO NOT WRITE YOUR NAME ANYWHERE ON THIS DOCUMENT

The questionnaire has two sections. Please complete all items in both sections.

NB: Tick in the appropriate space

Section A

1. Race

African	
White	
Indian	
Coloured	

2. Please indicate your age at your last birthday

21-30	31-40	41-50	51-60

3.

Male	
Female	

Gender

4. Do you consider yourself to be proficient in reading English?

Yes	
No	

5. Did you receive any training from your lecturer on how to use Moodle?

Yes	
No	

6. If yes, how long was the training?

15 minutes or less	
16-30 minutes	
30+ minutes	

7. Do you have access to a computer at home?

Yes	
No	

8. How often do you access Moodle?

Once a week	
Daily	
Mainly on weekends	

9. Before registering at this university, have you had any exposure to online learning platforms?

Yes	
No	

SECTION B

INSTRUCTION: Please tick to indicate your response to each of the statement.

Only select one response per statement

	Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
Perceptions about the use of e-learning					
1	I feel I need to use technical support help in order to use Moodle.				
2	I feel comfortable using Moodle.				
3	I feel that Moodle is easy to use.				
4	I feel that Moodle is a difficult programme to use.				
5	I feel that Moodle is a flexible Learning Management Software.				
6	I feel that Moodle has a simple and natural dialogue.				
7	I feel that Moodle's error messages are helpful.				
8	I feel that Moodle's error messages are confusing.				
9	Overall, I am satisfied with how easy it is to use Moodle.				
10	The information provided on Moodle is easy to understand.				
11	While using Moodle, it is easy to read characters on the screen.				
12	I feel that the organisation of information in Moodle is clear.				
13	I feel that Moodle is user-friendly.				
Challenges about the use of e-learning					
14	I can complete tasks with little need for help.				
15	When using Moodle, I need to remember a lot of information.				
16	When I come back to Moodle after a few days, I can't easily find my way around.				
17	If I make an error, I find it difficult to recover from it.				
18	I would recommend Moodle as a course management software to a friend.				
19	I find it difficult to adapt to this culture of learning.				
20	I have the necessary skills to use Moodle.				
21	I have limited knowledge of computer usage.				
22	I learned to use Moodle quickly.				
23	I can explore features of Moodle by trial and error.				

ANNEXURE 2: REQUEST FOR GATEKEEPER PERMISSION

Request to conduct Research

The Registrar

University of KwaZulu Natal

Department of Nursing

Durban

4041

29.09.2016

Dear Sir/Madam

Re: Application for permission to conduct research at the University of KwaZulu-Natal

I am a coursework Masters student at the University of KwaZulu-Natal, School of Nursing and Public Health.

The title of the study is: **“Exploring the Use of E-Learning Platforms by Postgraduate Nursing Students in a selected Higher Education Institution.”**

I would like to commence the data collection process in October 2016. The target group for my project are all be postgraduate nursing students registered for 2016. Data collection will be done at convenient times during lunch breaks and tea times. The data collection process will uphold confidentiality, anonymity, informed consent and freedom of choice.

I am hoping that my request will meet with your favourable consideration.

Yours faithfully,

Lindeni Buthelezi

Student number: 981204445

Cell number: 079 261 8857

Email: true.divine@ymail.com

ANNEXURE 3: INFORMATION LEAFLET

INFORMATION GIVEN TO RESPONDENTS

Study title: Exploring the Use of E-Learning Platforms by Postgraduate Nursing Students in a selected Higher Education Institution

Dear Nursing Students

INTRODUCTION

I, Ms Lindeni Ivy Buthelezi, a student at the University of KwaZulu-Natal, am doing a Masters' in Nursing Education degree. As part of my studies at the university, I am required to conduct a study in an area of my interest. My study is “**Exploring the Use of E-Learning Platforms by Postgraduate Nursing Students in a selected Higher Education Institution**”.

I am requesting your participation in this study because you meet the criteria of the people who are eligible to participate in the study. The purpose of the study is to explore postgraduate nursing students' use of e-Learning platforms. This is to identify factors, which can determine the level of network usage. The study findings may help to improve the nursing body of knowledge as well as bring to attention the institutional implementation and support strategies. The findings of the study may also help in the development of the nursing curriculum for the better performance of nursing practice. Please note that there are no incentives for your participation.

If you agree to participate, you will be provided with a structured questionnaire and requested to complete it upon your voluntary agreement to participate in the study. The researcher will liaise with your academic director to complete the questionnaire during lunch time. Completing the questionnaire will take 30 minutes of your lunch time. The information you give will be treated with utmost confidentiality. Any personal information will not be disclosed unless required by law. Your names will not appear anywhere in the questionnaire or the study findings. You are requested not to put your names on the questionnaires provided. There are no expenses involved because the study will be conducted during usual school days at lunch time. You are free to participate or not to participate in this study. You are free to withdraw from the study at any stage without repercussions. There will be no risks

attached to your participation. The results of the study will be made available to you on completion of this study. Please feel free to ask any questions you may have so that you are clear about what is expected of you.

Thank you for your time and co-operation.

Yours sincerely

Signature:

LI Buthelezi

Date:

Contact details of the researcher for further information related to the study:

Cell no: 0792618857

Email: true.divine@ymail.com

Supervisor contact details:

4th floor, School of nursing

Howard College Campus, UKZN

Telephone: 031-2602497

Email address was not given

You may contact the HSSREC Research office - Mariette Snyman, contact number 031-2608350, Email: snymanm@ukzn.ac.za

ANNEXURE 4: INFORMED CONSENT FORM

Consent Document

Consent to participate in research

Dear Nursing Students

I, Ms Lindeni Ivy Buthelezi, a student at the University of Kwazulu-Natal, as one of the requirements to complete my studies, am conducting a study through the college of Health Sciences, School of Nursing and Public Health, University of KwaZulu-Natal. The title of the study is: **Exploring the Use of E-Learning Platforms by Postgraduate Nursing Students in a selected Higher Education Institution.** You have been asked to participate in a research study on: the exploration of postgraduate nursing students' use of e-learning. The purpose of the study is to explore postgraduate nursing students' use of e-learning.

You have been informed about the study by: Ms Lindeni Ivy Buthelezi - contact number: 0792618857 Email: true.divine@ymail.com. You may contact me at any time if you have any questions about the research. You may contact the researcher's supervisor, Mrs. Makhosi Dube, contact number +27312602497, Email: dubeb@ukzn.ac.za. You may contact the HSSREC Research office - Mariette Snyman, contact number 031-2608350, Email: snymanm@ukzn.ac.za

Your participation in this research is voluntary and you will not be penalised if you refuse to participate or decide to stop at any time. If you agree to participate, you will be given a signed copy of this document and the participant information sheet, which is a written summary of the research. The research study, including the above information has been described to me orally. I understand what my involvement in the study means and I voluntarily agree to participate. I have been given the opportunity to ask any questions I might have regarding my participation in the study.

Signature of participant.....

Date.....

ANNEXURE 5: PARTIAL ETHICAL CLEARANCE LETTER



27 October 2016

Student No: 981204445

Dear Ms Buthelezi,

MASTER OF NURSING (Nursing Education)

Title: "Exploring the use of e-learning platform by postgraduate nursing students in a selected higher education institution"

Supervisor: Ms M Dube

Co-supervisor: -

The above-mentioned ethics application was considered and the protocol has been approved for the Master of Nursing coursework degree by a Committee member of the Research and Higher Degrees Committee, School of Nursing and Public Health. The ethics application together with the protocol has been forwarded to the Humanities and Social Sciences Research Ethics Committee for review.

Please note:

- The study may not begin without the full approval of the Humanities and Social Sciences Research Ethics Committee.
- Please also include Methodology to maximized response rate i.e. maximize the sample size.

Yours sincerely

Carol Dhanraj
School of Nursing and Public Health
Postgraduate Administration

cc: Ms C Ngcobo
Mrs Dube

School of Nursing and Public Health

Postal Address: University of KwaZulu-Natal, School of Nursing and Public Health, Howard Campus, Private Bag X 54001, Durban, 4000

Telephone: +27 (0) 31 2602499 Facsimile: +27 (0) 31 2601543 Website: www.ukzn.ac.za

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Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

ANNEXTURE 6: UKZN GATE KEEPER'S PERMISSION



4 October 2016

Ms Lindeni Buthelezi (SN 981204445)
School of Nursing and Public Health
College of Health Sciences
Howard College Campus
UKZN
Email: true.divine@ymail.com

Dear Ms Buthelezi

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN), towards your postgraduate studies, provided Ethical clearance has been obtained. We note the title of your research project is:

"Exploring the Use of eLearning Platforms by Post Graduate Nursing Students in a selected Higher Education Institution".

It is noted that you will be constituting your sample by handing out questionnaires to postgraduate nursing students from the College of Health Sciences on the Howard College Campus.

Please ensure that the following appears on your questionnaire/attached to your notice:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

Data collected must be treated with due confidentiality and anonymity.

You are not authorized to distribute the questionnaire to staff and students using Microsoft Outlook address book.

Yours sincerely

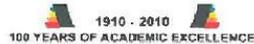
MR S S MOKOENA
REGISTRAR

Office of the Registrar

Postal Address: Private Bag X54001, Durban, South Africa

Telephone: +27 (0) 31 260 8005/2206 Facsimile: +27 (0) 31 260 7824/2204 Email: registrar@ukzn.ac.za

Website: www.ukzn.ac.za



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ANNEXURE 7: FULL ETHICAL CLEARANCE LETTER



4 November 2016

Ms Lindenl Ivy Buthelezi 981204445
School of Nursing and Public Health
Howard College Campus

Dear Ms Buthelezi

Protocol reference number: HSS/1718/016M

Project title: Exploring the use of eLearning platform by Post Graduate Nursing students in a selected Higher Education Institution

Full Approval – Expedited Application

In response to your application received 11 October 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor: Mrs M Dube
cc. Academic Leader Research: Professor B Sartorius
cc. School Administrator: Ms Caroline Dhanraj

Humanities & Social Sciences Research Ethics Committee

Dr Shenuka Singh (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4000

Telephone: +27 (0) 31 260 3587/8350/4557 Facsimile: +27 (0) 31 260 4609 Email: ximbap@ukzn.ac.za / snmacom@ukzn.ac.za / mobunsp@ukzn.ac.za

Website: www.ukzn.ac.za



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ANNEXURE 8: LETTER OF EDITING

54 Grundel Road
Carrington Heights
Durban
4001
074 782 5234

03 April 2018

Letter of Editing

This report serves to state that the dissertation submitted by Lindeni Buthelezi, in fulfillment of the requirements for the degree Masters of Nursing Education has been edited.

The dissertation was edited for errors in syntax, grammar, punctuation and the referencing system used.

The edit will be regarded as complete once the necessary changes have been effected and all of the comments addressed.

Thank-you for your business.



Pauline Fogg