STUDENTS' PERCEPTIONS OF E-LEARNING IN THE DEPARTMENT OF INFORMATION SCIENCE AT THE UNIVERSITY OF SOUTH AFRICA

by

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DECLARATION

Student number: 49133020

I declare that **Students' Perceptions of E-learning in the Department of Information Science at the University of South Africa** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

…….
Signature
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Date
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ABSTRACT

This study was conducted at the University of South Africa in the Department of Information Science and looked at the students' perception about e-learning. The study context was Open Distance Learning (ODL) which allows multi-dimensional e-learning aimed at bridging the time, geographical, economic, social, educational and communication distance between student and institution, student and academics, student and courseware and student and peers. It has emerged in the literature that student' perceptions and understanding of e-learning are susceptible to challenges related to infrastructure, geographic location, skills set, support services, pedagogical matters and other related matters. These challenges are likely to affect the students' perceptions of e-learning which is likely to have a negative impact on effective learning as well as success and completion rates.

The main aim of the study was to examine the perceptions of Information Science students towards e-learning. This study opted for multi-methods. The quantitative approach which involves the use of controlled questionnaires was employed. The questionnaire was designed in the web survey for the purpose of reaching scattered respondents and the opportunity to obtain large numbers of respondents to contribute. Also the qualitative method was considered as appropriate for this study because it helped to conceptualise the research and enabled the researcher to gather information from lecturers on influencing students and the strategies used to promote e-learning. The overall population of this study was 125 students and 17 lecturers.

The study revealed that not all students knew what e-learning was, and the major challenge was the internet access as students complained about the shortage of internet bundles. Many students at UNISA considered e-learning as a flexible for teaching and studying method because it is not bound to a particular time and place, also they commended that the usability of myUnisa has created more accessibility in learning environment for tuition. If the current students are not assisted with the lowest prices for internet access, students might not continue interacting with lecturers in the e-learning platforms. Also, first year students at UNISA should be trained for the e-learning environment and be given an overview of the UNISA e-learning platform.

KEY TERMS: E-learning, Perceptions, Information and Communication Technologies, Information Science, University of South Africa, Students and Lecturers.

DEDICATION

This study is dedicated to my late mother, Miss Emeldah Delisiwe Simelane; my late grandmother, Mrs Getrude Simelane, who against all odds made it possible for me to be who I am today. My lovely fiancée, Miss Hlengiwe Lenny Khumalo, and to my two beautiful daughters, Lindelwa and Ntombizokuhle Ncube, also made positive contributions to this work through their understanding, patience and encouragement even when I could not find time to attend to their various social needs.

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Last, but definitely not least, to God be the glory. He gives me the strength and my prayers were all answered.

Psalm 37:5

Commit your way to the LORD, Trust also in Him, And He shall bring it to pass.

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LIST OF ABBREVIATIONS AND ACRONYMS

BECTA:	British Educational Communications and Technology Agency
BINF:	Bachelor of Information Science
CBT:	Computer Base-Training
CD ROM:	Compact Disc Interactive Read Only Memory
CD:	Compact Disc
DAT:	Digital Audio Tapes
E-LEARNING:	Electronic Learning
EPSS:	Electronic Performance Support Systems
ETA:	European Thyroid Association
EWP:	Epic White Paper
FAQ	Frequently Asked Questions
HTML:	Hypertext Markup Language
ICDL	International Computers Driver's License
ICTs:	Information and Communication Technologies
IL:	Information Literacy
IRS:	Information Storage and Retrieval
IT:	Information Technology
LAN:	Local Area Network
LIS:	Library and Information Science
LMS:	Learning Management Systems
MMR:	Mixed Methods Research
MOOC:	Massive Open Online Course

NASSP	National Association for Secondary School Principals
NCTE:	Nortel Certified Technology Expert
NGO:	Non-governmental Organisation
NLSA:	National Library of South Africa
ODL:	Open Distance Learning
OECD:	Organisation for Economic Co-operation and Development
OPAC:	Online Public Access Catalogue
PCs:	Personal Computers
SA:	South Africa
SRIHDC:	Senate Research and Innovation and Higher Degrees Committee
UK:	United Kingdom
UNESCO:	United Nations Educational, Scientific and Cultural Organisation
UNISA:	University of South Africa
US:	United States
USA:	United States of America
VLE:	Virtual Learning Environment
WAN:	Wild Area Network
WBT:	Web-Based Training
WEBCT:	Web Course Tools
WWW:	World Wide Web

CHAPTER ONE: BACKGROUND TO THE STUDY

1.1 INTRODUCTION TO THE STUDY

Students' perceptions towards e-learning in higher education may be influenced by several variables such as age, gender, previous experience of computers, technology acceptance and individual learning styles (Keller & Cernerud 2002; Proffitt 2008). Although, various studies such as Chen, Finger, Sun, Tsai and Yeh (2008) have been conducted on e-learning, little is known about students' perceptions towards online learning, therefore more inquiry is needed in order to gain further insight. Many authors such as (Aydin & Tasci 2005; Bertea 2009; Engelbrecht 2003; Concannon, Flynn & Cammbell 2005; Liaw & Haung 2003; Link & Marz 2006; Masemola & De Villiers 2006; Stockley 2012; Ssemugabi & de Villiers 2010) have conducted e-learning studies about students' perceptions in various disciplines but they have not looked at "students' perceptions of e-learning in the field of Information Science".

Ncube, Dube and Ngulube (2014) opined that the 21st century is characterised by the technological imperative that has resulted in the universal deployment of e-learning in higher education. Hodgson (2002) and McPherson (2005) clarify that e-learning has become a widely accepted and regularly used mode of learning in higher education. The emergence of e-learning is influenced by the evolving learning environment and the demand for education that is not located on a college campus (Sharpe & Benfield 2005; E-learning methodologies 2011; Concannon, Flynn & Campbell 2005). Similarly, changes in the demography of students have also increased pressure to utilize information and communications technology (ICT) for university tuition (Aydin & Tasci 2005). This study context is an Open Distance Learning (ODL) one. It is the one of the examples of ODL because it relies on ICT as students from all over the world are admitted to the course of study and it uses e-learning as tuition mode. There is evidence that Library and Information Science (LIS) departments throughout the world have also adopted e-learning to provide education services (Islam, Kunifuji, Hayama & Miura 2006).

E-learning is a form of instructional authoring that can be delivered through a CD-ROM, over the Local Area Network (LAN), or on the Internet (Unisa Policy 2007), including Computer-Based Training (CBT), Electronic Performance Support Systems (EPSS) and Web-Based Training (WBT), as well as distance learning. Therefore e-learning is not limiting students to just collecting and gathering information especially in learning with the help of learning management systems. De Villiers (2005 & 2007) and Higgison (2001) contend that e-learning is actually changing the way universities teach and the way in which students learn with a view to improving flexibility and quality of learning. Further, e-learning provides access to a range of resources and materials which may not otherwise be available or accessible, handing over control to students as to when and where they study. According to De Villiers (2005 & 2007) and Higginson (2001), e-learning enables the following for students:

- allowing them to study at their own pace;
- providing a student centred learning environment which can be tailored to meet the learning needs of individual students;
- supporting increased communications between staff and students, and amongst students;
- providing frequent and timely individual feedback, for example through computer assisted assessment.

Literature shows that the benefits of e-learning are well documented. They include bridging distance between students and lecturers, making learning to be convenient and easily accessible across a broad geographic spectrum and at any given time (Alexander, Polyakove-Norwood, Buid & Sankaren 2001; Johnston, Christensen & Loquist 2003). The value of e-learning lies in its omnipresence nature, encompassing the ability to train anyone, anytime, anywhere which shows this dual benefit (Engelbrecht 2003). In the same category, various authors affirm the dual benefit when stating that e-learning offers opportunities for sharing information, enhancing just-in-time accessibility (So & Swatman 2006), and reduced costs (Abu-Hassan-Assari 2005; Engelbrecht 2003), fostering national and international networks, enhancing the quality of traditional education, promoting greater inter-activity, maximizing collaboration (Berke & Wiseman 2004) and providing the ability to choose, flexibility and autonomy between lecturers and students (So & Swatman 2006). However, distance and e-learning have its own

shortcomings as some of the platforms are not user friendly (Moore, Dickson-Deane & Galyen 2010).

There is no universal definition for the term ‘e-learning’. This study adopts the following definition of e-learning which is any form of learning that utilizes a computer-based or technological network for delivery, interaction, or facilitation (Carry & Willis 2001; Hall & Snider 2000; Moore, Dickson-Deane & Galyen 2010). Similarly, Becker (1991) opines that e-learning covers a wider set of applications and processes, which include web-based learning and virtual classrooms. Manjunath and Shoba (2006) state that ICT has brought many changes in the following areas: library automation which helped libraries improving library operations, information storage and retrieval (IRS), resources sharing networks and office automation. Therefore being literate enables students to use new technologies such as computer networks, content portals, e-libraries, distance learning and web enabled class rooms.

There are many studies that have been conducted about students’ perceptions of e-learning in different contexts. The study conducted by Buzzetto-More and Sweat-Guy (2006) focused on students’ perceptions of the use of WebCT and found that students enjoyed the use of a course Website, felt that the course Website stimulated their desire to learn, and were content with both the quantity and quality of their online learning experiences. On the other hand, it has raised an argument because the study conducted by Batalla-Busquets and Pacheco-Bernal (2013) revealed that face-to-face training continues to be perceived as a more motivating methodology compared to virtual training.

1.2 BACKGROUND TO THE STUDY

The University of South Africa (UNISA) is an ODL institution. ODL is a multi-dimensional concept aimed at bridging the time, geographical, economic, social, educational and communication distance between student and institution, student and academics, student and courseware and student and peers (UNISA Open Distance Learning Policy 2008). ODL focuses on removing barriers to access learning, maintaining flexibility of learning provision, student-centredness, supporting students and constructing learning programmes with the

expectation that students can succeed (UNISA Policy 2008). The UNISA Policy further states that the UNISA environment depends on e-learning and e-resources such as myUnisa as a teaching and learning platform. As an ODL institution with student based in geographically scattered areas it is critical for UNISA to have the environment, resources and tools that will enable the institution to deliver responsive, up to date and continuous learning. UNISA is rolling out an e-learning initiative for all undergraduate modules which started from 2013. Based on this, this study will also examine the awareness of the students about e-learning in the Department of Information Science at UNISA.

“UNISA is a distance education university with over 200 000 students’ enrolled country - and world-wide. In terms of its academic offering, UNISA offers a combination of career-orientated courses usually associated with a university of technology, combined with general formative academic programmes typically linked to a traditional university” (UNISA Web 2013). These include undergraduate and postgraduate programmes up to doctoral level in a wide range of disciplines as well as research and community service (UNISA Web 2013). Furthermore, UNISA's students are not restricted to the traditional clients of distance education institutions, but range from school leavers to adult learners and include rich and poor, employed and unemployed, the well-prepared and those with poor school backgrounds, those with access to the latest technology and those who do not have this, individuals from underdeveloped rural areas and those from sophisticated urban environments, citizens of South Africa and those from abroad.

The Department of Information Science of UNISA has been involved in the education and training of library and information professionals since 1955. It offers a wider variety of qualifications than any other institution in South Africa in different aspects and fields of Library and Information Science (LIS) on diploma, graduate and postgraduate levels. Highly qualified lecturers, who are specialists in these different aspects and fields, enable the Department to equip its students with the best combination of knowledge and skills to work and survive in the information society. The Bachelor of Information Science curriculum for 2013 is a dedicated programme consisting of 30 modules (360 credits) which cover the sub-disciplines of Information Science and Applied Information Science (UNISA Web 2013) (see Appendix A).

LIS is an important academic and professional discipline which teaches how to organize articulated information resources through classification and cataloguing, to store and preserve them systematically for proper use and management, also to disseminate those resources among users according to their requirements (Islam, Kunifuji, Hayman & Miura 2006). Therefore, every field of study relies on LIS and e-learning because each learner or student needs to access the library in any other form, be it electronic or physical access. Roknuzzaman and Umemoto (2009) state that education for LIS has also experienced dramatic changes, and it has become an enormously vibrant field incorporating emerging elements such as digital libraries, internet, e-commerce, knowledge management and web/library 2.0. Based on what is revealed by the researchers mentioned above, the researcher foresees library and information science programmes all over the world embracing and adopting e-learning technologies in LIS education.

1.3 STATEMENT OF THE PROBLEM

Stockley (2012); Ssemugabi and de Villiers (2010) conducted e-learning studies about students' perceptions in various disciplines but they have not looked at students' perceptions of e-learning in the field of Information Science. In the study on student perceptions of various e-learning components, conducted in the United States of America, Buzzetto-More (2008) reveals that course websites have proved to be an effective means of delivering learning materials, with students responding positively to the quality resources they make available. Wernet, Olliges, and Delicath (2000), in their survey on students who used WebCT in a social work course, established that all of the respondents considered the online course materials beneficial to their overall learning experience. Although the value of e-learning is undisputed, other studies conducted within the global context have suggested that lecturers and students tend not to use e-learning because of a range of factors including skills shortages due to lack of training, lack of understanding, as well as negative attitudes and perceptions (Minocha & Sharp 2004; Zaharias 2009).

Malik, Belawati and Baggaley (2005) add that in an ODL environment students may face more challenges because of infrastructure, geographic areas and not easily adapting to new technologies. These challenges can affect the students' perceptions of e-learning and increase the

number of dropouts in the university system. Therefore, the purpose of this study is to investigate students' perceptions of and preferences regarding the usability of e-learning (myUnisa) as part of teaching and learning.

1.4 AIM OF THE STUDY

The aim of the study was to examine the perceptions of Information Science students towards e-learning.

1.5 OBJECTIVES OF THE STUDY

- To determine the awareness among students of myUnisa as an e-learning platform.
- To ascertain how students benefit from e-learning.
- To investigate the attitude of students towards e-learning.
- To assess how lecturers influence students' perceptions of e-learning.
- To determine strategies utilized by lecturers to promote e-learning.
- To examine the usability of e-learning tools available to students.

1.6 RESEARCH QUESTIONS

- Is there any awareness among students of the e-learning platform?
- What are the benefits of e-learning to students' success?
- What are the attitudes of students towards e-learning?
- How do lecturers influence students' perceptions of e-learning?
- In what ways do lecturers promote e-learning?
- To what extent are the e-learning tools usable by students?

Table 1. 1: Objectives, research questions and data collection tools

Objectives	Research questions	Data collection tools
• To determine the awareness among students of myUnisa as an e-learning platform	• Is there any awareness among students of myUnisa as an e-learning platform?	Questionnaire
• To ascertain how students benefit from e-learning	• What are the benefits of e-learning to students' success?	Questionnaire
• To investigate the attitude of students towards the e-learning	• What are the attitudes of students towards e-learning?	Questionnaire
• To assess how lecturers influence students' perceptions of e-learning	• How do lecturers influence students' perception of e-learning?	Interviews
• In what ways do lecturers promote e-learning?	• In what ways do lecturers promote e-learning?	Interviews
• To what extent are the e-learning tools usable by students?	• To what extent are the e-learning tools usable by students?	Questionnaire

1.7 SIGNIFICANCE OF THE STUDY

This study determined the perceptions of Information Science students towards e-learning which is a major tool for teaching and learning in an ODL institution. The study sheds some light on the utilization, usability and perceptions of the e-learning as well as the challenges experienced by students.

The value of e-learning is unquestionable considering the assertion made by Silverstone (2011) when he says that e-learning is the most expedient way to learn and train without having to go to university or training centres. This research venture hopes to add to the existing knowledge on how students currently make use of e-learning as an aid in their studies. Therefore this research project also adds to existing knowledge for the development of e-learning services, thus putting institutions in a better position to respond appropriately with information technology and materials that are optimised in the UNISA context. The study shed some light on the different types of e-learning Learning Management Systems (LMS) available and used in the Information Science Department. Findings from this study will be valuable to Information Science academics enabling them to select the suitable e-learning tools and technologies for LIS education.

1.8 RESEARCH METHODOLOGY

This section concerns the research methodology that was used in this study. Chapter three of this dissertation is dedicated to a detailed discussion of the research methodology. Research methodology is the general approach the researcher takes in carrying out the research project. Methodology is divided into many approaches such as quantitative, qualitative and mixed methods research (MMR). This study adopted the quantitative research approach because it involved collecting the same information from all participants in the sample using a questionnaire (Leedy & Ormrod 2005; Neuman 2006). The aim of this study is to determine students' perceptions of e-learning.

1.8.1 Research design

A research design is described by Mouton (2001) as the plan followed in one study in order to investigate the problem as formulated. The study employed a survey design because it involved

collecting the same information from a geographically dispersed and diverse population. The survey method is recommended because it can allow collection of data from a larger number of people than is generally possible when using the experimental design (Mertens 1997).

1.8.2 Population

Population is defined by Mugenda and Mugenda (2012) as a group or set of elements. The researcher identified two categories of population. The first category comprises second year students who are registered for the Bachelor of Information Science in the year 2014. The researcher was particularly interested in students registered for the module Information and Communication Technologies for Information Science (INS2701). The researcher believes that students who are registered for INS2701 can have a great input into e-learning because it is stated in the module outcome that:

> "students will have the competence to apply their knowledge of information and communication technologies in different contexts in the library and information sector; and the purpose of the learning is to interpret, evaluate and apply the concepts, principles of operation, uses and latest trends of information and communication technologies, and indicate its influence on society" (INS2701 Only study guide 2011).

The second category comprises 17 lecturers in the Department of Information Science. Although the main focus is on the students, lecturers were included for the purposes of providing insight as people who are utilising e-learning for teaching and learning.

1.8.3 Data collection tools or instruments

This study used two data collection tools, namely: interviews were conducted with lecturers and online questionnaires were administered to students. Kvale (1996) regards interviews as an interchange of views between two or more people on a topic of mutual interest that sees the centrality of human interaction for knowledge production, and emphasizes the social situations of research data. This study used a web-based questionnaire in order to reach the target audience.

1.8.4 Method of data analysis

According to Neuman (2006) in the data analysis the researcher carefully examines empirical information to reach a conclusion based on reasoning and simplifying the complexity of the data. In this study the quantitative data was automatically coded in Microsoft Excel as the questionnaires were filled online using the lime survey software.

1.8.5 Ethical considerations

The researcher ensured that all ethical issues were adhered to. As this study was conducted at UNISA, the UNISA policy in terms of ethics was considered to protect potential human participants, animals, other living or genetically modified organisms, and contribute to the highest attainable quality of scientific and ethical research (UNISA 2007). The respondents to the questionnaire and those who participated in the interviews were made aware of the purpose of the study. They were assured that all their responses would be treated anonymously and no individual would be identified. The research "*Students' Perceptions of E-Learning in the Department of Information Science at University of South Africa*" which involved Unisa staff and students in respect of the above study was submitted to the Unisa Senate Research and Innovation and Higher Degrees Committee (SRIHDC) and the permission or ethical clearance was granted. This resonates with the UNISA Policy on Research Ethics (UNISA 2007) which specifies that researchers have to avoid undertaking secret or classified research, be competent and accountable, respect human participants, and be responsible while conducting research.

1.9 SCOPE AND LIMITATIONS

The study focused on the students and lecturers from the College of Human Sciences focusing only on the Department of Information Science. The study consisted of a case study whereby a survey-questionnaire and interviews were used to collect data. In the limited time available, the study was restricted to the Department of Information Science at UNISA. Selecting just one institution ensured that sufficient time was allocated to the respondents to answer the questionnaires and participate in the interviews. Also waiting for participants to give feedback is a major limitation. Designing the web based surveys required a lot of time and once they were

implemented a lot of administration work had to be done because participants needed to be reminded all the time to participate. Even those who agreed to participate were not guaranteed that they were going to participate or respond. Technical hitches with the online survey occurred whereby some participants could not open the link and needed to be assisted by giving them the appropriate procedures. All lecturers were expected to participate in the interviews but only 5 participated.

1.10 DISSEMINATION OF FINDINGS

The findings of the study will be disseminated through a published dissertation; also the researcher plans to make presentations at seminars and conferences. Further, the researcher looks towards publishing in academic Library and Information Science journals.

1.11 DEFINITION OF KEY TERMS

This process of defining the concepts is essential because its enables specific contexts to be described and explained in a manner that pertains to the study.

- **E-learning**

  In this study e-learning comprises all forms of electronically supported teaching and learning. For the purposes of this statement, e-learning is defined as 'learning facilitated and supported through the use of information and communications technology (ICT)' (Brooke 2008).

- **Library and Information Science (LIS)**

  LIS education considered as interdisciplinary courses and teaching new methods of providing information services and has continuously changing technology, the need for reformation is crucial (Malekabadizadeh, Shokraneh & Hosseini 2009).

- **Open Distance Learning**

  According to UNESCO (2002) open distance learning represents approaches that focus on opening access to education and training provision, freeing learners from the constraints of

time and place, and offering flexible learning opportunities to individuals and groups of learners.

- **Information and Communication Technology (ICT)**

ICTs are defined, for the purposes of this study, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephone (Khedekar & Magre 2011).

- **Perceptions**

In this study perception are about the ability to see, hear, or become aware (Oxford Dictionary 2013). This study enabled students to perceive usability and access of e-learning in the field of Information Science.

- **Students**

A student is a person who is actively registered in an accredited institution and who is expected to spend a minimum given time in a lecture hall or classroom (Oxford Dictionary 2013). In this study, since the researcher is dealing with a higher education institution of learning, the retain definition of students.

1.12 STRUCTURE OF THE DISSERTATION

The study is organized as follows:

CHAPTER ONE

In this chapter the motivation for the study, the statement of the problem, the aims of the study and the plan for organizing of the whole report of the research are discussed.

CHAPTER TWO

This chapter contains the literature review on which the study is based. It discusses the constructs of the study which are guided by the objectives of the study.

CHAPTER THREE

This chapter discusses in detail the research design and methodology of the study. Also described in this chapter are the procedures for data collection, the selection of the participants and the plan for data organization and analysis.

CHAPTER FOUR

This chapter focuses on the presentation and analysis of results

CHAPTER FIVE

This chapter presents the recommendations and conclusion of the study.

1.13 SUMMARY

This chapter provided the impetus for this study. A brief introduction to the study was provided where the researcher provided an overview of e-learning. The background information was explained, detailing how UNISA, an open distance learning institution, was able to provide the resources and create the environment for students who are spatially placed far away from one another to conduct their studies. The research methodology undertaken for this study was discussed showing which research approaches were selected to meet with the objectives of this study. The next chapter of the study will focus on a literature review relating to what other authors have written about students' perception of e-learning.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter set the scene by providing the background to the study, contextual and conceptual settings, problem statement, aim of the study, research objectives and questions, significance of the study, research methodology, as well as definitions of key terms. Having presented the background and purpose of the study, it is appropriate to bring the reader up to date with the previous research in the area of e-learning in higher education. This chapter provides a literature review regarding the students' perceptions of e-learning.

A literature review is an evaluative report of information found in the literature related to the selected area of study. The review should describe, summarise, evaluate and clarify the literature and give a theoretical base for the research to help the researcher in determining the nature of the research (Hart 1998). As a matter of fact, work that is irrelevant should be discarded and that which is peripheral should be looked at critically. A literature review is more than the search for information and goes beyond being a descriptive annotated bibliography (*The Writer's Handbook* 2012). All work included in the review must be read, evaluated and analysed, but relationships between the literature must also be identified and articulated in relation to the field of research (Fink 2010 & Helen 2010).

In writing the literature review, the purpose is to convey to the reader what knowledge and ideas have been established on the topic (Neuman 2006) and what their strengths and weaknesses are. This is important as it conveys what others have found which assists with the current research.

The literature review of this study is based on the following objectives:

- to determine the awareness among students of myUnisa as an e-learning platform
- to ascertain the benefits of e-learning for students
- to investigate the attitudes of students towards e-learning
- to assess how lecturers influence students' perceptions of e-learning
- to determine strategies utilised by lecturers to promote e-learning

- to examine the usability of e-learning tools available to students

2.2 AN OVERVIEW OF E-LEARNING

The origin of the term ‘e-learning’ is not certain. It has been suggested that the term most likely originated during the 1980s (Moore, Dickson-Deane & Galyen 2011). On the other hand, the E-learning Resources from e-Front Blog (2013) is of the view that the term ‘e-learning’ has been in existence since 1999, when the word was first used at a Computer Based Training (CBT) systems seminar, and subsequently other words such as ‘online learning’ and ‘virtual learning’ were also formed in an effort to find an accurate description of this phenomenon.

The term ‘e-learning’ has been used by many different scholars in different countries and there is no uniform or common term to describe e-learning although its functions and usability are similar (Organisation for Economic Co-operation and Development 2012). Some of these definitions materialise through conflicting views of other definitions and some by simply comparing defining characteristics with other existing terms. The belief that e-learning not only covers content and instructional methods delivered via Compact Disk - Read Only Memory (CD-ROM), the internet or an intranet (Benson, Elliot, Grant, Holschuh, Kim & Kim 2002), but that it also includes audio and videotape, satellite broadcast and interactive television. Although technological characteristics are included in the definition of the terms, Tavangarian, Leypold, Nölting, Röser and Voigt (2004), as well as Triacca, Bolchini, Botturi and Inversini (2004), felt that the technology being used was insufficient as a descriptor. Both Ellis (2004) and Triacca Bolchini, Botturi and Inversini (2004) believed that some level of interactivity needs to be included to make the definition truly applicable in describing the learning experience, even though Triacca, Bolchini, Botturi and Inversini (2004) added that e-learning is a type of online learning.

The OECD (2005) explains that e-learning refers to the use of information and communications technology (ICT) to enhance and support learning in tertiary education. The report from the OECD (2005) reveals that e-learning covers a wide range of systems from students using e-mail and accessing course work online while following a course on campus, to programmes offered entirely online and any other open sources such as *Joomla, Blackboard* and *Moodle*. The

researchers such as Seaman and Tinti-Kane (2013); Rahimi, van den Berg and Veen (2013) alluded that e-learning complements the use of social media technology which provides the lecturer with an opportunity to engage students in the online classroom, as well as to support the development of students' skills and competencies.

2.2.1 Rationale for e-learning

Technological changes, particularly web-based e-learning technologies, have resulted in new curriculum design and teaching strategies, new and emerging organisational structures and it has even transformed the aspect of learning (Jamlan 2004). Ezziane (2007) contends that technology would transform the act of teaching, whether or not lecturers or students are ready for this inevitable change. It is true that technology is here to reshape current learning systems and educational institutions by offering students new ways of seeing and learning; giving lecturers new ways of teaching and imparting knowledge; and administrators new ways of organising learning management systems (*The Writer's Handbook* 2012). New ways of tuition and of searching for and retrieving information have been developed and substantial changes have occurred as a result of e-learning.

2.2.2 The role of e-learning

According to Innovative Learning Technologies (2009), e-learning is growing popular in organisations and also in higher education, with training programmes in office and IT tools topping the list. Therefore, e-learning offers many rewards, both from an organisational or institutional point of view as well as for students. The United Nations Educational Scientific and Cultural Organisation (UNESCO 2010) reveals that the role of e-learning depends on a number of factors, which are as follows: the number of students involved in the learning or training programme; information technology tools that are already in place; and the solution should be easy to integrate into the existing IT platform (e-learning and/or administration platform and virtual campus). Having all the relevant resources or enabling platforms can improve tuition for students, because enabling systems play a very significant role in information access, since e-learning resources/educational lessons are stored and retrieved online. Appropriate information

literacy skills play a very important role in e-learning as part of teaching and learning around the globe.

Berge (2006) identifies four roles of e-learning:

- *social* − where students are encouraged in a friendly, social environment with teachers affirming and recognising input and providing opportunities for group cohesiveness to develop;
- *managerial* − provision of objectives, setting of timelines and defining of rules and roles;
- *technical* - ensuring all participants develop confidence in the network systems and software; and
- *pedagogical* − where teachers provide insights from their subject knowledge and experience using questions and probes to encourage student responses.

Therefore, if students become more proficient with technology, it will enhance online tuition.

2.2.3 Awareness of e-learning

The importance of social awareness in e-learning has only recently been investigated despite its significance to contemporary socio-cultural learning theories (Lambropoulos, Faulkner & Culwin 2012). Lambropoulos, Faulkner and Culwin (2012) further argue that the effective e-learning environments should consider not only information and knowledge transmission, but also social and dialogical interactions between participants. Therefore the design of such environments determines the kinds of social interactions that can occur, and thus can facilitate or impede learning. They also reveal that social mediation tools designed to enhance social awareness can support and facilitate the relationship between social and cognitive processes. The researcher assumes that this initiative may assist e-students in negotiating a shared understanding to create their own e-learning context.

According to Zheng and Yano (2007), on behalf of students in the spread of e-learning environments, it is difficult, but very important, to locate the right peer for collaboration on the right knowledge, at the right time and in the right way. On the other hand Gutwin and Greenberg (2002) reveal that awareness is widely applied to increase collaboration opportunities and

efficiency in computer-supported cooperative work and computer-supported collaborative learning (Ogata & Yano 1998). Therefore, regarding awareness of e-learning, it is very significant that higher education institution prioritise because it creates freedom for students to be able to engage in e-learning activities for teaching and learning. Zheng and Yano (2007) are of the same view with the researcher because they also reveal the awareness of e-learning as important in learning activities contexts for understanding a distance-learning environment, and students' activity contexts can reflect their own profile in knowledge, social and technical dimensions. The researcher noted that if students frequently visits discussion forums or discuss some knowledge topic, it may be presumed that the students are interested and aware of e-learning.

2.2.4 Benefits of e-learning

Researchers such as Martínez-Torres, Marín, García, Vázquez, Oliva and Torres (2008), as well as Koper, Giesbers, Van Rosmalen, Sloep, Van Bruggen, Tattersall, Vogten and Brouns (2005) point out that e-learning benefits many people because it is accessible 24 hours a day and from anywhere in the globe; therefore, the choice of a full web solution is highly recommended. E-learning provides greater flexibility of access (Yang & Cornelious 2005) and is essentially a web-based system that makes information or knowledge available to students and disregards time limitations or geographic proximity (Piccoli, Ahmad & Ives 2001). Furthermore, Sharpe and Benfield (2005) agree that e-learning promotes flexibility and pace of study, where students are able to work for as long as they wish to on the online activities.

Quinn (2012) reveals the following as being very important benefits of e-learning, especially for higher education institutions:

- Learning objects can be reused in different training programmes, for example, a learning object on open or closed questions can be used in an interviewing course and also in an appraisal course. This creates the potential for more cost-effective e-learning through the re-use of learning objects within an e-learning library.
- Trainers can quickly construct e-learning courses, for individuals or groups, by selecting learning objects from an existing library and reusing them appropriately.

- E-learning programmes can contain diagnostic tools or filters to compile a personalised version of the programme.
- Learning objects can be used to create time specific learning programmes. For example, if a learner wants a twenty or thirty minute refresher, the programme can automatically assemble the key points for the time specified. In this way, e-learning can ensure that learning is both available on a just in time basis and tailored to the time the individual has available

Researchers showed that students who are exposed to e-learning, compared to those who are not, generally improve in their studies (Lockyer, Patterson & Harper 2001; Tuckman 2002; Beyth-Marom, Chajut, Roccas & Sagiv 2003). Transformation is necessary in higher education institutions in order to keep up with the changes in communications and information technology. It is a fact that most higher education institutions have adapted the platforms they use for e-learning in order to improve teaching and learning and also to uplift the level of access and success for students. Nowadays e-learning is the best tool for those individuals who use it optimally, while those who are negative about it face many obstacles because of their attitude.

Jan, Lu and Chou (2012) explain the benefits of e-learning as offering tuition in organisations/ higher education institutions which can reduce the cost of training, increase the availability of training and offer new possibilities to integrate various types of learning contents (Gasco, Llopis, & Gonzalez 2004; Wilson 2004; Chiu & Wang 2008). On the other hand, e-learning can be extremely beneficial to employees/students, especially since it provides employees/students with the option of having courses available on demand, anytime and anywhere (Burgess & Russell 2003), tailoring learning courses based on learners' needs (Ely, Sitzmann & Falkiewicz 2009) and adapting it so that the material is compatible with the learners' preferred learning styles (Haigh 2004; Zhang, Zhao, Zhou & Nunamaker 2004; Yu, Chen, Yang, Wang & Yen 2007).

Hall (1995) reports that online delivery results in lower printing and distribution costs. Further, e-learning can be updated more quickly and easily than classroom or paper-based training. New regulations, for example, can be incorporated quickly into an e-learning programme and made available instantly to students and staff. Faster learning through e-learning will also enable

students and lecturers to be more productive and more efficient (Jan, Lu & Chou 2012). According to the Epic White Paper (2011), the benefits of e-learning are classified into three levels as the diagram shows below:

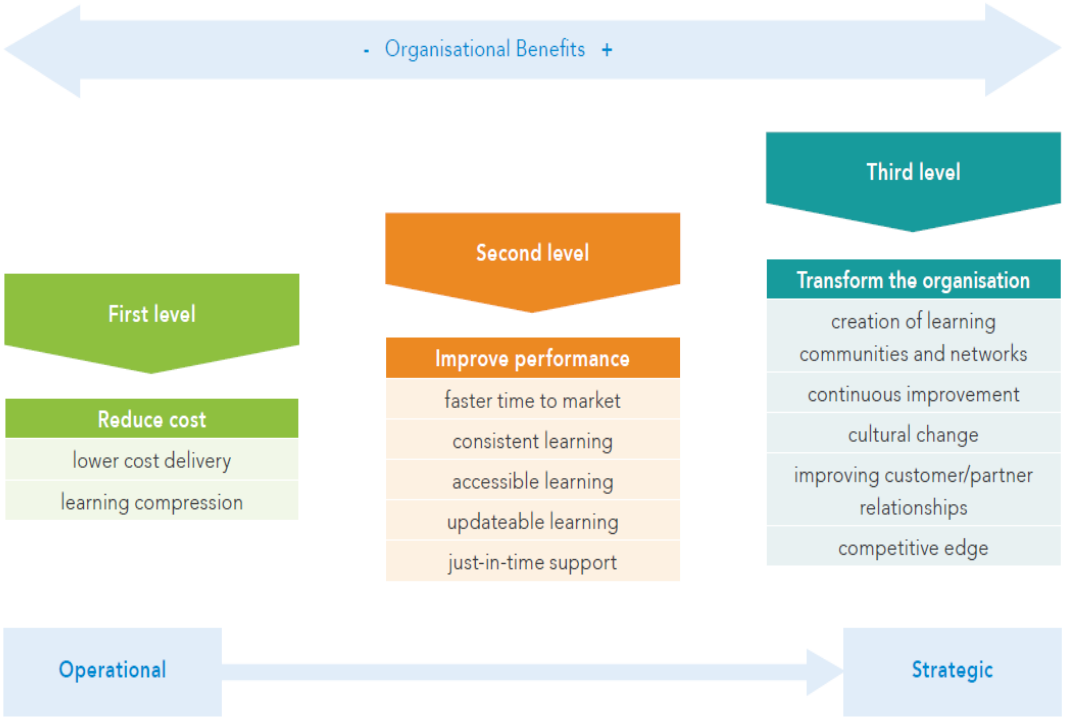

Figure 2. 1: Epic White Paper (2011)

In figure 2.1 the diagram lays out the three different levels of e-learning and its benefits. The first level emphasizes that the organization foster the low cost delivery, which results in learning compression. The second level is more into performance and all necessary aspects such as consistent learning, accessible learning, updateable learning and reliable support. The third and the last mentioned level is focusing on the transformation of the organisation by looking at the strategic components such as creation of learning, communities and networks, continuous improvement, cultural change, improvement of relationships and competitive edge.

According to the University of Freiburg (2014) e-learning use allows for:

- Modern and comprehensive learning material (e.g. via Campus Online or ILIAS);
- Experiments with alternative student services, such as the use of new blogs or wikis;
- Activates learning in groups;

- Supports construction of knowledge and competence through communicative and collaborative assignments;
- Active study methods instead of one-way presentation of material;
- Enough choice in teaching methods to allow for a modern and flexible way of learning that adapts to an individual‘s situational circumstances;
- Problem-solving for scheduling complications, such as overlaps between majors and minors or lack of classroom space;
- Supports phases of self-study;
- Visualisation of complex collection of facts through multimedia presentations or simulation processes;
- Cooperation and collaboration in research, teaching and learning across institutional and regional borders. Exchanges with students and experts worldwide (e.g. online meetings with Adobe Connect);
- Establishment of future career opportunities by using web elements to connect students with everyday work activities;
- Reduce the barriers to study for those with a job, a handicap, chronic illness, foreign students and so forth.

2.2.5 Learning management systems

Coates, James and Baldwin (2005) assert that the most significant developments in the use of information technology (IT) at universities in the last decade has been the adoption of LMS to support the teaching and learning process. LMS is an information system that facilitates e-learning as defined above. The terms, ‘virtual learning environment’ (VLE) and ‘e-learning environment’, are also commonly used to describe this type of information system. LMSs are usually implemented on a large-scale across an entire university, faculty or school and then adopted by teachers, who use them in a variety of ways to support course management and student learning (Coates, James & Baldwin 2005).

E-learning management system, also called virtual learning environments, include *Blackboard, WebCT, Moodle* and others (Coopman 2009). A common idea behind LMS is that e-learning is organised and managed within an integrated system (Siemens 2006; Chang 2008) and different

tools are integrated in a single system, which offers all the necessary tools to run and manage an e-learning course. According to Dalsgaard (2005); Williams, Cameron, Morgan and Wade (2012), tools used to support e-learning cover a wide range of different applications, which include discussion forums, chats, file sharing, video conferences, shared whiteboards, e-portfolios, weblogs and wikis. These mentioned tools can be used to carry different activities involved in the learning process. Also An, Kim & Kim (2008) revealed that a good learning outcome that develops a high order of thinking can be achieved in a conducive learning environment, which allows the evaluation and acknowledgement of multiple viewpoints. These researchers concurred on this because learning management systems also allow group work in tuition processes. Also Meyer (2014) and Gutierrez (2015) noted a very important idea about LMS that it should have a multimedia instruction to help students understand concepts with the use of words and images.

2.2.6 E-learning emerging trends

Ferriman (2013) posits that advances in technology generally define the latest trends in any organisation and the e-learning organisation or institution is no different. Ferriman (2013) also mentions some of the latest and emerging trends in 2013, as they relate to e-learning which includes:

- *Gamification* – This is arguably one the most exciting developments. Learning based games can now quite easily be integrated into many e-learning courses and learning management systems.
- *Mobile technology* – Devices such as tablets and smartphones are allowing for learning to be on-the-move. By 2016, the largest growth in mobile sales, by a significant margin, will be in notebooks and tablets.
- *Massive Open Online Courses (MOOCs)* – Possibly the most controversial trend, MOOCs, is causing quite a stir, but the utility of the model is still not quite certain. Still, the possibility of MOOCs is quite exciting.

- *HTML5* – is essential for developing modern web sites and is frequently touted as a future path for mobile application development, since it has a better performance multimedia and in connectivity.
- *Responsive Web* – With the various mobile technologies, it's imperative that websites display properly on the devices.

E-learning trends manifest in what is sometimes called 'learner-centred' or 'student-centred' design (Ferriman 2013). This is more than just adapting to accommodate different learning styles or allowing the user to change the font size and background colour; it is placing the control of learning itself into the hands of the learner (Young & Paterson 2007). O'Neil and McMahon (2005) state that the changing demographics of the student population and the more consumer/client-centred culture in today's society have provided a climate where the use of student-centred learning is thriving. Learning is characterised, not only by greater autonomy for the learner, but also a greater emphasis on active learning − with creating, communication and participation playing key roles − and on changing roles for the teacher, indeed, even a collapse of the distinction between lecturer and student altogether (Zhang 2013).

2.2.7 Challenges of e-learning

The course preparation might involve, for example, learning a new software application to convey a concept more effectively or students may express their learning efforts via text, audio or video and this may create many obstacles that students and lecturer must confront and overcome. Researchers such as Leary and Berger (2007) revealed that the challenge of e-learning is the amount of time required to develop and maintain an e-learning course. E-learning is costly to access information because it requires an internet connection, computers and other devices for communication (Noe 2014). To facilitate in the e-learning context is a challenge as Educause (2003) recommends including the following: computer experience, computer ownership, technical problems and time management.

The study conducted by Drent and Meelissan (2008) notes that students often complain about their lack of knowledge of ICT and state that lecturers provide little support in that area. Selim (2007) identified the following as factors that impact on e-learning: lectures' attitudes and

teaching styles, student motivation, student technical competency, student–student interaction, ease of access to the technology, infrastructure reliability and lack of support at the postsecondary level. However, Becker and Jokrivita (2007) found the following factors as prohibitive to the effective use of technology or ICT: (a) some older lecturers were prone to teach using traditional means; (b) novice lecturers with limited training were less likely to use the technology; (c) a lack of commitment to a constructivist pedagogy; (d) a lack of available professional development; and (e) a low level of contact between teachers and students who have little experience using technology.

Mohammed, Rosnaini, Kamariah and Ahmad (2012) reveal that faculty members' acceptance of technology, undoubtedly, plays also a key role in optimal operation of Learning Management Systems (LMS) in higher education. Their ready acceptance of such a system would lead to an increase in usage and motivate students in their subjects to use LMS (Al-Busaidi & Al-Shihi 2010). This means that, in the context of education, even if the government and relevant ministries initiate various technology programmes, its successful uptake will greatly depend on the lecturers who deploy the technology in their tuition (Mahmud 2006). Nasser, Cherif and Romanowski (2011) examine LMS usage among students as a metric and objective measure. Therefore the attitudes toward the LMS behaviour can be determined by both manipulative (such as interest, skills or knowledge) and non-manipulative factors (e.g. lack of internet access), hindering students' full use of the ICT system. Therefore the implementation and the designing of LMS has to accommodate the users and administrators who can help to ease usability. On the other hand, Al Infande (2013) argue that online learning sometimes forces students to not finish their studies because of anonymity which is associated with the platforms, for example if they are alone and get stark it is easy for them to give up.

2.3 STUDENTS AND E-LEARNING

This section discusses students and e-learning focusing on the following: students' attitude towards computers, students' perceptions and computer anxiety. The researcher discusses the mentioned headings because he feels that they will give an insight into students' perceptions about e-learning.

2.3.1 Students' attitude towards computers

Piccoli, Ahmad and Ives (2001) revealed that various research has indicated that students' attitude towards ICT is an important factor in e-learning fulfilment. According to Sun, Tsai, Finger, Chen and Yeh (2008), 'student attitude' refers to students' impression of participating in e-learning activities through computer usage. Therefore, e-learning depends largely on the utilisation of computers as a supporting tool. Piccoli, Ahmad and Ives (2001) reveal that a more positive attitude toward ICT is when students are not afraid of using computers as this will result in a more satisfactory and effective experience for learners in an e-learning environment. The researcher agrees that a positive attitude toward computers increases the odds of successful computer learning, while a negative attitude reduces interest.

Selwyn (1997); Hong, Ridzuan and Kuek (2003) reveal that a fundamental outcome measure of students' computer use is their attitude toward using the technology. The studies earlier cited suggest that attitude may have influence on students' adoption of technology. Consideration of user attitude is an integral part of educational computer use, as attitudes influence not only students' initial acceptance of IT but also their future behaviour regarding computers (Pillay, Irving & McCrindle 2006). The studies suggest that deployment of hardware and software are not guarantees of adoption of educational technology. In addition, Woodrow (1991) argues that the awareness of students' attitudes is crucial.

Neo (2003) states that using new technologies contributes to the development of a positive attitude by students towards ICT. Fančovičová and Prokop (2008) found that there are gender differences in attitudes toward ICT. Brosnan (1998) showed that 6-11 year old boys showed a more positive attitude towards computers than girls, whereas Graff (2003) found that girls were less likely to use computers and were less confident in using ICT than boys. Students' attitudes towards computer exercises were highly positive, according to the studies done by Ogilvie, Trusk and Blue (1999), who also found that most students could work at their own speed and their computer literacy improved as a result. It is difficult to conclude on this matter because

there has been much research on students' attitudes towards computer usage and there are contradictory results.

2.3.2 Students' perceptions

Students from different education and cultural backgrounds may have different perceptions towards higher education particularly expectations related to teaching and learning (Xu nd). It is a fact that this may further affect students' academic decisions, expectations, and performance because of their different perceptions.

In designing, developing, and delivering distance education courses, students' needs and perceptions should be central (Sahin & Shelley 2008). In addition, Hall (2001) reveals that a course failing to meet student expectations and needs may lead to low levels of student involvement. Axelrod (2008) has found that students' perceptions of what constitutes effective instruction transcend time and mode of delivery. He further notes that there are seven qualities that he believes are common elements of good teaching, and transcend time, place, discipline, and instructional type. These qualities are accessibility and approachability, fairness, open-mindness, mastery and delivery, enthusiasm, humour, and knowledge and inspiration imparted. Therefore the mentioned qualities are very important in considering students' perceptions.

The study conducted by Armstrong (2011) in the United States came up with five major findings about students' perceptions of online learning. The findings were as follows:

- *It enabled role of communication in shaping students' perceptions and approach to learning.*
- *The participants did not perceive the negative attributes of technology to be inherent to the technology itself but in its use and implementations.*
- *Course organization is key to student learning and success.*
- *Students' approaches to learning appeared to be shaped by both the structure of the learning environment and the nature of assessments used in the online environment (also included in this finding is that students' perceptions of online learning as being less academically rigorous than their experiences in face–to–face education).*

- *The fifth is that students use non-academic resources to locate information rather than the university library.*

Another study conducted by Lam, Lee, Chan and McNaught (nd) in Asia at the Chinese University of Hong Kong, revealed that students were generally positive but not overly enthusiastic about various forms of e-learning. On the other hand, students who were more experienced in using technologies in their everyday lives were in general more positive about e-learning strategies. This is an indication that students' perceptions about e-learning in Asian students are positive. In addition, a study conducted in UK by Ituma (2011) shows that a high percentage of students who had very positive perceptions and the frequency of usage of the e-learning system was also very high, with the vast majority using it frequently to supplement the traditional face-to-face classroom method.

The study conducted by Asunka (2008) in Ghana, which is a country located in Sub-Saharan Africa, indicated that all the aforementioned issues of inadequate resources and institutional difficulties are more applicable in Ghanaian higher education. Therefore, based on their overall perceptions of collaborative online learning from their experiences in the course, students generally held the view that online learning offers no advantages over face-to-face learning (Asuka 2008). Also Tagoe (2013) in Ghana found that students preferred mixed mode and web supplemented courses in the immediate future rather than web dependent and fully online courses. Another study conducted in South Africa about students' perceptions reveal that students perceived ICT, particularly the computer, as impacting positively on their academic success, academic access and other curricular issues (Makura 2014). The cited studies reveal that there is dissimilarity in students' perceptions about e-learning in different contexts because of infrastructure and exposure. Especially, there are big differences in developing and well developed countries in terms of experiences and perceptions.

2.3.3 Computer anxiety

Tekinarslan (2008) defines computer anxiety as a negative feeling such as fear, stress and worry aroused by the use or the anticipated use of computers. Fisher (1991); Jay (1981); Rosen and Maguire (1990) identified the characteristics associated with "technophobia", as anxiety and a

detestation or a general negative attitude of the subject towards technology. Researchers such as Hess and Miura (1985); Rockwell and Scott (1997) revealed that, among others, computer anxiety has to do with avoiding the computer. Rosen and Weil (1990), in their determination of the main symptoms of technophobia, included the following:

- anxiety towards any present or future interactions with computers or any types of technology based on them;
- a general negative attitude towards computers, their function and their influence on society; and
- Distinct negative cognitive functions while operating a computer or when considering future interactions with computers.

The degree of computer anxiety can easily change (Panagiotakopoulos & Koustourakis 2001; Sam, Othman & Nordin 2005). Its reduction depends on many factors such as experience gained or education received on computers (Marcoulides 1988). Rosen and Maguire (1990) stress that there is an opposite relationship between the experience or knowledge on computers and computer anxiety. Computer anxiety is also related to age, sex, the influence computers have on society, the subject's cultural background as well as the experience of anxiety towards any subject in general. Age is the most common determinant of computer anxiety because young learners are very curious and are very fast in browsing. Factors of interest can be graphic user interface, computer games, movies and music. In the rural areas there is a lack of infrastructure, high levels of illiteracy and communities not well informed about new trends in technologies. These issues combined create and contribute towards computer anxiety.

2.4 USABILITY OF E-LEARNING

This section discusses the usability of e-learning by focusing on the following: e-learning course flexibility; course quality; information technology aspect; and position of students in e-learning.

2.4.1 E-learning course flexibility

Daugherty and Funke (1998) questioned college as well as university students who are taking courses offered online about their experiences with using the internet for tuition. According to these researchers, the students reported that they found web-based learning to be more convenient than face-to-face learning as it offered flexibility and allowed for a certain degree of self-paced study. Students also reported that they found web-based learning opened up a whole world of information to them, something not available in a textbook. O'Malley and McGraw (1999) were also interested in whether students thought that online course delivery was as effective as traditional face-to-face course delivery. Their findings reveal that students found online courses offered an advantage over face-to-face courses in that they could be organised to fit in better with their schedules, they saved students' time, and enable students to study longer than they would if they were only taking face-to-face courses (Young & Norgard 2006).

2.4.2 Course quality

Institutions of higher education are faced with the challenge of developing talent to ensure that they have adequately trained personnel who are able to teach online courses. According to Koehler, Mishra, Hershey and Peruski (2004), universities are making large-scale financial commitments because they want to get more than just a few qualified online instructors. Their goal is to find ways in which the knowledge, skills and expertise can be diffused throughout the institution. It is important to acknowledge that the quality of a learning process is not something that is delivered to a student by an e-learning provider, but rather constitutes a process of co-production between the student and the learning-environment (Ehlers 2004). This means that the product/outcome of an educational process is not exclusively the result of the production process of an educational institution. Quality, therefore, also has to do with empowering and enabling the students.

According to the National Association for Secondary School Principals (2001), e-learning group members have found that course preview, monitoring and assessment are essential from four perspectives, which are:

- *Instructional design* – specified by an extensive course standards rubric against which all courses are judged.
- *Content* – reviewed by the equivalent of a department chairperson who evaluates a number of courses within one content area.
- *Course delivery* – monitored by regular visits by staff members to the online discussion forums and by critical feedback by the instructor.
- *Impact* – measured by end-of-course participant feedback and external review. Most courses are revised annually on the basis of this feedback.

2.4.3 Information technology aspects

Webster and Hackley (1997) indicate that the quality of technology as well as internet quality significantly affect satisfaction in e-learning. Application software tools with user-friendly characteristics, such as learning and memorising a few simple ideas and meaningful keywords, demand little effort from its users (Sun, Tsai, Finger, Chen & Yeh (2008); Brophy & Bawden 2005). Therefore, the higher the quality and reliability in IT, the higher the learning effects will be (Piccoli, Ahmad & Ives. 2001).

E-learning may also involve learning and discussion using other technological equipment such as video conferencing. Therefore, Piccoli, Ahmad and Ives (2001) reveal that both IT and internet quality are important factors in e-learning. Quality and reliability of technology, as well as network transmission speed, have an impact on learning (Sun, Tsai, Finger, Chen & Yeh 2008; Gutierrez 2015). However, Ozkan and Koseler (2009) argue that technology quality is the learners' perceived quality of IT applied in e-learning, such as microphones, earphones, electronic blackboards and so on.

2.4.4 Position of the student in e-learning

Virtual Studies.Net (2005) reveals that online students can contribute to successful learning and preparation through the following:

- *Awareness*: The student must be able to evaluate expectations, assess appropriate length of time needed to complete the work and understand the value of the learning. They must also have the ability to assess personal, technical and study skills.

- *Orientation:* As opposed to a traditional classroom, an e-learner goes through several stages of preparation before engaging the content. This includes the virtual classroom, software, instructor and then finally the content. Different students will enter a course at different levels of preparedness; in online courses, the instructor should be able to accommodate a student at any level.

- *Discipline and motivation*: The student should be disciplined and motivated to follow course schedules and complete assignments.

- *Organised:* The student must be organised enough to schedule study time and online time to ensure all course obligations are met.

- *Self-directed:* The learner must be self-motivated and ask for help when needed.

2.5 STRATEGIES FOR IMPLEMENTING E-LEARNING

There are many practical difficulties in implementing e-learning programmes in universities due to lack of resources (Muhmud & Gope 2009). E-learning should be embedded into teaching and learning. Most higher education institutions recognise that technologies need to be matched to pedagogical intentions and learners' diverse needs and any strategy needs to be flexible and responsive to changing needs, priorities and emerging technologies.

The University of Durham (2008) states that its strategy assists the delivery of the university's learning and teaching strategy by promoting e-learning as a pedagogically-driven initiative to enhance traditional learning experiences. It outlines the university's future plans and directions regarding flexible, electronically supported, learning opportunities for all students and staff. The University of South Africa (UNISA), is a leading e-learning provider of open distance learning (ODL) nationally and internationally. The UNISA strategies are to commit the guidelines for

cross-border provision developed by the national Department of Education, to commit an ongoing, responsive interaction with current and emerging global trends in e-learning. This section discusses the strategies for implementing e-learning focusing on the following: ICT resources and infrastructure; connectivity and bandwidth issues; capacity development; policy framework and readiness.

2.5.1 ICT resources and infrastructure

Computers and internet connectivity are the most important resources required for e-learning. The British Educational Communications and Technology Agency (BECTA 2005) revealed that an adequate level of access to the ICT infrastructure is the foundation of a college or university's ability to deliver e-learning effectively. When an institution thinks of ICT, they immediately think of desktop computers - how many do they have, where are they located and how many additional computers can be purchased Nortel Certified Technology Expert (NCTE 2013). Therefore, there is no doubt that computers, whether desktop or portable, are key pieces of equipment in any institution that is considering e-learning. As part of the implementation, institutions should think about how and where the computers are going to be used.

In the implementation of e-learning, platform is a fundamental factor which refers to requirements such as networks, hardware, software, computers, radio, audio cassettes, video and internet access. The technological dimension of the e-learning framework examines issues of technology infrastructure in e-learning environments (Rhema & Miliszewska 2010). This includes infrastructure planning, hardware and software (Khan 2003).

Another factor related to technology is software and interface design, which refers to the overall look and feel of e-learning programmes. Interface design dimension encompasses page and site design, content design, navigation and usability testing (Khan 2003). Therefore, educational software should be easy to use and a learning management system should support the selected learning models and pedagogies. Sife, Lwoga and Sanga (2007) mention that adequate technical support is an important part of the implementation and integration of ICT and e-learning in an education system.

2.5.2 Connectivity and bandwidth issues

The issue of bandwidth accessibility is affecting the whole African continent (*Internet World Stats* 2012). Although there are some things being done to upgrade physical connections, wireless internet access is still not accessible in all corners of South Africa. It is a common fact that not all households can afford the internet, especially in African countries. The *Internet World Stats* (2012) reveal the overall internet usage in Africa is 7% and this is a very low percentage compared to the first world countries. Walker (2007) emphasizes the richness of the World Wide Web and the internet as a great benefit for students and any other user in providing required services. Internet connectivity infrastructure for ICT development includes the following: intranet (LAN networks) and extranet (WAN), which is considered one of the biggest challenges in the implementation of e-learning in higher education institutions, particularly in developing countries (Fares 2007). Therefore, the e-learning environment must provide students and lecturers with a high degree of reliability and accessibility (Salmon 2004).

Technological obstacles in an e-learning environment often occur in bandwidth capacity. Kunaefi (2006) reveals that the higher education institutions need to provide wireless and wired networks with high connectivity "bandwidth" to avoid universities' e-learning initiatives being adversely affected. Furthermore, institutions should invest in the right ICT infrastructure that allows students and lecturers to easily access the ICT hardware, providing user friendly software and fixed technical support (Al-adwn & Smedlley 2012). It is well known that the connectivity market in Africa is still in its early stages of development; it is also one of the fastest-growing markets in the world. It is a common fact that connectivity affects almost all universities in developing countries. Only when the issue of bandwidth is resolved can we declare that we are information access oriented.

2.5.3 Capacity development

As far as lecturers and support staff are concerned, e-learning is the one method of training needed in order to be able to effectively interact with students. Inadequate budgets and time constraints cannot meet capacity development requirements. According to Clark and Mayer (2011), it needs genuine commitment from all stakeholders involved in the process. It takes a

training programme several years to reach the desired flexibility within the workforce. However, Clark and Kwinn (2007) argue that, if the right approach to training is taken, then constructive results can be seen quickly. Once the enabling infrastructure necessary to support e-learning, which may mean new hardware and software for some and possibly a new learning management system in place, the re-training of staff is often required so that they can be effective and productive in teaching and learning.

According to Sharpherd (2002), to fulfil the demands of an e-learning project requires many different skills, certainly more than can be expected of any single person, however multi-talented. These skills are identified as follows: pedagogical (concerned with learning), technical (concerned with the computers and the networks) and creative (concerned with the development of engaging content) (Sharpherd 2002). Therefore, the stakeholders who are responsible for capacity development should consider integrating all three skills mentioned above through strategic and project management in terms of adequately skilling lecturers.

2.5.4 Policy framework

All initiatives which are taking place in education can be higher education or basic education has to be well documented (UNESCO 2010). Policy involvement is considered because it acts as a framework and guides the ethics of operation (Project Management Institute 2012). The absence of a policy will make it difficult to measure the success of initiatives undertaken. It also helps in leading the process which governs the institution or organisation. The good operational policy is the one that is aligned with government requirements. Brown, Anderson and Murray (2007) identify a discernible pattern in the development of an e-learning policy. They point out three stages, which are as follows: the first stage occurs as government act to make e-learning possible; the second stage is when they work to integrate e-learning into the education system effectively to mainstream e-learning; and in the third stage a transformative role for e-learning is seen with changes to views about learning and to the nature and operation of the tertiary institutions and the tertiary system.

The major steps in the process of developing policy initiatives include: strategies to develop physical infrastructure, focusing on building and ensuring quality in e-learning, moves to create a system-wide approach to e-learning and embedding e-learning and, lastly, aiming for sector efficiencies (Brown, Anderson & Murray 2007).

2.5.5 Readiness for e-learning

In order to encourage e-learning at a higher education institution or within an organisation, these institutions should conduct considerable up-front analyses to assess their readiness. There are a number of instruments in the market that can be used for assessing readiness for e-learning (Aydin & Tasci 2005). Anderson (2002), Bean (2003), Chapnick (2000), Clark and Mayer (2003) point out that adapting e-learning without careful planning most likely results in cost overruns, unappealing training products and failure. They also state that like any other major innovation, e-learning strategies require considerable up-front analysis, development time, money, technological infrastructure and leadership support to be successful. The decision-makers should assess their organisations' readiness for e-learning before adopting this innovation (Aydin & Tasci 2005).

Aydin and Tasci (2005) reveal that the literature on organisational readiness for e-learning provides managers with questions, guidelines, strategies, models and instruments for assessing the readiness of their companies for e-learning. The decision-makers or managers should ask themselves many questions when assessing their organisational readiness (Haney 2002). She divides these questions into seven categories: human resources; learning management system; learners; content; information technology; finance and vendor. The readiness of any initiative taken should be examined after the platform is designed or developed, considering the usefulness of the tools, its user friendliness and adaptability.

2.6 THE ROLE OF LECTURERS IN E-LEARNING

Lecturers, especially in ODL, are the key role players of e-learning because they are there to promote online-interaction with the use of LMS. Singh, O'Donoghue and Worton (2005) are of the view that the dynamic nature of the information technology industry, in combination with evolving e-learning technologies, has created a problem for lecturers in higher education because they have to do everything to encourage students to support the initiative. Sometimes students' success can be achieved simply by preventing them from withdrawing from e-learning programmes (Serwatka 2002). Therefore, lecturers influence on students' perceptions can play a very important role in motivating e-learning. The enthusiastic lecturer s e-learning by using the modern social networks such as Facebook, WhatsApp, Skype. etc, which allow instant messaging. It is a common fact that students like or prefer the social networks because they are user-friendly. Volery (2000) argues that lecturers in networked learning environments modify their courses as they go along, meaning the longer a course is taught in a particular format the more effective it is. Many suggest that rather than changing the role of the lecturer, the lecturer will gradually disappear completely with the rise of improved e-learning technologies and methodologies.

Maintaining that technical expertise on its own is not of great value unless lecturers conceive effective ways to utilise it (Volery 2000). Lecturers will always play a key role in the effective delivery of e-learning initiatives, as it is the lecturer not the technology that facilitates the students' learning experience. Wilson (2001) suggests that three characteristics of the lecturer will control the degree of learning: attitude towards technology, teaching style and the control of technology. It is true that fighting against the negative attitude of students in utilising e-learning can be promoted by the lecturers' influence.

Lecturers must design activities, social interactions or problem-solving situations that allow students to practice the processes for applying course content. Wagner, Hassanein and Head (2008) argue that the lecturers or instructors may be motivated to use e-learning in their courses for a variety of reasons. Lecturers should be very concerned about the acceptance of e-learning tools among their students. Researchers such as Mahmod, Dahlan, Ramayah, Karia and Asaari

(2005); Lee, Cheung and Chen (2005) have found that perceived usefulness and perceived enjoyment are very important for the adoption of e-learning applications by students. In order to increase perceived usefulness and enjoyment, lecturers should vary the types of content, create fun, provide immediate feedback and encourage interaction to increase acceptance.

2.7 SUMMARY

The literature review was conceptualised based on the title of the study and guided by its research objectives. The literature was reviewed to shed some light on the following: the role of e-learning in higher education focusing on many contexts, and the benefits of e-learning, as most of the most literature reviewed revealed that e-learning is an advantage in teaching and learning in most higher education institutions. The chapter discussed students and e-learning focusing on the students' attitudes towards computers and computer anxiety. These headings were discussed because they are very relevant when reviewing students' attitudes towards e-learning. Also the reviewed literature, based on the usability of e-learning, focused on the following: e-learning course flexibility; course quality; information technology aspect; and position of students in e-learning. Lastly, the chapter discussed the roles of the lecturer in promoting e-learning and determined that, in order to increase perceived usefulness and enjoyment, lecturers should vary the types of content, create fun, provide immediate feedback and encourage interaction to increase acceptance. The next chapter examines and justifies the research methodology utilised in this study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter reviewed relevant and related literature on e-learning in higher education institutions, locally and abroad. It also sheds some light on the role of e-learning in higher education including its benefits, usability, challenges and students' attitude and perception about e-learning.

This chapter (Chapter Three) outlines the research methodology that was used in conducting this study. It contains the research methodology, design, study population, data collection techniques, data analysis and ethical considerations. In addition to these, the chapter also highlights the limitations that the researcher encountered during the research process. Sarantakos (2007) opines that every researcher adapts his or her own methodology, based on the field of study. Greaves, Kirby and Reid (2006) define methodology as a step-by-step plan of the data gathering instruments the researcher will use, how the population will be selected, how data management strategies are likely to be utilised as well as ethical strategies. It is considered important to describe the methodology used by the researcher in conducting this study as it would enable other researchers to replicate the study and ascertain the validity and reliability for the study findings, as advised by Hernon and Schwartz in Ngulube (2005).

3.2 RESEARCH APPROACH

A research approach, as defined by Neuman (2006), consists of the plans and procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. There are several approaches that can be used in social sciences, such as quantitative, qualitative and MMR (Amaratunga, Baldry, Sarshar & Newton 2002). The approaches considered to be suitable for this study were quantitative and qualitative because they complement each other. Based on the above statement Weinreich (2006) reveal that the quantitative research uses methods adopted from the physical sciences that are designed to

ensure objectivity, generalisation and reliability, whereas the qualitative one provides the researcher with the perspective of target audience members through immersion in a culture or situation and direct interaction with the participants. The multi-method combination was appropriate for this study as it involved collecting data from participants in the sample using techniques such as questionnaires and interviews (Leedy 2005; Neuman 2006).

3.2.1 Quantitative research

Scholars such as Creswell (2003); Mahoney and Goertz (2006) opined that a quantitative approach is primarily about collecting statistical data using strategies of inquiry such as experiments and surveys. Quantitative research methods entail the use of systematic and sophisticated procedures to test, prove and verify hypotheses (Neuman 2006; Hoy 2010). As Van Maanen (1983) comments, the main focus in quantitative research is on matters pertaining to structural rather than complex issues of the process. The researcher considered the quantitative method as the appropriate method for this. This method was preferred because the aim of this method is to obtain data that is statistically relevant and usually used to answer questions such as "how many", "where from" and "how much" (Silverman 2010). Therefore, in seeking such answers, this approach relies on the use of predetermined response categories by means of standardised data collection instruments such as a survey through the mail or structured or semi-structured interviews in order for statistical techniques to be used to assist in the interpretation of data (Demirbag 1994). The researcher opted for the quantitative approach also because it mainly involves the use of controlled questionnaires in which the response options are coded and it also allows for large numbers of respondents to be involved. Furthermore, UNISA students are scattered almost all over the world and it was very easy to distribute online questionnaire to all student participants.

Quantitative research involves identifying the characteristics of an observed phenomenon, which means that it did not change or modify the situation under investigation, nor did it determine the cause-effect relationship. It was pursued to identify facts about students' perceptions about e-learning based on their opinions and attitudes about the usability of e-learning. One of the strongest point of quantitative data analysis is to arrange large amounts of unclear data into

graphical form or numerical summaries thus acceptably answering research questions posed (Ngulube 2009). Also Stangor (2011); Babbie (2010) and Ngulube (2009) agree that quantitative research is more formalised and controlled than qualitative research and it has the possibility of replication using different groups of subjects. This method has helped the researcher to explain that which was a descriptive and also examined a situation as it is.

3.2.2 Qualitative research

The qualitative research approach deals with how people experience situations or how they feel about their experiences (Ramos & Ortega 2006). Qualitative research is a type of research that produces findings not arrived at by means of quantification. It may refer to research about a person's life, about stories or behaviour, and it is also research that is used with regard to organisational functioning, social movements or international relationships (Straus & Corbin 1990). The researcher considered the qualitative method as appropriate for this study. This method was chosen because of the nature of the study which helped to conceptualise research as the process of limiting uncertainty about the important questions and phenomena. This method allowed the researcher to try to understand the significance that participants attached to the e-learning environment. The lecturers who were interviewed as part of the qualitative aspect of this study were accessed from the Department of Information Science. Their views on influencing students and strategies used to promote e-learning were elicited as these are important to this study. This interaction also enabled the researcher to understand the feelings, thoughts, ideals and beliefs of lecturers about their roles within the e-learning environment. Thus, the qualitative approach was used in order to understand human phenomena and when the meanings that people give to events they experience need to be investigated (Hoberg 1999).

3.2.3 Multi-methods

This study considered the use of multi-methods. The researcher opted for both methods because he wanted to get two sets of data. The first set of data was obtained from students with the quantitative method employed and the second set of data was obtained from lecturers with the qualitative method employed. It is noted that the quantitative paradigm was the more dominant data collection strategy in the study with a small component of the overall study being drawn from the qualitative paradigm.

The dominant quantitative approach was used in the study to get students' perceptions about e-learning whilst the qualitative approach (interviews) were used to collect qualitative data needed from lecturers.

The researcher also considered triangulation in this study. Neuman (2006) highlights that the process called 'triangulation' is used by applying both quantitative and qualitative data collection methods in social research with the result that the researcher has a broader perspective of the research topic; in other words, the researcher viewed the information from several angles instead of one angle. The researcher agreed that the use of both methods in this study was to improve the reliability and validity of the data collected.

3.3 RESEARCH DESIGN

The study employed a survey design in the form of an online questionnaire. Surveys are one of several research methods that researchers employ to gather information for a study. This involves collecting the same information from a geographically dispersed and diverse population. The survey design was preferred because it allowed the collection of data from a larger number of people than is generally possible compared to the experimental design (Mertens 2003). A survey design involves acquiring information about one or more group/s of people about their characteristics, opinions, attitudes or previous experiences, by directing questions to participants and taking their answers (Neuman 2006) using techniques such as questionnaires or interviews. The survey can thus be used for a wide variety of purposes.

The survey design may use both quantitative and qualitative research methods (Best & Kahn 2006). Maxwell (1998) argues that surveys usually generate quantitative information, although open-ended questions with narrative answers can be used in survey questionnaires for qualitative data. Trochim (2001) confirms this, stating that a survey involves asking subjects to answer questions, usually via interviews or questionnaires. In this survey, online-administered questionnaires and interviews were used to gather data. The questionnaire recipients were not the same participants who were interviewed.

3.3.1 Advantages of survey method

According to Connaway and Powell (2010), the survey research tends to be relatively inexpensive, at least if the sample or population being surveyed is not large, but it is still often desirable to reduce costs. They further reveal the recommended guidelines for reducing survey cost which are as following:

- Shorten the length of data collection
- Reduce the number of follow-ups
- Limit the pilot or pretesting to a small number of participants
- Shorten time spent in developing data collection instruments by adapting already existing instruments
- Make the instrument as short as possible
- Use nonmonetary incentives to encourage respondents
- Minimize staff costs
- Shop around for least expensive suppliers and equipment
- Reduce the number of survey activities
- Minimize the amount of time each activity takes

3.3.2 Disadvantages of survey method

Gingert (2011) pointed out the following disadvantages of surveys:

- **Limited sampling and respondent availability** - Certain populations are less likely to have internet access and to respond to online questionnaires. It is also harder to draw probability samples based on e-mail addresses or website visitations.
- **Possible cooperation problems -** Although online surveys in many fields can attain response rates equal to or slightly higher than that of traditional modes, internet users today are constantly bombarded by messages and can easily delete your advances.
- **No interviewer -** A lack of a trained interviewer to clarify and probe can possibly lead to less reliable data.

3.4 STUDY POPULATION

Population is defined by Mugenda and Mugenda (2012) as a group or set of elements, whereas Saunders, Lewis and Thornhill (2007) define a population as every possible case that could be included in a study. The researcher has identified two categories of population elements. The first category comprises of students who were registered for the Bachelor of Information Science in the year 2014. The researcher was particularly interested in students registered for the Information and Communication Technologies for Information Science module (INS2701). The above mentioned population was chosen because the researcher believes that students who are registered for INS2701 can have a great input on e-learning because it is stated in the module outcome that:

> "students will have the competence to apply their knowledge of information and communication technologies in different contexts in the library and information sector; and the purpose of the learning is to interpret, evaluate and apply the concepts, principles of operation, uses and latest trends of information and communication technologies, and indicate its influence on society" (INS2701 Only study guide 2011).

This is a level two module which is a compulsory module. From the statistics retrieved from myUnisa in 2014, the number of students who were registered for this module were 64 (first semester) and 61 (second semester). All semesters were combined in order to get a total of 125 participants.

The second category of respondents comprised of 17 lecturers in the Department of Information Science. The focus of the study was on students whereas lecturers were included for the purposes of providing insight on the study as people who are utilising e-learning for teaching and learning. The main aim of involving lecturers was that they are familiar with e-learning so it was appropriate that they were included in this study for their point of view towards e-learning. The population of this study consisted of 125 students and 17 lecturers. Given that the population was small, no sampling had to be done because the instrument (online-questionnaire) was submitted to all 125 students' participants, while all 17 lecturers were targeted for interviews.

3.5 DATA COLLECTION TOOLS AND PROCEDURES

There are a number of different tools that can be used to collect survey data, for instance, interviews, focus groups, questionnaires and observation (Kothari 2004). This study used two data collection tools, namely: *interviews* which were conducted with lecturers and online *questionnaires* were administered to students. Kvale (1996) regards interviews as an interchange of views between two or more people on a topic of mutual interest that sees the centrality of human interaction for knowledge production and emphasises the social situations of research data. The researcher's reasons for using interviews for collecting data is that there was a need to attain highly personalised data and provides the researcher with an opportunity to probe and unpack the e-learning concepts (Gray & Guppy 2007). Also, the interviewees were able to discuss their perceptions and interpretations with regard to a given situation. This online questionnaire was chosen because of its convenience, that is, it could reach students around the country and all over the world.

The researcher approached the participants in their own settings to gain the information needed. The following section presents and discusses each instrument of data collection that was used in the study.

3.5.1 Questionnaires

A questionnaire is a set of questions for gathering information from individuals (European Thyroid Association (ETA) 2008) while Bryman (2008) reveals that a questionnaire is a collection of questions administered to respondents. Questionnaires can be administered by mail, telephone, using face-to-face interviews, as hand-outs or electronically, that is, via e-mail or through web-based questionnaires (ETA 2008). A questionnaire is simply a tool for collecting and recording information about a particular issue of interest (Sarantakos 2007). Questionnaires should always have a definite purpose that is related to the objectives of the research and it needs to be clear from the outset how the findings will be used (Loose & Worley 1994).

In this study an online questionnaire was used in order to reach a wide audience with the use of lime survey software. According to Cockburn and Mackenzie (2001), the main attraction of questionnaires is the relative ease of gathering a large set of responses. They further argue that

often online questionnaires also have a low response rate, some questions are left unanswered, and, because of its inflexible nature, it leaves no room for the researcher to follow-up or probe reactions or seek clarification on ambiguous or unclear areas. However, the major disadvantage of using online questionnaires is that the majority of people who receive the online web link do not click on it to open the survey and simply delete the email while some responses may also be incomplete. Furthermore, a web-based questionnaire survey usually has a low response rate compared to interviews.

Wyatt (2000); Best, Krueger and Hubbard (2001) opined about the relatively high non-response rates compared with traditional modes of data collection while they also raised concerns regarding the reliability and validity of the data obtained. The researcher noted that control over the web-based questionnaire is lost once the e-mail with the link is sent. Also noted to maximise the response rate one must not send the web-survey during the examination period because participants hardly visit myUnisa and myLife inboxes during this time.

The researcher ensured that the participation of respondents was voluntary and not by coercion. An informing covering letter seeking consent was attached to all web-based questionnaires distributed. The letter explained the aim and significance of the study to respondents and communicated that their participation was important towards outlining "*Students' Perceptions of E-Learning at the University of South Africa*". The covering letter for the current study clearly communicated that, even though their participation was essential, they were able to withdraw from the study as long as they have not clicked the send button and it was based on the anonymous nature of the survey. In the process of data collection using the web-based questionnaire, the researcher ensured that all ethical procedures were followed.

There were eight themes covered by the survey questionnaire in this study, i.e. background information; awareness of myUnisa (as an e-learning platform); rationale for e-learning; benefits of e-learning; accessibility of e-learning; students perceptions; attitude of students toward myUnisa (e-learning); usability of e-learning; and obstacles of e-learning (see Appendix B). Some survey questionnaires were self-developed and some were adapted from other researchers who conducted a similar study. The researcher adapted instruments used by Liaw and Haung

(2011) where they were investigating learners' attitudes toward e-learning. In this study three themes were used which were as follows: students' perceptions, attitude of utilisation and the effect of computer experiences on e-learning attitude. The researcher opted for their instruments because it revealed that the statistical results support previous research (Liaw & Huang 2003; Mitra 1998) that computer experience is a positive predictor of e-learning attitudes, including perceived self-efficacy, perceived enjoyment, and perceived usefulness of using e-learning.

3.5.2 Interviews

In general the interview is a conversation between two or more people where questions are asked by the interviewer to elicit facts or statements from the interviewee. In this study, interviews were carried out in order to obtain qualitative data; in this case, impressions about and attitudes of e-learning in higher education. Fraenkel and Wallen (2000) revealed that the benefits of using interviews are that the interviewer can clarify any points that are obscure and probe further whenever the responses are particularly important. According to Anderson and Killenberg (2009), the interview is a purposeful interaction between two or more people, who are in conversation and negotiation for specific purposes associated with some agreed subject matter. Interviews are also a resource and a time-intensive method and, occasionally, people may react unfavourably to such an intrusion (because many people might be busy with their personal duties). In the next section the researcher discusses the semi-structured interview because it was the appropriate type for the study

3.5.2.1 Semi-structured interview

A semi-structured interview is a qualitative method of inquiry that combines a pre-determined set of open questions (questions that prompt discussion) with the opportunity for the interviewer to explore particular themes or responses further (Mason 2002). Hollway and Jefferson (2000) opine that the semi-structured interview does not limit respondents to a set of pre-determined answers (unlike a structured questionnaire). That is why the researcher considered the semi-structured interview for this study. The researcher used face-to-face interviews to collect the qualitative data for the study. Although the interview schedule was sent to all participants via

email, the researcher requested that those who could answer questions without an interviewer may do so and give written feedback by email. Some participants required a face-to-face interview. The interviewed participants were five lecturers in the Department of Information Science and the researcher was the interviewer. Some participants were not able to participate because they were on leave; they did not have time because they were attending meetings; workshops and any other activities which were happening in the Department. The researcher had to remind participants twice to participate in the interview, and face-to-face and email reminders were used.

Anderson and Poole (2001) reveal that the interviewer is free to adapt the interview to capitalise on the special knowledge, experience or insights of respondents. As well, the scope of the interview would be limited to certain subtopics and the questions probably would be developed in advance (Babbie & Mouton 2001; Singleton & Straits 2010; Erikson & Kovalainen 2008). The interviewer recorded the responses according to a coding scheme that was established according to the research question. The interview schedule covered two themes, i.e. assessment on how lecturers influence students' perceptions of e-learning and strategies utilised by lecturers to promote e-learning (see Appendix C).

3.6 DATA ANALYSIS

According to Neuman (2006), in the data analysis the researcher carefully examines empirical information to reach a conclusion based on reasoning and simplifying the complexity in the data, whereas Cooper (2009) argues that data analysis is the practical application of procedures. He further argues that it is concerned with the sensitising of social researchers with regard to the use, interpretation and evaluation of relevant data. In quantitative research data is analysed using numbers, whilst qualitative research uses words or pictures. Data analysis is the process of obtaining meaning and implications from raw data (Saldana 2009). Edwards and Talbot (1994) opine that the data analysis methods associated with the survey research design are content analysis, descriptive statistical analysis and statistical testing. The methods used in the analysis of data for this study were dependent on the methods used for data collection. Since both quantitative and qualitative research methods were employed, the researcher had to consider

methods to analyse both types of data collected. The researcher transformed data into answers to the original research questions.

3.6.1 Analysis of the quantitative data from questionnaires

All usable quantitative responses were analysed using the Lime survey and Microsoft Excel 2010. Although the Lime survey could create tables successfully, the researcher migrated some of the data into Microsoft 2010 Excel spread-sheets. The reason was that the tables and figures created by the Lime survey did not always depict the intended picture of the findings. Microsoft Excel 2010 was found to have more templates for data manipulation whilst the Lime survey has a cross tabulation function that the researcher found useful in making associations between and across questions. The special reason for using Microsoft Excel was its user-friendliness, and the use of charting capabilities such as pie charts and pivotal tables which allowed the researcher to display two or more dimensions of data in a convenient format Chigada (2014) in Laudon and Laudon (2012). The researcher opted for both application software so the Lime survey was used for coding the data and Microsoft Excel for analysing the data.

3.6.2 Analysis of qualitative data collected from interview

Creswell (2009) stated that this involves creating codes and themes qualitatively and then counting the number of times they occur in the text data. The researcher used a pen and a notebook to record the participants' responses and Microsoft Word 2010 to transcribe the responses. As mentioned above in section 3.5.2.1, some participants managed to answer interview questions and provide feedback in Microsoft Word 2010. To analyse the qualitative data, the researcher first had to familiarise himself with all the data by understanding the texts in order to obtain a general understanding of the data and also picked out key impressions and noted them.

3.7 RELIABILITY AND VALIDITY OF INSTRUMENTS

This section explains each of these concepts and identifies the different types of validity and reliability involved in this research about students' perception about e-learning. The standing of a study basically depends on the accuracy of the data collection procedures. Tashakkori and Teddie (2009) attest to that because the instruments employed to gather information must obtain the type of data required to provide responses to the research questions. Reliability and validity play an important role towards establishing the reliability, credibility and truthfulness of findings (Walliman 2011). Therefore, a study can only be considered valid if the conclusions are credible and accurate. In this study the researcher tried to comply with concept of validity and reliability in order to produce results that are consistent and reliable.

3.7.1 Validity

According to Ndenje-Sichalwe (2010) the quality of a research study depends to a large extent on the accuracy of the data collection procedures. That means the correct usage of data collection instruments ensures reliability and validity of research results. Babbie and Mouton (2001); Nunan (2008) opine that validity is the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. The research is considered to be valid when the conclusions are true or correct and reliable when the findings are repeatable. The different types of validity are content validity, face validity, construct validity, criterion-related validity, predictive validity, internal validity and external validity (Mackey & Gass 2005).

3.7.1.1 Content validity

Content validity has been defined by various authors as: the degree to which an instrument has an appropriate sample of items for the construct being measured (Polit & Beck 2004); whether or not the items sampled for inclusion on the tool adequately represent the domain of content addressed by the instrument (Waltz, Strickland & Lenz 2005) and the extent to which an instrument adequately samples the research domain of interest when attempting to measure phenomena (Wynd, Schmidt & Schaefer 2003). Polit and Beck (2004) reveal that there is general

agreement in these definitions that content validity is concerned with the degree to which a sample of items, taken together, constitute an adequate operational definition of a construct. There is also agreement in the methodological literature that content validity is largely a matter of judgment, involving two distinct phases: a priori efforts by the scale developer to enhance content validity through careful conceptualisation and domain analysis prior to item generation; and a posteriori efforts to evaluate the relevance of the scale's content through expert assessment (Lynn 1986; Mastaglia, Toye & Kristjanson 2003). In this study the questionnaires were tested to improve face and content validity.

Babbie and Mouton (2001) claim that no matter how carefully the design of a data collection instrument is, there is always the possibility of errors. Therefore, pre-testing is very important where more than one different participants are included in the study. Pre-testing consists of trying out the survey instrument on a small sample of persons having similar characteristics to those of the target group of respondents. In this study pre-testing was done to determine whether further revision was needed for the questionnaire and if the respondents clearly understood and were able to answer questions. Immediately after designing the instrument the researcher piloted it by sending the online survey to four students who did the INS2701 module in 2013 in the Department of Information Science. The selection was done based on different provinces. By so doing, the researcher was able to find out if the instrument was usable and/or ask relevant questions regarding the study. The feedback received from the pilot group helped because the instrument was revised, especially the themes and headings.

3.7.1.2 Construct validity

Construct validity refers to the degree to which a construct differs from other constructs. Neuman (2006) defines it as a type of measurement validity that uses multiple indicators and has two subtypes: how well indicators of one construct converge or how well indicators of different constructs diverge. In this study the research objectives were formulated first, followed by matching or aligning research questions to make sure that they are interrelated to the objectives. The purpose of doing that was to make sure that the research instrument was usable and clear to produce the required results.

3.7.2 Reliability

Denscombe (2010) highlights that, whatever data collection method is used in research, the intent must be accuracy or reliability of the research instruments. Reliability is concerned with the regularity or consistency of the results a particular study achieves (Nunan 2008 & Bryman 2008). According to Mackey and Gass (2005), there are two types of reliability: inter-rater reliability and instrument reliability. Reliability of the research is also dependent on the validity of the research instrument used (Ngulube 2005). Reliability is viewed differently depending on the research method used. It is a requirement in quantitative research to aim at objective findings. To ensure reliability in this research the researcher drew up pilot questions in order to get an idea of the interpretation of the questions and what kind of answers would be obtained from it.

3.8 ETHICAL CONSIDERATIONS

In certain disciplines such as education, social sciences, justice, health or any other similar study field, the use of human subjects in research is quite common. Whenever human beings are the focus of an investigation, the researcher must look closely at the ethical implications of the proposed aim. Furthermore, most ethical issues in research fall into the following categories: protection from harm, right to privacy, honesty, anonymity, ethical clearance, voluntary participation and informed consent (Leedy & Ormrod 2005).

The researcher ensured that all the respondents involved in the study gave their informed consent to participate. Participants were well-informed of all aspects of the research in order to be able to provide informed consent to participate; participants were also given the option to withdraw at any stage in the procedure for whatever reason (Cohen, Manion & Morrison 2000). Participants need to know that their privacy and sensitivity will be protected and they will be informed of what will happen with their responses after they are recorded (Mertens 2009). The researcher ensured that strictest confidence was maintained with participant responses. The researcher ensured that all ethical issues were taken care of and adhered to. As this study was conducted through Unisa, the Unisa policy in terms of ethics was applicable. Thus, the University aims to

protect human participants, animals, other living or genetically modified organisms and strives to contribute to the highest attainable quality of scientific and ethical research (UNISA 2007).

The Unisa policy on ethics (2007) promotes the following four internationally established and accepted moral principles of ethics as a basis for research:

- Autonomy (the researcher should respect the autonomy, rights and dignity of research participants)
- Beneficence (the researcher should make a positive contribution towards the welfare of people)
- Nonmaleficence (the researcher should not cause harm to the research participant(s) in particular or to people in general)
- Justice (the benefits and risks of research should be fairly distributed among people)

These principles are not ranked in any order of preference. In disputes a balance between the four principles should be pursued. Therefore, the researcher took into consideration the abovementioned directives, as they ensured that the participants were protected and it allowed them to make informed decisions. This research project gave informants freedom of choice on whether to participate or not. The right to privacy was also observed and upheld by the current study. Confidentiality of information was one strategy that was used to ensure participants' right to privacy was not violated. The data collected by the study was used for nothing else other than the academic purposes for which it was collected.

3.9 CHALLENGES AND LIMITATIONS

Several problems were encountered during the course of this study. Difficulties were noted during the data collection process. Ngulube (2005) stated, for example, that the response rate is a concern for most surveys. The researcher had to wait for authorization in order to conduct his study at UNISA, and this delayed the commencement of data collection. Interaction with some respondents like students also proved difficult because some individuals were openly aggressive.

There were many challenges and limitations in this study, the foremost of which was that participants complained about internet access to respond to online questionnaires because they did not have sufficient data bundles. The researcher called the participants as a reminding purpose and one student responded like this "*I cannot use my data bundles to complete the online survey because I still have to check my results with the remaining data*". It was also a big challenge seeing if all participants received the e-mail that was sent to them containing the web-survey because some students hardly open their Mylife e-mail addresses. That is why the researcher had to call participants informing them about the link which was sent to them. It is common knowledge that people do not want to participate in web surveys. When the researcher called the participants, some simply said "*I deleted the e-mail because I thought is a scam*". In that case the researcher had to resend the link to the participants. It was noted that not all the participants owned laptops or desktop computers as some said they still have to go to the regional offices so that they can participate. It was difficult to determine exactly who participated and reminders had to be resent to all participants. The quite strange thing was that about 20 participants did participate in the survey but they did not complete the survey. In that case the researcher had to discard those incomplete responses. To obtain the qualitative data was complicated but not as difficult as obtaining the quantitative data as many lecturers were very busy with marking and examination matters. The researcher noted that it was not a good idea to collect data during the examination period because students and lecturers are very busy.

3.10 SUMMARY

This chapter broadly discussed the study's research approach, research design, the targeted population, data collections tools and procedures, data analysis, reliability and validity of the instruments and ethical considerations and challenges and limitations encountered. The limitations faced during the course of the study were also highlighted. This will be of assistance in a similar investigation at some stage in the future. The next chapter (four) focuses on the presentation of results obtained via questionnaires and interviews.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 INTRODUCTION

The previous chapter discussed the research methodology used in this study and this chapter presents the findings of the study on students' perceptions of e-learning in the Department of Information Science at the University of South Africa. The findings are based on the data collected through questionnaires and interviews. Quantitative data is presented in percentages, graphs and tables, while qualitative data is summarised using narrative reports. The findings are presented according to the following study objectives:

- To determine the awareness among students of myUnisa as an e-learning platform.
- To ascertain how students benefit from e-learning.
- To investigate the attitude of students towards e-learning.
- To assess how lecturers influence students' perceptions of e-learning.
- To determine strategies utilized by lecturers to promote e-learning.
- To examine the usability of e-learning tools available to students.

4.2 DESCRIPTION OF THE RESPONDENTS

This study consisted of two sets of data, namely quantitative and qualitative data. In the first category, which was quantitative data, the target population, as mentioned in the previous chapter, consisted of 125 units of analysis. There were 125 web questionnaires distributed and 70 (56%) participants responded, while 55 (44%) participants did not respond. The response rate was considered adequate for the study based on the conviction by Babbie and Mouton (2001) that a response rate of 50% or above is acceptable and is considered adequate for analysis. There were a number of issues that were encountered during the data collection process. These included the fact that 18 respondents did not complete all the sections in the web questionnaire, therefore, the researcher discarded them. Overall, usable data was obtained from 52 (42%) participants. There is evidence that there are online studies with a response rate of below 50%

that have been reported. For instance, Wouters, Maesschalck, Peeters and Roosen (2013) had a response rate of 36.4%.; and Doerfling, Kopec, Liang and Esdaile (2010) had a response rate of 25.6%. In view of the above the 56% response rate which ultimately resulted in 42% usable data was considered adequate for analysis.

In the second category, which was qualitative data, the targeted population was 17 lecturers. Out of the 17 lecturers, the researcher was able to successfully interview 5 (35%) respondents. The remaining 12 (65%) respondents were unavailable during the scheduled interview dates and interviews could not be reschedule due to official commitments. Despite the two reminders that were sent to participants the availability of lecturers seemed impossible. The primary intention of including lecturers in this study was that they were needed to corroborate information gathered from students who were the primary informants. Further, the study intended to solicit qualitative data from lecturers, therefore, as per the principles of the qualitative research approach, small samples are permissible. The web questionnaire and interview response rate are summarised in table 4.1.

Table 4. 1: **Response rate of respondents**

Targeted respondents	Targeted number	Respondents
Students	125	52 (42%)
Lecturers	17	5 (35%)
Overall	**142**	**57 (41%)**

4.3 BIOGRAPHICAL DESCRIPTION OF THE STUDENT RESPONDENTS

This section provides a bibliographic presentation of the respondents. The data includes gender, age group, the location and level (year) of study.

4.3.1 Gender

This question sought to establish variables of the respondents in gender. If one gender group had participated in this study, the findings would have been biased, therefore it was important to include both genders in the study.

Table 4. 2: Gender distribution (N=52)

Scaled responses	Number of respondents	Percentage (%)
Male	6	12
Female	39	75
Not indicated	7	13

Table 4.2 reveals that out of the 52 respondents 39 (75%) were female, 6 (12%) were male and 7 (13%) did not specify their gender. It is well known that in South African universities there are more female than male students and, in this study, the majority of the respondents were female, 39 (75%). Gender difference is noted in many cases in the use of IT, for example Fančovičová and Prokop (2008) found that there are gender differences in attitudes toward the use of ICT.

4.3.2 Age of the respondents

The age of the respondents is given in table 4.3.

Table 4. 3: **The age distribution of the students (N=52)**

Age	Frequency	Percentage (%)
20 – 24	9	17
25 – 29	12	23
30 – 34	14	27
35 – 39	8	15
40 – 44	4	8
45 – 49	3	6
50 – 54	2	4
Total	**52**	**100**

The age categorisation was done to determine whether age was a factor affecting students' perceptions of e-learning in the Department of Information Science. Based on these findings, the participants of the study can be divided into the following age groups: 9 (17%) of the respondents were 20 to 24 years old; 12 (23%) were 25 to 29 years old; 14 (27%) were 30 to 34 years old; 8 (15%) were 35 to 39 years old; 4 (8%) were 40 to 44 years old; 3 (6%) were 45 to 49 years old; and 2 (4%) were 50 to 54 years old. The majority of students who responded were in the age range 30 to 34.

4.3.3 Distribution of students by province or country

The findings in table 4.4 illustrate the various provinces and countries where respondents were located. The biggest proportion of the respondents, 27 (52%), were based in Gauteng, 9 (17%) were located in KwaZulu-Natal, 6 (11%) in Mpumalanga, 3 (6%) in the Free State, 2 (4%) in the Western Cape, 2 (4%) the North West, 1 (2%) the Eastern Cape and 4% were located in other countries such as Botswana and Sweden.

Table 4. 4: **The distribution of students by province or country (N=52)**

Province	Respondents	Percentage %
Gauteng	27	52
KwaZulu-Natal	9	17
Mpumalanga	6	11
Free State	3	6
Eastern Cape	1	2
North West	2	4
Western Cape	2	4
Botswana	1	2
Sweden	1	2
Total	**52**	**100**

As stated earlier in Chapter One, the context of the study is UNISA and it is an ODL institution. It was confirmed by the UNISA Open Distance Learning Policy (2008) that it is a multi-dimensional concept aimed at bridging the time, geographical, educational and communication distance between students and the institution. UNISA is an open distance university and accommodates students from all over the world. The international respondents indicated that they were located in Botswana and Sweden. Therefore, it was recommended by the researcher to indicate the respondents by province or country in the table 4.4.

4.3.4 Academic level of study of the respondents

In Chapter Three section 3.4 the population of the study is clearly discussed. To support this, it is stated earlier in this chapter that a total of 125 respondents were targeted. The total of 52 respondents were students in the Department of Information Science.

Table 4. 5: **Undergraduate students' year of study (N=52)**

Year of study	Frequency	Percentage (%)
1st year	2	4
2nd year	27	52
3rd year	21	40
4th year	2	4
Total	**52**	**100**

The respondents were requested to indicate their status in terms of their academic year of study. As table 4.5 indicates, out of a total of 52 respondents, 27 (52%) students were in their second year; 21 (40%) in their third year; 2 (4%) were in their first year; and 2 (4%) in their fourth year. The way in which they have responded to the questionnaire may possibly depend on their level of study. The findings also indicated that students at senior levels responded better to the online survey then those at the lower levels.

4.4 RATIONALE FOR E-LEARNING

The researcher sought to determine the awareness among students of myUnisa as an e-learning platform. In this regard, three questions were asked and analysed, that is: the students' understanding of the term 'e-learning', devices used to access myUnisa and the reasons for using myUnisa.

The Writers' Handbook (2012) affirms that e-learning technologies are here to reshape the current learning systems and allow higher education institutions to offer students new ways of learning and also allow lecturers to offer teaching using LMSs. Berge (2006) reveal that there are four roles of enabling e-learning which are socialising, management, technical and the pedagogical system. Based on *The Writers' Handbook* (2012) and Berge (2006), e-learning can make a great impact on tuition. Interestingly, their views augment each other.

4.4.1 Students' understanding of e-learning

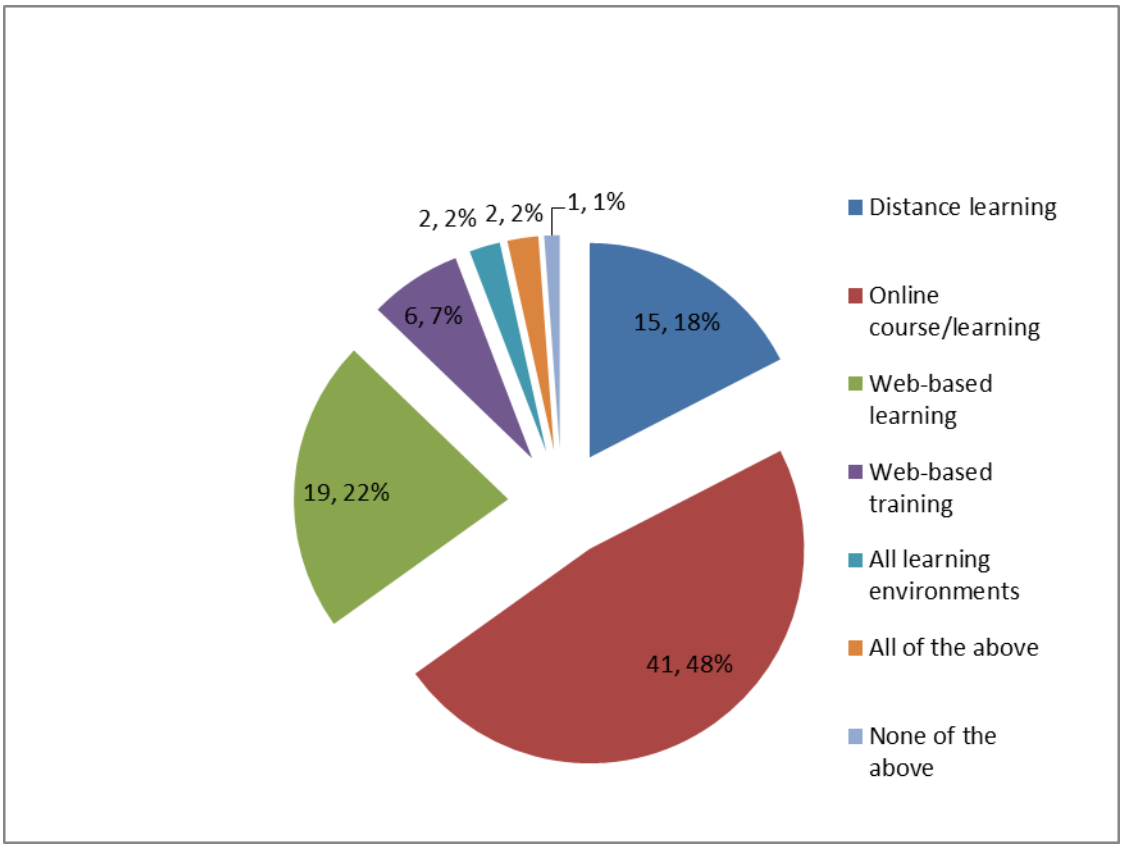

Figure 4. 1: Students' understanding of e-learning (N=52)

The respondents were asked questions to demonstrate their understanding of the term 'e-learning'. The results are summarised in figure 4.1, which shows that the majority of respondents 41 (48%) believed that e-learning refers to online courses/learning, while 19 (22%) understood it to mean web-based learning, 15 (18%) thought it referred to distance learning. The rest of the respondents, less than 11 (7%, 2%, 2% and 1%), could be regarded as negative cases and, as such, their responses do not carry any significance. Based on the findings in figure 4.1, e-learning can, generally, be defined as online learning, which utilises web-based tuition in distance learning. The existing literature suggests that there is no common term to describe e-learning, although its functions and usability are similar (OECD 2012). Moore, Dickson-Dean and Galyen (2011) also concur that the term 'e-learning' is not certain. In the opinion of OECD (2012), e-learning is the use of ICTs to enhance and support learning in tertiary education for

tuition. The variation of answers in figure 4.1 clearly indicates that there is no uniform term to describe e-learning. This may create confusion for students and lecturers who are not IT oriented because not all people can be able to define all e-learning terms. The respondents were asked to identify which information technology (IT) devices they used to access myUnisa. The responses to the question are tabulated in table 4.6 below.

Table 4. 6: **The devices used by students to access myUnisa (N=52)**

Device	Frequency	Percentage %
Cellphones	30	29
Tablet or iPad	13	13
Desktop	30	29
Laptop	29	29
Total	**52**	**100**

From the given sample studied, 30 (29%) indicated they accessed myUnisa using desktop computers, 30 (29%) used laptops, 29 (29%) used smart phones and 13 (13%) indicated that they use tablets or iPads. The various IT devices that students used to access myUnisa are summarised in table 4.6.

The findings inferred from the responses from students in terms of the devices used to access myUnisa suggest that the most popular devices used were desktop computers, laptops and cellphones. It is encouraging to note that the use of cellphones as a study gadget matches the use of laptops and desktop computers, that is, 29%. This is in line with the findings by BECTA (2005) who states that adequate level of access to the ICT infrastructure is the foundation of a university's ability to deliver e-learning effectively. It is notable that only a small percentage of students access the internet through the use of iPads/tablets; this study did not determine the reason or reasons for this trend. Noe (2014) cautions that e-learning can be costly because it requires appropriate internet connectivity as well as electronic devices with appropriate software and settings.

The literature confirms that e-learning can also be delivered through audio and videotapes, satellite broadcast and interactive televisions (Benson, Elliot, Grant, Holschuh, Kim & Kim 2002). This is an indication that electronic devices that can be used for e-learning are not limited to cellphones, tablets, desktops and laptops as indicated in table 4.6.

4.4.2 Reasons for using myUnisa

The respondents were asked to indicate the purpose for which they used myUnisa. Seven options were given, that is: to submit assignments; to interact with other students; to engage and participate in discussion forums; to check announcements posted by the lecturers or tutors; to access study resources; all of the above and, the last option, any other reason, which they had to specify.

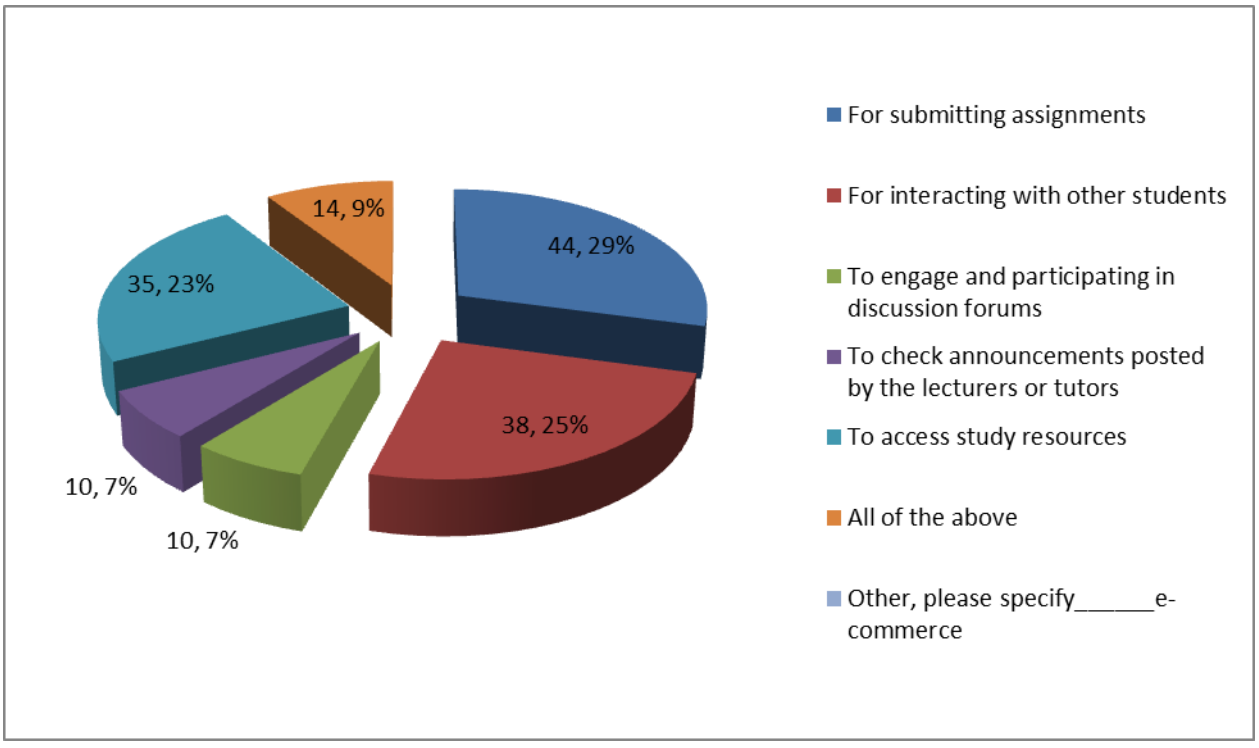

Figure 4. 2: Students' purpose/reasons for myUnisa platform (N=52)

Predominantly, students appeared to use myUnisa to submit their assignments. Out of the 52 (100%) respondents, 44 (29%) indicated that they use it to submit assignments, 38 (25%) use it to interact with other students, 35 (23%) to access study resources, 10 (7%) to check announcements posted by the lecturers or tutors, 10 (6%) to engage and participate in discussion forums, 14 (9%) of respondents indicated that they use it for all the above-mentioned reasons, whereas 1 (1%) use it for e-commerce, since they were given the option to mention any other reason.

The data in figure 4.2, shows that there are high response rates for the option, "to submit assignments", 29%; for “interacting with other students", 25%; and 23% for "accessing study resources". In general, students used myUnisa for all of the above-mentioned purposes. This is in line with the findings of the study by *The Writers’ Handbook* (2012), which found that technology is here to reshape current learning systems by offering students and lecturers new ways of tuition. Also the literature supports the idea of *socialising* where students are encouraged to communicate with other students and lecturers; *managing* the setting time lines; *technical* awareness of network systems and software and *pedagogical* learning where lecturers provide insight and students are encouraged to respond (Berge 2006). Although checking announcements and accessing resources are very important for students, the response rate to this option was very low, with less than 10% of students accessing myUnisa for this purpose, which indicates that students do not engage seriously with e-learning (myUnisa). Despite this, there is reason to believe that students are embracing myUnisa for academic purposes, essential activities of learning, teaching and research.

The findings in figure 4.2 and the literature affirm that e-learning may be used for the purposes of modernising and comprehensive learning material, experiments with alternative students services such as use of blogs, wikis, Facebook, twitter and any others (University of Freiburg 2014). This may impact positively or negatively on the learning context because if web 2.0 is involved (embedded) in e-learning platforms, it can also create cases of cyber bullying where students are swearing or use vulgar language, especially if they are not properly monitored. The positive impact would be that teaching and learning including teaching material can be easily

shared among students. It is well known that many students spend a lot of time in web 2.0 activities for general communication.

4.5 THE BENEFITS OF E-LEARNING

The researcher sought to investigate the benefits of e-learning for Information Science students. To determine the benefits, the following questions were asked: "What are the benefits of the myUnisa platforms for learning?" and "What are the major benefits of e-learning for students?"

4.5.1 Benefits of e-learning

The respondents were asked to indicate all the possible benefits they gained by using myUnisa. The "ease of access to information" attracted 46 (24%) of the respondents, "safe platform to submit work" was indicated by 36 (19%), "students can learn at their own pace" by 35 (18%), "quality of education" by 19 (10%), "ease to get supervision wherever you are" got 16 (8%), "facilitate the management of student records" got 15 (8%), "combination of synchronous and asynchronous learning" got 12 (6%) and "potential for re-use of content" got 12 (6%). This is summarised in figure 4.3.

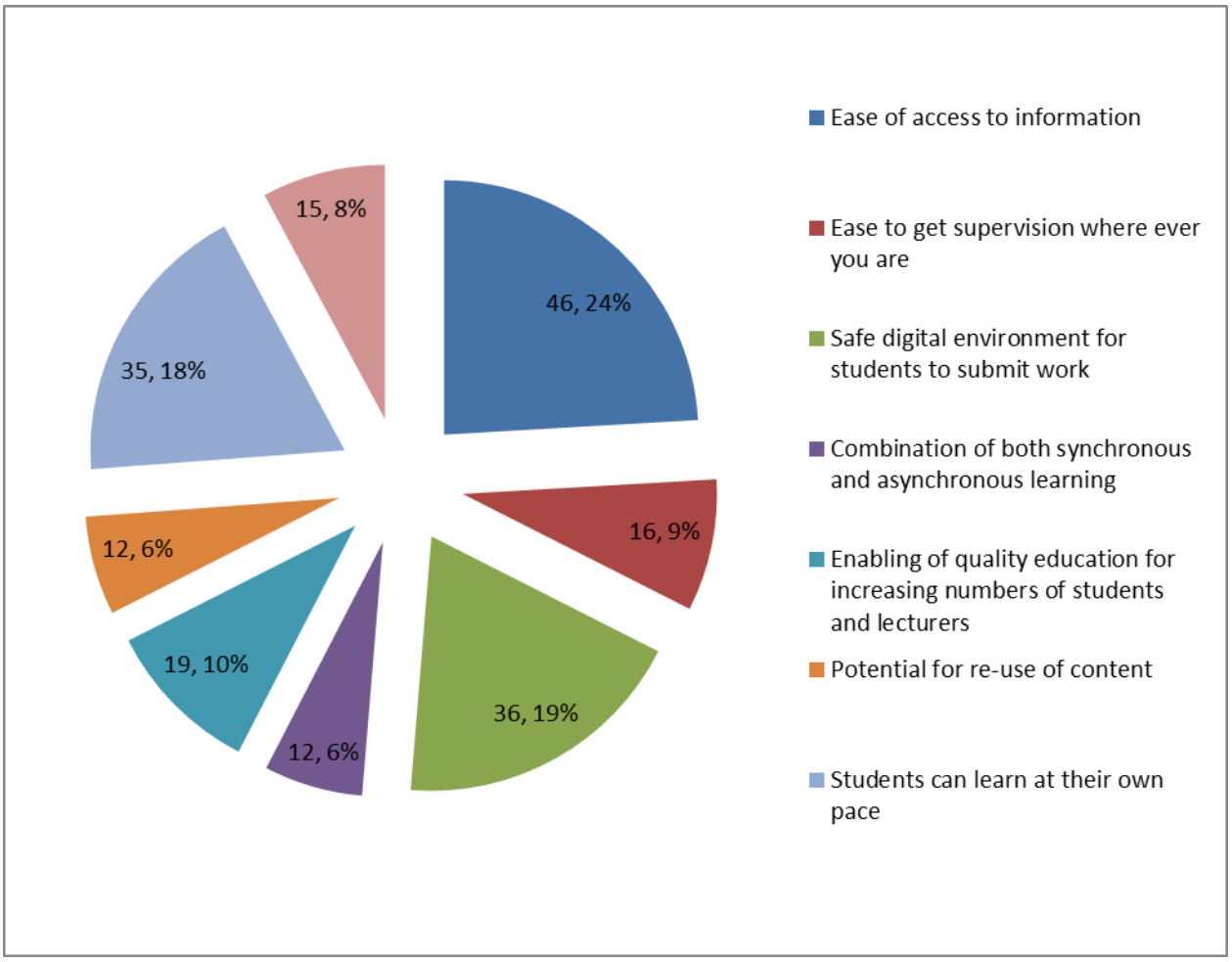

Figure 4. 3: **Benefits gained by students from using myUnisa (N=52)**

By the look of the results in figure 4.3 it seems that students were benefiting from e-learning. The respondents indicated various ways in which they benefit when using e-learning. It is a clear indication that e-learning is growing in the higher education institutions and many people are embracing it. The findings therefore show that the highest percentage (24%) complemented the benefit of e-learning as "ease to access to information". These findings also complement the internet as it is the one of the most convenient, easily available methods to help students to get connected to a vast variety of information through the use of e-learning. The literature also confirms that it is easy to access material online and it also allows students to use other services such as blogs and wikis to access information (University of Freiburg 2014). Generally it seems to be easy to access information on the e-learning platforms because one can use any device to access information as long as you are connected to the internet.

A total of 19% of respondents profited from e-learning because of the safe digital environment for students to submit their work. This is an indication that they are exposed to a safe LMS because the user must have an individual user identity to log in. Piccoli, Ahmad and Ives (2001) affirm that e-learning takes place in safe and essentially web-based systems which make information available to students. The findings in figure 4.6 show that 18% of respondents felt that it gives students the option of learning at their own pace. Sharpe and Benfield (2005) are in agreement that e-learning promotes flexibility and allows for "own pace study", where students are able to work for as long as they wish on the online activities. On the other hand, this can create a negative impact because some students may not commit themselves online for their lessons and participate in the last hour because of e-learning allow flexibility. That would be the cause of failure in their modules of subjects.

Other findings in the figure 4.6 show that 10% of the respondents felt that e-learning is "an enabler for quality education and access as it allows more students to study". Jan, Lu, and Chou (2012) support these findings because they mentioned that e-learning increases the availability of training and offers new possibilities to integrate various activities for learning contexts. E-learning enhances quality in education because it allows course content to be updated more quickly. E-learning plays a very significant role in developing countries where there are shortages of higher education institutions. In both contact and ODL, e-learning allows a quite high students intake because tuition occurs online. Quinn (2012) is of the same opinion because he affirms that e-learning can cater for individuals or groups. This can have a positive or negative impact. The positive impact would be that it enables access to higher education and the negative impact would be the low through-put (low number of students to graduate on time) because not all students are able to learn in the e-learning context.

About 9% of the respondents revealed that e-learning helps to facilitate the management of students' records. This confirms that LMS platforms provide enough and secure space to store information. Jan, Lu and Chou (2012) also agree that e-learning enables students and lecturers to be more productive and more efficient as they are able to manage their records on the platforms.

Other respondents 8% revealed that through e-learning it is “easy to get supervision where ever you are”. This means that students can get supervision and support even if they are at home or work and any other places. These results concur with Sharpe and Benfeild (2005) who stated that e-learning promotes flexibility and space of interaction.

The lowest responses were for “combination of both synchronous and asynchronous learning” (6%) and “potential for re-use of content” (6%). These findings showed that students do not see a good interaction occurring in e-learning platforms which enables them to post in discussion forums. It is the daily responsibility of students to participate online for sharing ideas, asking questions and creating friendship. These findings contradict with Hall (1995) who opined that e-learning provides quick and instant communication. The idea that e-learning content can be re-used is supported by Quin (2012) who stated that learning content as objectives can be re-used in different training programmes. The overall findings from the respondents and literature showed e-learning benefiting the students in tuition.

4.5.1 Benefits of e-learning

The results in table 4.7 and figure 4.4 show that out of the 52 respondents of the study, 50 students showed that e-learning enabled them easily and quickly to share educational material. Based on the results, we are living in the web 2.0 era which makes it easy to share resources by using applications such as Facebook, WhatsApp, twitter and many more.

The researcher asked the informants to rate the benefits of e-learning on a scale ranging from "strongly agree" to "strongly disagree". Ranges such as “strongly agree” and “agree” were combined in order to get one positive answer which is “agree”; also in “disagree” and “strongly disagree” the same procedure applied. The “undecided” and “disagree” ranges were not considered in discussion and interpretation because they were regarded as not significant. The responses indicate that the respondents mostly agreed that they benefit from e-learning. As shown in table 4.7 and figure 4.4, out of the 52 respondents, 41 indicated that it is flexible with regard to time and place, 44 indicated that wide and diverse interaction can take place, 50 indicated that it is easy and quick to share educational material, and 45 indicated that there are

possibilities of working with e-learning. The overall results showed a positive response about the benefits of e-learning.

Table 4. 7: **Benefits of e-learning (N=52)**

The results shown in table 4.7 are summarised in figure 4.4. The summary in figure 4.4 is simple indicating the results about "agree" and "disagree". In table 4.7 the results for "strongly agree" and "agree" were combined. For example, "strongly agree + agree = "**agree**" and "disagree" + "strongly disagree = "**Disagree**". Undecided was left as is.

Variables	**Strongly agree**	**Agree**	**Total**	**Undecided**	**Disagree**	**Strongly disagree**	**Total**
Flexibility in time and place	33(63%)	18(35%)	**41(98%)**	1(2%)	-	-	**0**
Ease and quick share of educational material	30(58%)	20(38%)	**50(96%)**	2(4%)	-	-	**0**
Improved collaboration and interactivity among students	18(35%)	26(50%)	**44(85%)**	5(10%)	3(5%)	-	**3(5%)**
Access to higher education for all applicants	18(35%)	25(48%)	**43(83%)**	8(15%)	1(2%)	-	**1(2%)**
Possibility of working with e-learning	16(31%)	29(56%)	**45(87%)**	7(13%)	-	-	**0**
Accommodates different types of learning styles	15(29%)	27(52%)	**43(81%)**	7(13%)	3(6%)	-	**3(6%)**
Quick feedback	16(31%)	27(52%)	**43(83%)**	5(10%)	4(7%)	-	**4(7%)**
Wide and diverse interactions	13(25%)	31(60%)	**44(85%)**	7(13%)	1(2%)	-	**1(2%)**
Confidence	16(31%)	27(52%)	**45(83%)**	7(13%)	1(2%)	-	**1(2%)**
Updated learning material	25(48%)	24(46%)	**49(94%)**	2(4%)	-	1(2%)	**1(2%)**

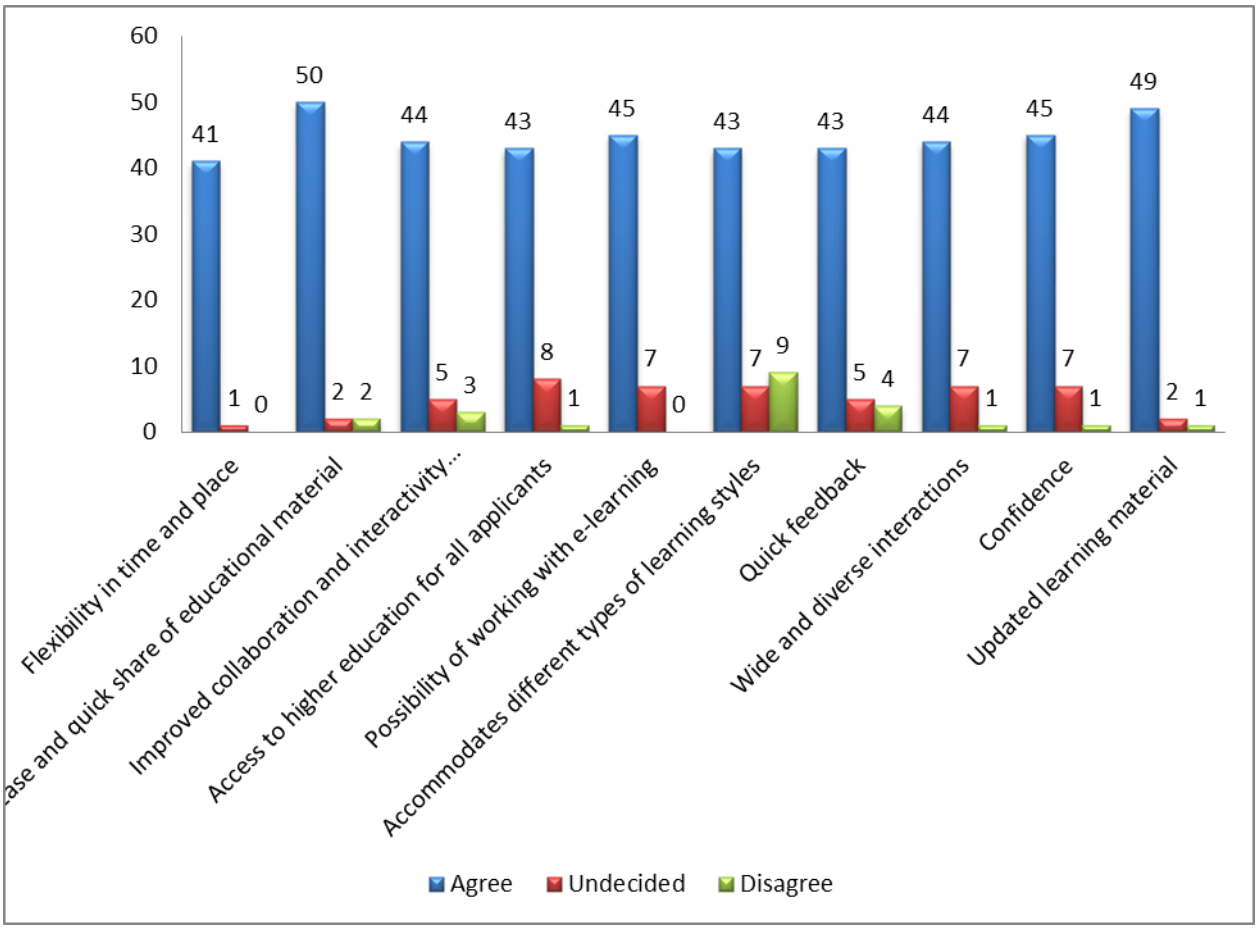

Figure 4. 4: **Summary of benefits of e-learning**

In terms of "improve collaboration and interactivity among students" the results showed that 44 students rated this factor as a positive one. Generally collaboration is a very important aspect in the modern days. The researcher's opinion is that collaboration is a relevant procedure for knowledge sharing. By the look of these results it gives hope that students accept collaboration and interacting with other fellows. Epic White Paper (2011) revealed that e-learning transforms the organisation through communication and networks which is a strong point of collaboration and interaction. Also collaboration occurs in the students' services by the use of blogs or wikis (University of Freiburg 2014).

The access to higher education for applicants' response rate was 43. These results show that students agree that e-learning is here to increase the opportunities to enrol in higher education institutions. Piccoli, Ahmad and Ives (2001) also affirm that e-learning enables access to higher education because it's not concerned about the number of applicants and geographic proximity

but it gives opportunities to many students. It is noted that e-learning benefits many people who are working to able them to enrol at the same time (Burgess & Rusell 2003). E-learning initiatives to give access to applicants will make a good impact on increasing the number of literacy citizens.

Figure 4.4 show that with regard to the results on "possibility of working with e-learning" the number of respondents was 45. This gives a clear indication that the majority of respondents were able to perform on the e-learning platform. There is no doubt that the platform used by students is user-friendly. Researchers such as Siemens (2006) and Chang (2008) describe the reliable and possible LMS as the one which has different tools which are embedded in a system to run and manage an e-learning course. The implication would be that not all e-learning platforms classified as "open source" because some may not able to embed other web 2.0 applications because of security measures.

With the variable "accommodates different types of learning style" the total number of positive responses was 43. These positive responses suggest that students have observed many initiatives which are in place to accommodate their different types of learning style. These findings are supported by many researchers who mentioned that e-learning offers new possibilities to integrate different types of learning content (Chiu & Wang 2008). Also Ely, Sitzmann and Falkiewicz (2009); Wangand Yen (2007) encourage that learning courses should be compatible with the students' preferred learning style. Considering all these facts from the findings and the literature, e-learning could create positive impacts on society especially to support students' physical challenges.

It is also noted from the results of the respondents in table 4.7 and figure 4.4, that there were a total of 43 positive responses about "quick feedback". It is well known that quick feedback is timely and relevant to any person. In the e-learning context, quick feedback creates a positive attitude to students and makes students more involved in activities such as discussion forums and social networks. Jan, Lu and Chou (2012) affirm that quick feedback in e-learning also enables students and lecturers to be more productive and more efficient. This may also result in good relationships between students and lecturers or students and other students.

The total number of positive responses about “wide and diverse interactions” is 44. These results show that the respondents are learning in an ODL context because they were aware that even if they are not in the institution there was interaction happening. It also shows that the respondents are aware that they are diverse in cultures which creates a good space in the online interaction platform in the learning process. These findings are supported by Koper, Giesbers, Van Rosmalen, Sloep, Van Bruggen, Tattersall, Vogten and Brouns (2005) as they mentioned that e-learning benefits many people from anywhere on the globe. Definitely there are differences in diverse interactions. It is noted by the researcher that it can be a challenge to work on the e-learning platform because of multicultural environments where others have values and cultures whose conventions are different from yours.

In order to rate the benefits of confidence there were 45 positive respondents. Working in the LMS requires the students to be confident. It is noted that some students have not developed the confidence in interacting with lectures in e-learning platforms. Some, even if they have an answer or a question, prefer to ask their mates outside the discussion forum. The finding shows that some people have little formal training on how to successfully interact with others in online discussion forums. Al-Busaidi and Al-Shibi (2012) affirm that the support from lecturers to students can increase confidence and motivation in LMS usage. Based on the findings and literature, e-learning can have a positive impact to create confidence to equip students with the relevant skills of learning in an e-learning context.

It is shown as a good thing to have updated learning material in an e-learning environment. A total number of 49 agreed that they prefer the updated learning material. It is recommended that the material could be in a suitable format before is loaded onto the LMS. It is also important to decide on the approach of presenting the content. Jamlan (2004) also opines the importance of updating material in e-learning because technological changes particularly web-based learning has resulted in new curriculum design and teaching strategies, therefore, the context has to be up to a proper standard. The benefit of having updated learning material is that it maintains the quality of the course which is internationally recognised.

4.6 ATTITUDE OF STUDENTS TOWARDS MYUNISA

The objective of this study was to determine the attitude of students with regards to the use of the internet as part of e-learning and how their interactions with computers affect their attitude towards e-learning. The researcher sought to determine students' attitudes as Piccoli, Ahmad and Ives (2001) also revealed that various researches have indicated that students' attitude toward ICT is an important factor in e-learning fulfilment. It was necessary to investigate this aspect, because people's attitudes may impact the way they use e-learning. All the respondents were asked to rate their attitudes by choosing one of the following options: strongly agree, agree, undecided, disagree and strongly disagree.

Table 4. 8: **The students' attitude towards using e-learning (N=52)**

The results shown in table 4.8 are summarised in figure 4.5. The summary in figure 4.5 is simply indicating the results about "agree" and "disagree". In table 4.8 the results for "strongly agree" and "agree" were combined. For example, "strongly agree" + "agree" = "**agree**" and "disagree" + "strongly disagree = "**disagree**". Undecided was left as is.

Variables	**Strongly agree**	**Agree**	**Total %**	**Undecided**	**Disagree**	**Strongly disagree**	**Total**
I would like to communicate with all subject lecturers via the internet	18 (38%)	23 (44%)	**82%**	7 (13%)	4 (8%)	-	**8%**
I keep in touch with my classmates via the internet	12 (23%)	27 (52%)	**75%**	8 (15%)	4 (8%)	1 (2%)	**10%**
I benefit from communicating with my lecturer online	11 (21%)	26 (50%)	**71%**	10 (19%)	5 (10)	-	**10%**
The internet should **not** be used	1 (2%)	1 (2%)	**4%**	4 (8%)	11 (21%)	35 (67%)	**88%**
It is important for people to know how to use the internet	39 (75%)	12 (23%)	**98%**	1 (2%)	-	-	**0%**
I am afraid of the internet	1 (2%)	1 (2%)	**2%**	1 (2%)	14 (27%)	35 (67%)	**94%**
Students should **not** be allowed to communicate with the lecturers online	-	1 (2%)	**2%**	1 (2%)	10 (19%)	40 (77%)	**96%**
Computer literacy should start at the first-year level	39(75%)	10 (19%)	**94%**	2 (4%)	1 (2%)	-	**2%**

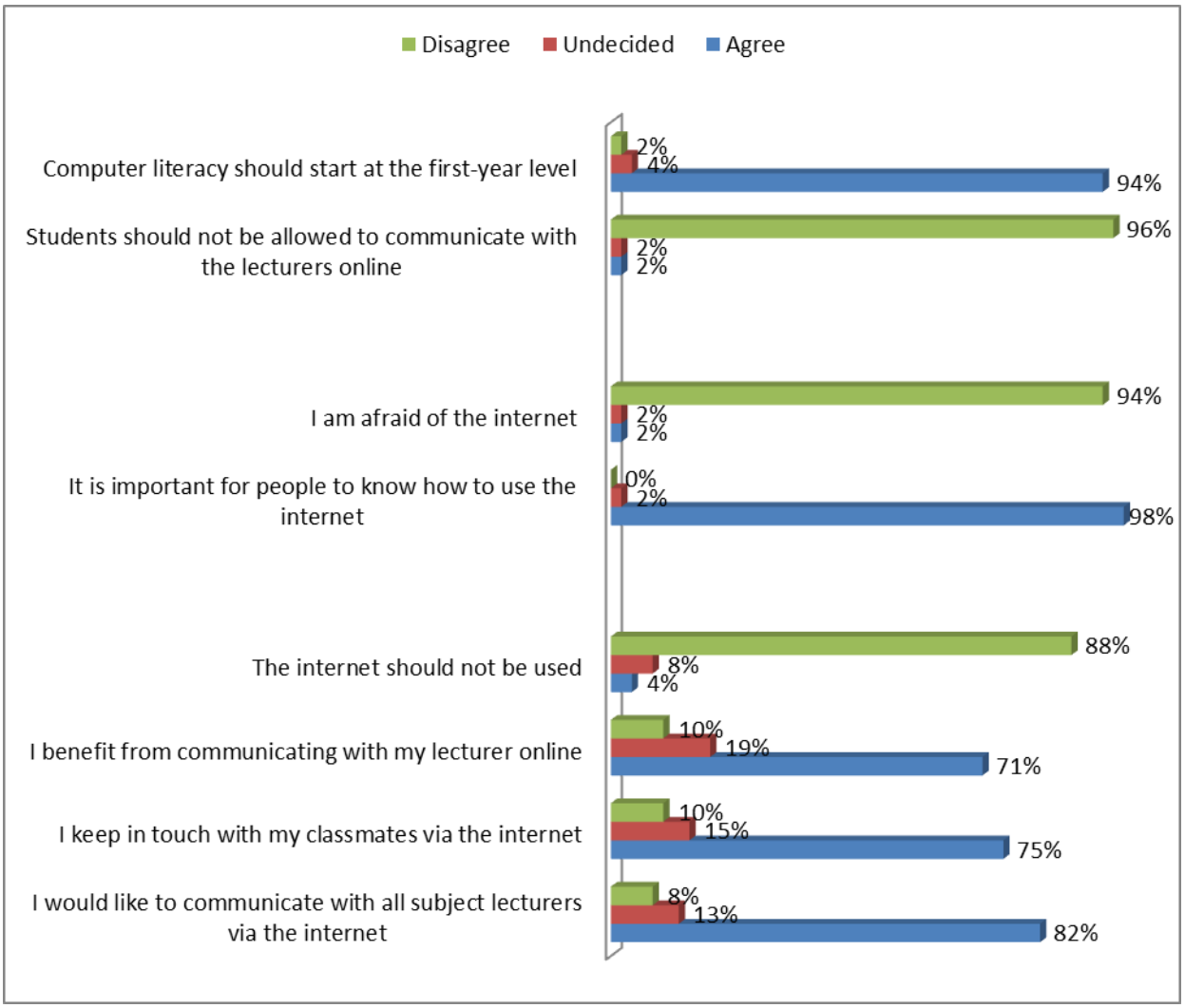

Figure 4. 5: Summary of students' attitude towards using e-learning (N=52)

In the table 4.8 and figure 4.5 above, there are eight variables to gauge the utilisation of the internet as part of e-learning. The first variable looked at communication with all the subject lecturers via the internet. The findings show that 41 (82%) of the respondents agreed, 7 (13%) were undecided and 4 (8%) disagreed. On the second variable, 29 (75%) of the respondents agreed that they keep in touch with their classmate via the internet, 8 (15%) were undecided and 5 (10%) totally disagreed with this statement. Regarding the third variable, which considered online communication with the lecturer, 37 (71%) of the respondents agreed, 10 (19%) were undecided and 5 (10%) disagreed. The fourth variable suggested that the internet should not be used and 46 (88%) of the respondents strongly disagreed with this, 4 (8%) were undecided, while 2 (4%) agreed that the internet should not be used at all. The importance for people to know how

to use the internet is the fifth variable and, in this case, 51 (98%) of the respondents agreed and only 1 (2%) was undecided. The sixth variable looked at whether respondents were afraid of the internet or not. The findings indicate that 50 (94%) disagreed with this statement, 1 (2%) was undecided and 2 (4%) agreed, that is, they are afraid of the internet. The seventh variable stated that students should not be allowed to communicate with the lecturers online and 50 (86%) of the respondents did not support this statement, whereas 1 (2%) was undecided and 1 (2%) agreed. The eighth and last variable suggests that computer literacy should start at the first-year level and 49 (94%) of the respondents agreed, 2 (4%) were undecided and 1 (2%) disagreed. A summary of the results is illustrated in table 4.8 above and figure 4.5.

The researcher sought to establish students' attitude towards using e-learning. Respondents were asked to indicate whether they would like to communicate with all their subject lecturers via the internet. The finding indicates that 82% of the respondents really liked this suggestion. These findings show that students prefer to communicate with their lecturers through any other type of virtual communication tool, because the internet requires the user to have the necessary device before any communication occurs. Research by Sun, Tsai, Finger, Chen and Yen (2008) indicate that students' attitudes refer to students' impression of participating in e-learning activities through computer and internet usage. Although students prefer online interaction with their lectures, this may be not easy if there are no necessary data bundles to be connected.

The respondents were also asked to indicate whether they keep in touch with their classmates via the internet and 75% agreed. These results indicate that students do interact with other students. It is noted that students in an e-learning context they prefer online interactions rather than face-to-face interactions. These results support the findings by Young and Norgard (2006), which hold that online learning saves time and enables students to study for longer hours than they would if they were taking a face-to-face course. Tomkin (2010), however, refute this, stating that the anonymity associated with the online environment makes it easier for students to withdraw, participate minimally or completely disappear from the course. 15% of the respondents in this study were undecided and 10% strongly agreed, but these were considered as not significant.

The respondents were also asked to indicate whether they benefited from communicating with their lectures online and 71% agreed, 19% were undecided and 10% disagreed. The findings show that it is of great benefit to students to have access to the lecturer through online interaction. Having the lecturer available online, helps to create confidence and the students feel that they are not alone. The literature found that lecturers should design activities, social interaction opportunities or problems-solving activities that allow students to practice the processes before applying them to the course content (Wagner, Hassanein & Head 2008).

Another variable stated that "the internet should not be used" and, surprisingly, 88% of the respondents disagreed with this statement. This is an indication that respondents are embracing the internet and incorporating it into their learning experience and social activities. These results refute the findings by *Internet World Stats* (2012), who found that the overall internet usage in African countries is 7%. This is a very low percentage. Furthermore, 8% of the respondents were undecided and 4% agreed that the internet must not be used. It is also interesting to see that there are quite a few people who are not embracing the existence of the internet. To the researcher this was noteworthy, as it might be that these respondents are situated in very remote areas where there is little or no internet connection.

The other variable looked at the importance of people knowing how to use the internet. In this regard, 98% of the respondents agreed with this statement. This is an indication of the importance of the internet to the students. Based on the findings, the researcher assumes that students are aware that the internet can be accessed 24 hours a day, and this is where you will find information on any topic and where you can say anything you want to. This is why almost all students agreed that people must have internet knowledge. Walker (2007) found that if you appreciate the richness of the World Wide Web and the internet and are able to benefit from it yourself, then you will be better able to provide services for them. The benefit of internet knowledge would be that it enables the information users to be more literate and have relevant skills to acquire when searching for information.

The next variable stated that students should not be allowed to communicate with the lecturers online. In this regard, 96% of the respondents disagreed with this negative statement. The

results indicate that the respondents value the interactions with their lecturers online. Research by the University of Freiburg (2014) does not agree with this negative statement, that is, students should not be allowed to communicate with lecturers online. In their findings they noted that it is necessary for students to communicate with lecturers, because e-learning uses modern and comprehensive learning material and experiments with alternative student services such as the use of new blogs or wikis and provides access all of these, thus the students need the internet skills. The last question asked whether computer literacy should start from the first-year level and the majority of the respondents strongly agreed with this statement, (94%). Based on the findings, it is clear that a computer literacy course should be offered to students at the first-year level.

Table 4. 9: **The impact of students' computer experience on e-learning attitudes (N=52)**

There is a relationship between table 4.9 and figure 4.6 since figure 4.6 is a summary of what is presented in table 4.9.

Variables	No experience	Little experience	Some experience	Total %
Experience with operating systems	1 (2%)	13 (25%)	38 (73%)	**98%**
Experience with the internet	3 (6%)	4 (8%)	44 (86%)	**94%**
Experience with online library databases	2 (4%)	16 (31%)	34 (65%)	**96%**
Experience with e-learning	3 (6%)	11 (21%)	38 (73%)	**94%**
Perceived self-efficacy of using e-learning	13 (25%)	1 (2%)	38 (73%)	**75%**
Perceived enjoyment of using e-learning	3 (6%)	10 (19%)	39 (75%)	**94%**
Perceived usefulness of using e-learning	2 (4%)	11 (21%)	39 (75%)	**96%**
Behavioural intention of using e-learning	2 (4%)	16 (31%)	34 (65%)	**96%**

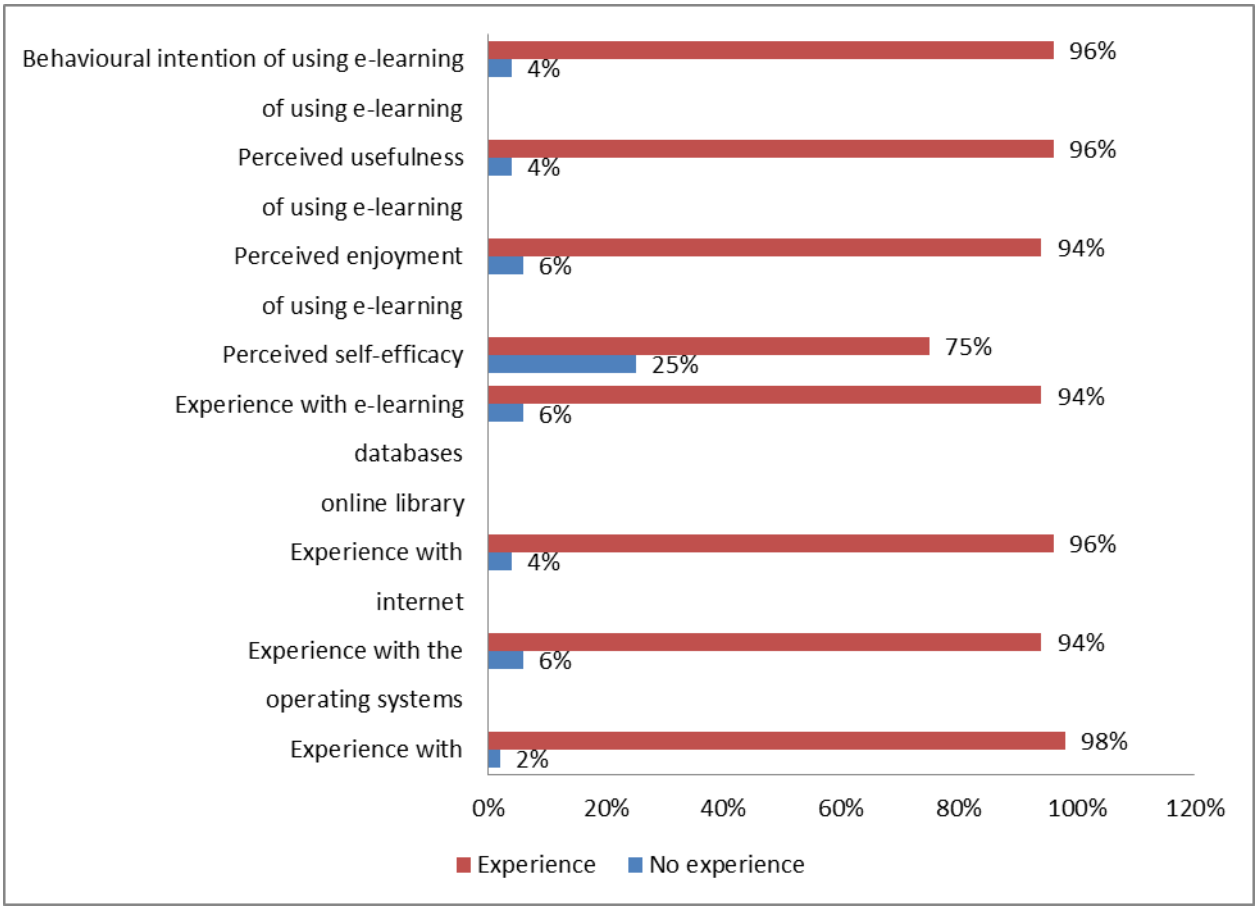

Figure 4. 6 Summary of the impact of students' computer experience on e-learning attitudes (N=52)

The researcher sought to determine the impact of computer use on e-learning attitudes. To determine this, three options were given: no experience, little experience and some experience. The first variable looked at experience with the operating system. The results reveal that 38 (73%) of the respondents had some experience, 13 (25%) had little experience and 1 (2%) had no experience. The second variable focused on experience with the internet. The results revealed that 44 (86%) of the respondents had experience with the internet, 13 (25%) had little experience and 1 (2%) had no experience. The third variables focused on experience with library databases. The results shows that 34 (65%) of the respondents had some experience, 16 (31%) had little experience and 2 (4%) had no experience. The fourth variable concentrated on experiences with e-learning. The results shows that 38 (73%) of the respondents had some experience, 11 (21%) had little experience and 2 (4%) had no experience. The fifth variable was about perceived self-

efficacy of using e-learning. The results show that 38 (73%) of the respondents had some experience, 1 (2%) had little experience and 13 (25%) had no experience. The sixth variable looked at perceived enjoyment in using e-learning. The results indicated 39 (75%) of the respondents had some experience, 10 (19%) had little experience and 3 (6%) had no experience. The seventh variable looked at the perceived usefulness of using e-learning. The results show that 39 (75%) of the respondents had some experience, 11 (21%) had little experience and 2 (4%) had no experience. The last variable looked at the behavioural intention of using e-learning. The results show that 34 (65%) of the respondents had some experience, 16 (31%) had little experience and 2 (4%) had no experience. The findings are summarised in table 4.9 and figure 4.6.

It was very important to find out students' experience with computers, because it could influence their attitude towards e-learning. In table 4.9 and figure 4.6, the little and some experience columns were combined to give one answer which is experience. Respondents had to indicate if they have experience with operating systems. The results indicate that 98% of the respondents had experience with computers. Based on the results, students are not battling when interacting with platform because they have knowledge of the operating system which is the basic method to master e-learning. In a study by Piccoli, Ahmad and Ives (2001) it was found that when students are not afraid of using computers, they have a more positive attitude toward ICTs and this will result in a more satisfactory and effective experience for students in an e-learning environment. The operating system (OS) is a graphic user interface which means it is easy to use it because all steps and instructions are written in simple English and icons are there to represent the specific programmes. Interaction with OS may impact users positively because of its enabling function to perform tasks.

Respondents also showed that they are experienced with the internet with 94% indicating that they have used this platform. Hong, Ridzuan and Keuk (2003) indicated that the fundamental outcome measure of students' computer use is their attitude toward using any kind of technology. This is the implication to show that many students are able to use the internet and have a positive attitude.

Regarding respondents' experience with online library databases, 96% responded very positively. These findings also reveal the advantage that the respondents have as students in the field of Library and Information Science because they are encouraged to be familiar with processes of how one can acquire knowledge from online databases. About 94% of the respondents are experienced with e-learning. These results are confirmation of the fact that these students are enrolled at an ODeL institution and are familiar with the environment.

Based on the self-efficacy of using e-learning table 4.9 and figure 4.6, show that 75% of respondents have experience of e-learning. Generally the success of e-learning may require users or students to be equipped with a certain degree of computer self-efficacy and affect for LMS. Rockwell and Scott (1997) suggest that computer anxiety has to do with a general negative attitude towards IT systems and their functions. Based on these findings and the literature, the success of e-learning programmes may influence the satisfaction level of online students and their interactions to continue using e-learning platforms.

The attitudes on “perceived enjoyment of using e-learning” shows that 94% of respondents are experienced. It is clear that students are enjoying interaction with e-learning as the majority were positive. Sun, Tsai, Finger, Chen and Yen (2008) suggest that application software tools with user-friendly characteristics are very important in e-learning contexts. Based on this study’s findings which are in line with the literature, the majority of students perceived enjoyment in using the e-learning platform. If there is enjoyment in using e-learning, definitely the pass rates and through-put rates will increase in learning institutions. The perceived usefulness, which was indicated by 96% of responses, is also in line with enjoyment of using e-learning because if LMS is enjoyable, that is a clear indication that it is user-friendly and that will mean usefulness as well.

96% of respondents indicated that they have the behavioural intention of using e-learning. Based on these findings, students have a positive behaviour toward e-learning. This is suggested by Virtual Studie.Net (2005) which affirms that online students can contribute to successful learning by being disciplined and motivated. This may create a positive impact on e-learning successes.

4.7 STUDENTS' PERCEPTIONS OF E-LEARNING

This section of the questionnaire was aimed at obtaining information about the students' perceptions about e-learning. The major headings were: self-efficacy, enjoyment, usefulness, intention and behavioural intention of using e-learning. They were asked to indicate, on a scale ranging from "strongly agree" to "strongly disagree", the purpose for which they used it and their perceptions of it. The researcher looked at students' perceptions because it is necessary when designing, developing and delivering online education courses to be concerned about students' needs and perceptions (Sahin & Shelly 2008).

Table 4. 10: **The self-efficacy of using e-learning resources (N=52)**

The results showed in table 4.10 are summarised in figure 4.7. The summary in figure 4.7 is simple indicating the results about "agree" and "disagree". In table 4.10 the results for "strongly agree" and "agree" were combined. For example, "strongly agree" + "agree" = "**agree**" and "disagree" + "strongly disagree" = "**disagree**". Undecided was left as is.

Variables	Strongly agree	Agree	Total %	Undecided	Disagree	Strongly disagree	Total %
I feel confident using the e-learning system (myUnisa).	28 (54%)	22 (42%)	**96%**	1 (2%)	-	1 (1%)	**4%**
I feel confident operating e-learning functions.	22 (42%)	27 (52%)	**94%**	3 (6%)	-	-	**6%**
I feel confident using online learning content.	25 (48%)	24 (46%)	**94%**	2 (4%)	-	1 (2%)	**6%**

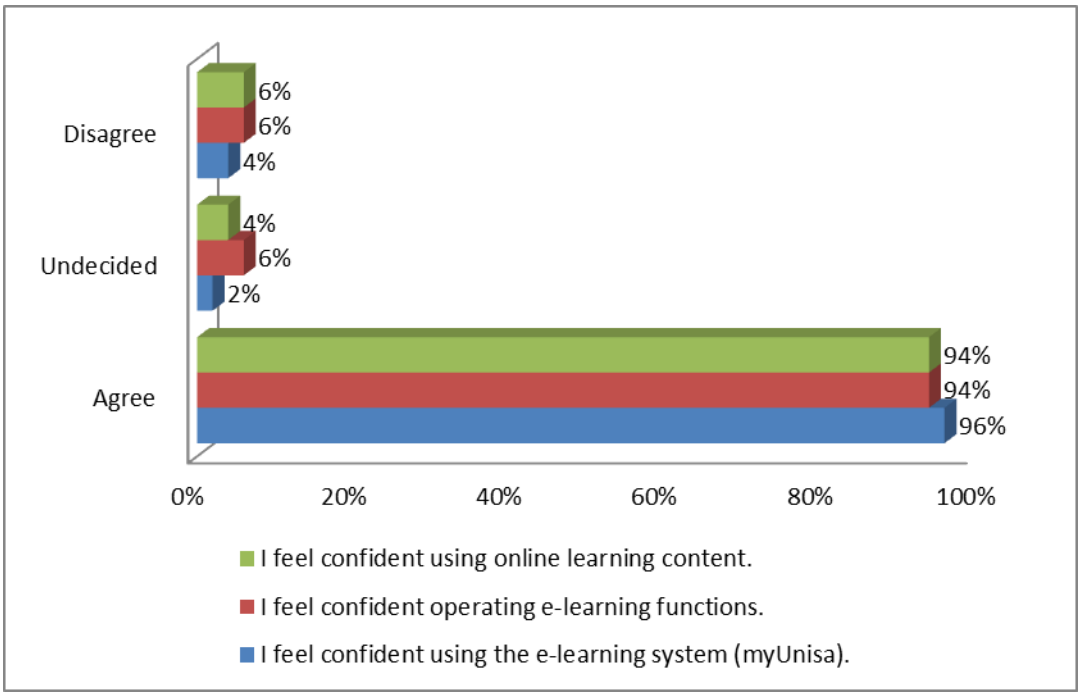

Figure 4. 7: Summary of self-efficacy in using e-learning resources

The respondents had to indicate their perceptions about and their ability to use e-learning. The results show that 50 (96%) of the respondents agreed that they felt confident about using e-learning, 1 (2%) was undecided and 1 (2%) disagreed. Furthermore, 49 (94%) of the respondents felt confident about operating the e-learning functions and 3 (6%) were undecided. In the last variable, 49 (94%) also indicated that they felt confident about using online learning content, 2 (4%) were undecided and 1 (2%) totally disagreed.

The findings of the study represented in table 4.10 and figure 4.7 show that 96% of the respondents felt confident about using the e-learning system (myUnisa); this would imply that students are positive about e-learning. These findings also reveal that the majority of students are computer literate because you cannot engage in e-learning if you are not computer literate. The findings of this study are in line with that of Ituma (2011), who found that the highest percentage of students who had very positive perceptions of e-learning was those who used e-learning frequently. Furthermore, Armstrong (2011), in one of his major findings about students' perceptions of e-learning, suggested that course organisation is the key to student learning and success.

Another 94% responded that they felt confident about operating the e-learning functions. Based on these findings, it can be inferred that the students find the e-learning platform user-friendly. These findings are in line with findings of Alexelrod (2008), who found that students' perceptions are what constitutes effective instruction that transcend time and mode of delivery. The last findings indicate that 94% of the respondents felt confident about using the online learning content. This might be an indication that the online content, which is the material available on myUnisa, is of a good standard. NASSP (2001) found that when the quality of the e-learning platforms are considered, the following has to be taken into account: instructional design, content course delivery and the impact of learning.

Table 4. 11: **The enjoyment of using e-learning resources (N=52)**

The results showed in table 4.11 are summarised in figure 4.8. The summary in figure 4.8 is simply indicating the results about "agree" and "disagree". In table 4.11 the results for "strongly agree" and "agree" were combined. For example, "strongly agree" + "agree" = "**agree**" and "disagree" + "strongly disagree" = "**disagree**", Undecided was left as is.

Variables	Strongly agree	Agree	Total %	Undecided	Disagree	Strongly disagree	Total %
I enjoy using myUnisa as an assisted learning tool	27 (52%)	25 (48%)	**100%**	-	-	-	**0%**
I enjoy using the e-learning functions	20 (38%)	26 (50%)	**88%**	5 (10%)	1 (2%)	-	**2%**
I am satisfied with the learning content	19 (37%)	27 (52%)	**89%**	6 (11%)	-	-	**0%**
I enjoy multimedia instructions	15 (29%)	29 (56%)	**85%**	7 (13)	1 (2%)	-	**2%**

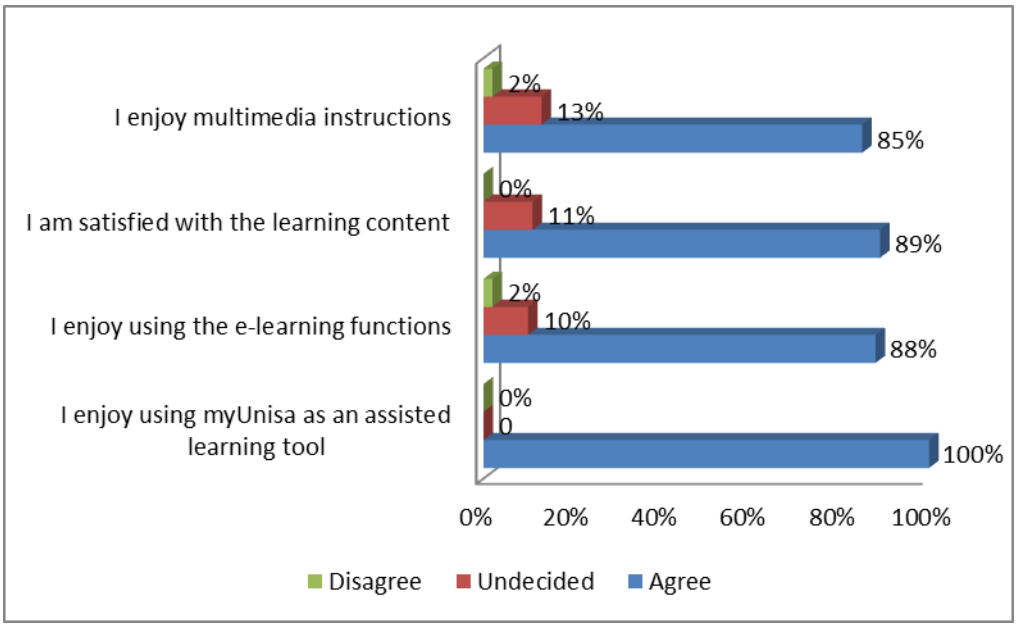

Figure 4. 8: Summary of enjoyment of using e-learning resources (N=52)

In terms of using myUnisa as a tool for computer-assisted learning, 52 (100%) of the respondents indicated that they enjoyed using the learning tools, 46 (88%) enjoyed using the e-learning functions, 5 (10%) were undecided and 1 (2%) totally disagreed with the statement. A total of 46 (89%) respondents indicated that they are satisfied with the e-learning content, but 6 (11%) were undecided. In the last variable, 44 (85%) of the respondents enjoyed the multimedia functions, 7 (13%) were undecided and 1 (2%) disagreed. The illustration of findings is shown in table 4.11 and figure 4.8.

The researcher sought to determine the students' perceptions about using e-learning. The findings of the study show that 100% of the respondents used myUnisa as a computer-assisted learning tool. This is a clear indication that e-learning programmes at UNISA contain diagnostic tools to comply with personalised version programmes such as the one of Quin (2012). Based on these findings, all students perceive myUnisa as a well-designed LMS. In the study, 88% of the respondents indicated that they enjoyed using the e-learning functions. These results indicate that the myUnisa user interface is effective; it is elegant and makes the whole experience of using the site more productive and enjoyable. Furthermore, 88% of the respondents indicated that they are satisfied with the learning content. This might be an indication that the lecturers provided students with clear content. Armstrong (2011) indicated that a student's approach to learning appeared to be shaped by both the structures of the learning environment and the nature of

assessment used in the online environment. This statement serves as a clear indication that it is important that students are satisfied with learning content. In the last variable indicated in table 4.11, respondents had to rate their level of enjoyment of the multimedia instructions and 85% of them responded positively. These findings showed that students clearly understood the graphic user interface of the e-learning platform. Other supporting findings from literature by Meyers (2008) are as follows: to present information in the ways that help people to better understand it and including how to use words and pictures more effectively, this show that the multimedia instructions are taken care of in myUnisa.

Table 4. 12: **The usefulness of using e-learning resources (N=52)**

The results showed in table 4.12 are summarised in figure 4.9. The summary in figure 4.9 is simple indicating the results about "agree" and "disagree". In table 4.12 the results for "strongly agree" and "agree" were combined. For example, "strongly agree" + "agree" = "**agree**" and "disagree" + "strongly disagree" = "**disagree**". Undecided was left as is.

Variables	Strongly agree	Agree	Total %	Undecided	Disagree	Strongly disagree	Total %
I believe the e-learning content is informative	16 (31%)	35 (67%)	**98%**	1 (2%)	-	-	**0%**
I believe that e-learning is a useful learning tool	18 (35%)	33 (63%)	**98%**	1 (2%)	-	-	**0%**
I believe the e-learning content is useful	20 (38%)	31 (60%)	**98%**	1 (2%)	-	-	**0%**

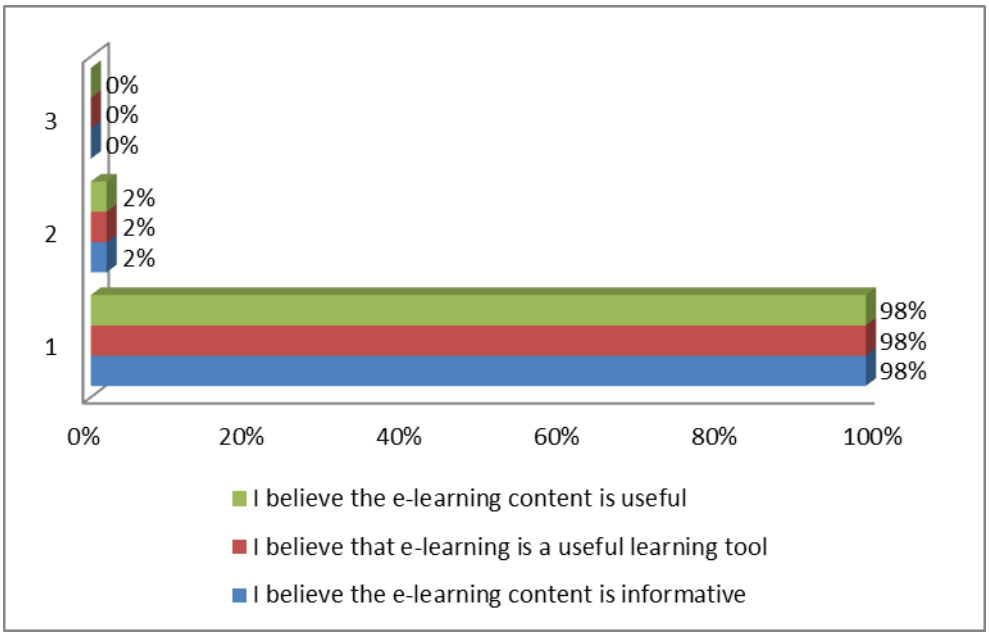

Figure 4. 9: Summary of The usefulness of using e-learning resources (N=52)

The researcher sought to determine the usefulness of the e-learning resources. It was found that 51 (98%) of the respondents believed that the e-learning content is informative, whereas 1 (2%) was undecided. Another 51 (98%) of the respondents believed that e-learning is a useful learning tool, while 1 (2%) was left undecided. In the last variable, 51 (98%) of the respondents also agreed that the e-learning content is useful, while 1 (2%) was undecided.

The findings indicated in table 4.12 and figure 4.9 show that 98% of respondents were very positive about the e-learning content and reported that content was informative. This might be an indication that the students may be applying what they have learnt in the real work environment. NASSP (2001) mentions that for the content to be informative, the course has to be monitored and this can be accomplished through regular visits to the site by staff members in order to update material, to participate in the online discussion forums and by providing critical feedback. The other 98% of the respondents noted that e-learning is a very useful learning tool. These results show that the respondents are keen to incorporate e-learning as part of their learning experience. Another 98% of the respondents indicated that they believed that the e-learning content is useful. These findings also showed that the good online tools or services that are used for personal or professional learning are the most appropriate for producing effective content for e-learning.

Table 4. 13: **The students' intention to use the e-learning resources (N=52)**

The results showed in table 4.13 are summarised in figure 4.10. The summary in figure 4.10 is simply indicating the results about "agree" and "disagree". In table 4.13 the results for "strongly agree" and "agree" were combined. For example, "strongly agree" + "agree" = "**agree**" and "disagree" + "strongly disagree" = "**disagree**". "Undecided" was left as is.

Variables	Strongly agree	Agree	Total %	Undecided	Disagree	Strongly disagree	Total %
I intend to use e-learning to assist with my learning	27 (52%)	23 (44%)	**96%**	2 (4%)	-	-	**0%**
I intend to use the e-learning content to assist with my learning	25 (48%)	24 (46%)	**94%**	3 (6%)	-	-	**0%**
I intend to use e-learning as an autonomous (free) learning tool	22 (42%)	23 (44%)	**86%**	6 (12%)	-	1 (2%)	**2%**

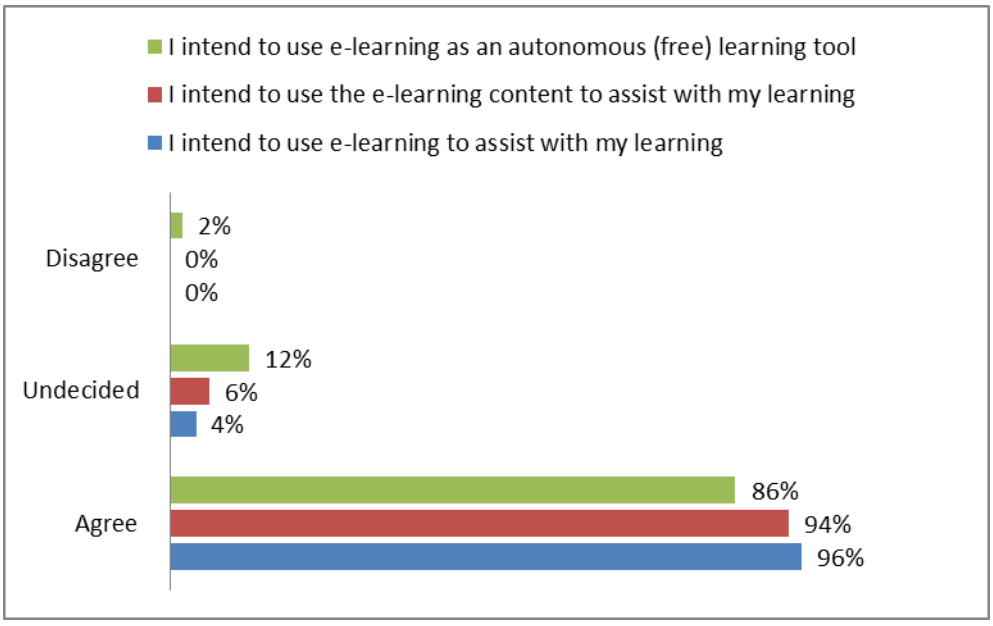

Figure 4. 10: Summary of students' intention for using the e-learning resources (N=52)

Regarding the first option, 40 (96%) of the respondents agreed that they intended to use e-learning as a tool to assist them in their studies, while 2 (4%) were undecided. A total of 45 (86%) of the respondents intended to use the e-learning content to assist them with their learning, whereas 3 (6%) were undecided. With regard to the last variable, that is, the use of e-learning as an autonomous learning tool, 45 (86%) of the respondents agreed and 6 (12%) were undecided, whereas 1 (2%) strongly disagreed with this statement. The illustration of findings is shown in table 4.13 and figure 4.10.

The study wanted to establish the behavioural intention of students with regard to using e-learning tools. Based on the findings shown in table 4.15, 96% of the respondents indicated that they intended to use e-learning to assist with their learning, 94% indicated that they intended to use the e-learning content to assist with their learning, while 86% indicated that they intended to use e-learning as a free learning tool. The overall findings indicate that the behavioural intention of the respondents is to use e-learning, thus students' interaction with e-learning is continuing and it is positive. The students' perceptions may have a positive impact on the influence of interactive learning and students' satisfaction in an e-learning context.

4.8 USABILITY OF E-LEARNING

This section of the questionnaire was aimed at obtaining information about the usability of e-learning among Information Science students. Generally, usability is part of the e-learning course design and characterises how simple it is for students to use the e-learning course. Sun, Tsai, Finger, Chen and Yen (2008) noted that e-learning application tools must be user-friendly. To determine their usability, the researcher formulated questions to gain more information about the following: usability of myUnisa as an e-learning platform; the reliability of myUnisa as an e-learning platform; the tools most frequently used for e-learning; support available for students; use of technology to have access to e-learning; the time spent on the internet and the time spent on myUnisa and the environment where students access study resources.

4.8.1 Usability of myUnisa as an e-learning platform

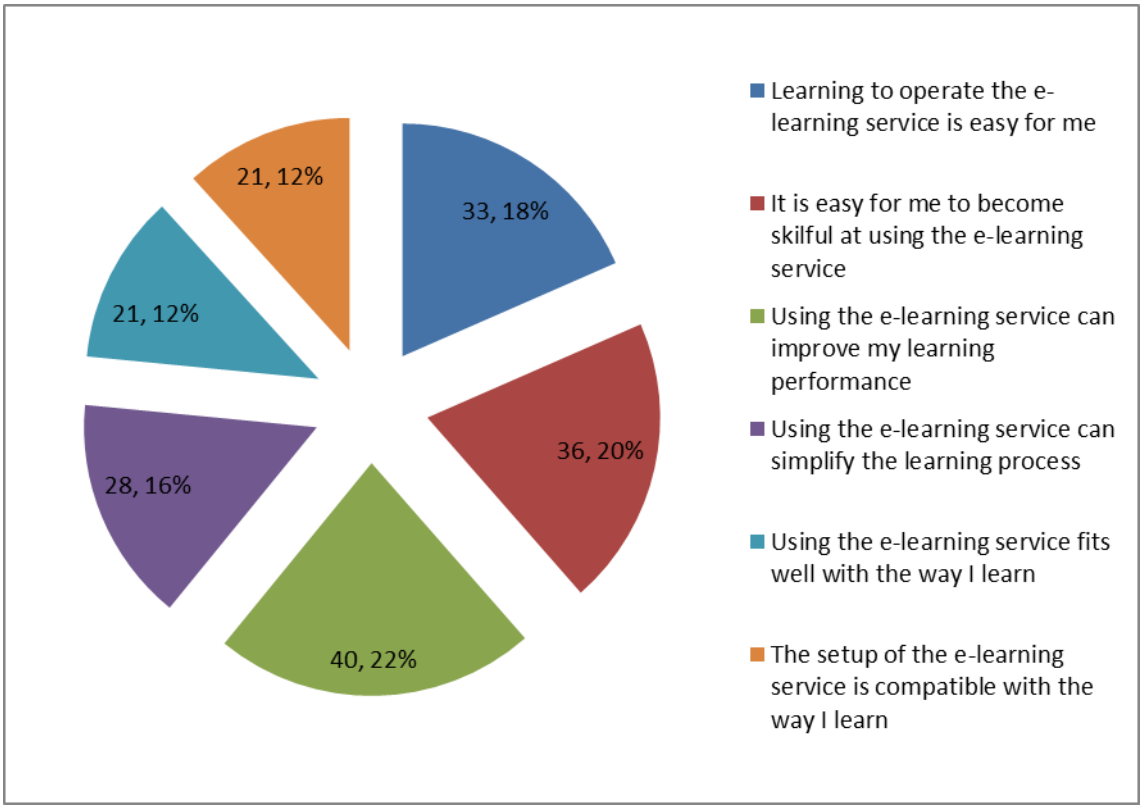

Figure 4. 11: Students' perceptions about the usability of myUnisa as an e-learning platform (N=52)

The respondents were required to indicate all appropriate options about the usability of e-learning. The respondents indicated the following: "learning to operate the e-learning service is easy for me", 33 (18%); "it is easy for me to become skilful in using the e-learning service", 36 (20%); "using the e-learning service can improve my learning performance", 40 (22%); "using the e-learning service can simplify the learning process", 28(16%); "using the e-learning services fits well with the way I learn", 21 (12%), and "the setup of e-learning service is compatible with the way I learn", 21 (12%). The findings are summarised in figure 4.11.

Based on these findings, the highest percentage of respondents (22%) indicated that using the e-learning platform could improve their learning performance. These findings show that UNISA has an e-learning platform which is beneficiary to students. This links to the findings by Oliva and Torres (2008), who concluded that e-learning can benefit many students because it is accessible 24 hours a day and can be accessed from anywhere and at any time from across the

globe. This confirms that learning in an e-learning environment is not as limiting as it would be at a contact university, where students have a limited number of hours a day. Significantly, the results indicate that, through interaction with the various e-learning tools, students are also learning new skills.

In this regard, 20% indicated that it is easy to become skilful when using the e-learning services. Based on the findings, it seems most of the respondents' support the term "practice makes perfect", in other words, they learnt that every time they used the e-learning platform they discovered or gained new skills. These results contradict that of Leary and Berger (2007), who noted that learning a new application software to convey a concept more effectively or in situations where students have to express their learning efforts via text, audio or video may be challenging for students. Furthermore, 18% of the respondents indicated that learning to operate the e-learning services has been easy for them. This result shows that students are comfortable with the different e-learning services offered. Dalsgaard (2005) has indicated that the tools used to support e-learning cover a wide range of different applications, which include discussion forums, chats, file sharing, wikis and web-blogs. These tools are very useful for many students. A further 16% of the respondents indicated that using e-learning services can simplify their learning process. This result aligns with the findings by Armstrong (2011), who mentions that course organisation is central to student and learning success. Additionally, the 12% of the respondents indicated the e-learning services fit in well with the way they learn and another 12% also mentioned that the setup of the e-learning service is compatible with the way they learn. The overall findings summarised in figure 4.4 show the positive response of students to the different e-learning tools. This is in line with the findings by Daugherty and Funke (1998), which show that students found web-based learning more convenient than face-to-face instruction, as it offered more flexibility and allowed for a certain degree of self-paced study.

4.8.2 Reliability of myUnisa as an e-learning platform

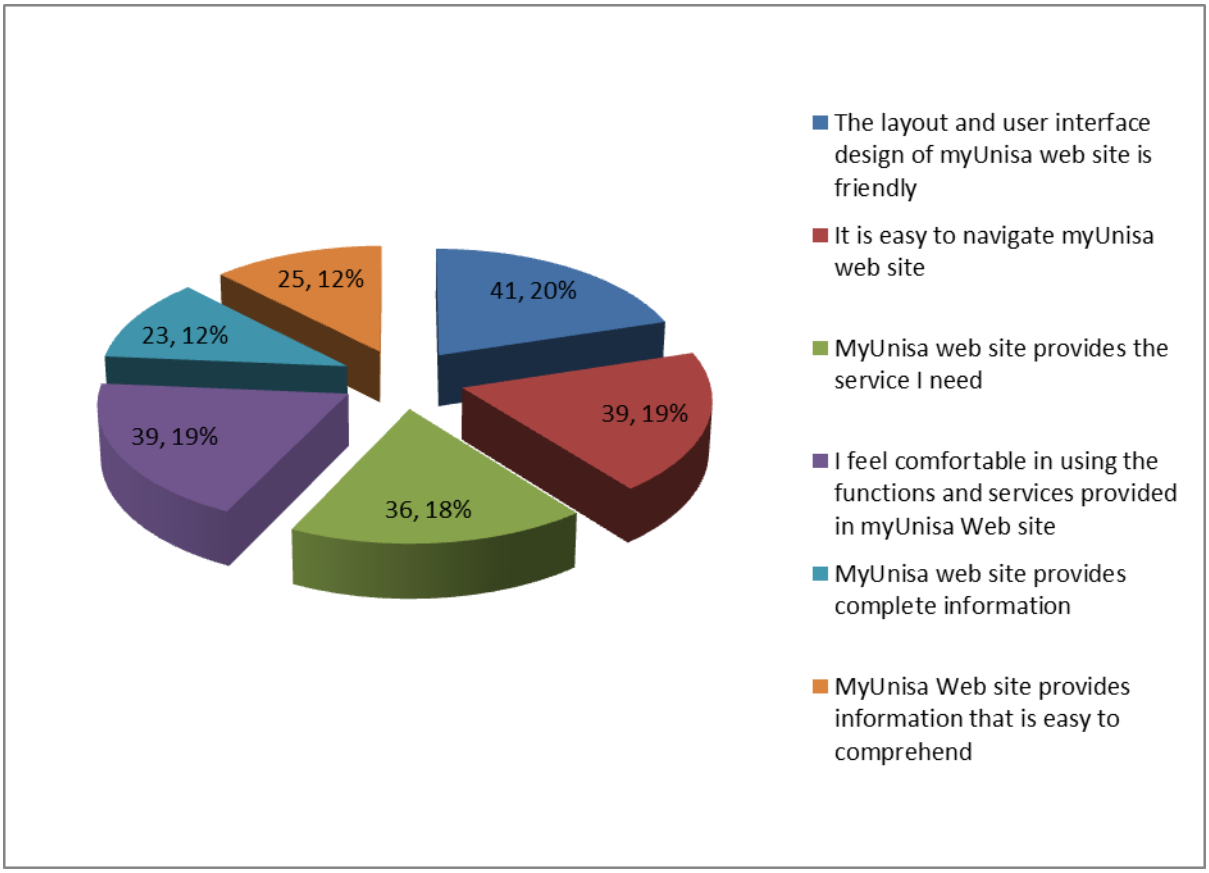

Figure 4. 12: **The students' perception of the reliability of myUnisa as an e-learning platform (N=52)**

The respondents were requested to select an appropriate statement about the reliability of myUnisa as an e-learning platform. Figure 4.5 shows that 41 (20%) of the respondents revealed that the user interface (myUnisa) is user-friendly, 39 (19%) reported that it is easy to navigate the myUnisa website, 39 (19%) felt comfortable using the functions and its services, 36 (18%) felt that myUnisa provides services needed by students, 25 (12%) felt that the myUnisa website provides extensive information, which is easy to comprehend and 23 (12%) felt that the myUnisa website provides complete information.

Figure 4.5 gives an overview of the findings with regard to the views of students about the reliability of myUnisa as a e-learning portal. The first portion of the graph indicates that 20% of respondents found the layout and user interface design of myUnisa website very user-friendly. It is so easy to assume that information in myUnisa is organised in such a way that the graphics are

clear, readable, usable and learnable as suggested by Gutierrez (2014). The great impact would be that this kind of e-learning system may reduce frustrations to students.

Another 19% of the respondents indicated that it is so easy to navigate the myUnisa website. These findings imply that a clear graphic user-interface is an important consideration in the design of an e-learning course, because that makes it easier for students and lecturers to navigate. An e-learning course should meet the objectives of the content and by so doing there is a need to develop a clear and student-friendly course. Furthermore, Pappas (2015) suggests that e-learning course navigation needs to be effective in order for students to be successfully in absorbing the information without getting confused or lost. Therefore, the easy navigation might have a good impact to empower students with an easy-to-use, web-based curriculum that optimises students' success and improves completion rates.

Also, another 19% of the respondents indicated that they felt comfortable using the functions and services provided on the myUnisa website. A further 18% of the respondents indicated that the myUnisa website provides the services they need. Based on these results, it can be concluded that myUnisa is a reliable e-learning platform. MyUnisa has been carefully designed to provide the most comprehensive, interactive and flexible learning experience for students. Of the respondents, 12% agreed that the myUnisa website provided complete information, while another 12% indicated that the myUnisa website provides information that is easy to comprehend.

Table 4. 14: **The services students frequently use for e-learning (N=52)**

E-learning tools	Always	Occasionally	Seldom	Never
Video conferencing	3 (6%)	4 (8%)	10 (19%)	35 (67%)
Electronic mail	37 (71%)	11 (21%)	3 (6%)	1 (2%)
Search engines	36 (72%)	10 (20%)	3 (6%)	1 (2%)
Audio/video tapes	3 (6%)	11 (21%)	11 (21%)	27 (52%)
Virtual classroom	4 (8%)	9 (17%)	6 (12%)	33 (63%)
CD-ROM	4 (8%)	12 (23%)	16 (31%)	20 (38%)
WebCT	4 (8%)	8 (15%)	13 (25%)	27 (52%)
Social networks	26 (50%)	12 (23%)	6 (12%)	8 (15%)

This question required respondents to indicate how often they used e-learning resources. A list of various e-learning resources was provided and the respondents had to indicate the frequency with which they used them. The frequency options ranged from "always" to "never". Search engines were the most used resource, with 36 (72%) of the respondents indicating that they always used this, 10 (20%) indicated that they used search engines occasionally whereas 3 (6%) used them seldom and 1 person (2%) indicated that he/she never used search engines. Second, was electronic mail, with 37 (71%) of the respondents indicating that they always used this resource, 11 (21%) used it occasionally, 3 (6%) seldom and 1 (2%) never used electronic mail. The social networks were third, with 26 (50%) of the respondents reporting that they always used this resource; 12 (23%) used it occasionally; 6 (12%) seldom used it and 8 (15%) never used social networks.

Video conferencing was the least used resource, with 35 (67%) of the respondents indicating that they never used it, those who seldom used it was 10 (19%), occasionally 4 (8%) and the lowest portion who always use it was 3 (6%). The second was virtual classroom with 33 (63%) of the respondents indicating that they never used this, 6 (12%) used it seldom, occasionally 9 (17%) and 4 (8%) indicated that they always used virtual classroom. On the third never used are:

audio/video tapes and WebCT. The audio/video tapes were analysed as follow: 27 (52%) never used them, 11 (21%) seldom used them, 11 (21%) occasionally used and 3 (6%) always used them. For WeCT 27 (52%) never used, 13 (25%) seldom used, 8 (15%) occasionally used and 4 (8%) always used WebCT. The CD-ROM was the least used resource, with 20 (38%) of the respondents indicating that they never used this, 16 (31%) seldom used it, 12 (23%) occasionally used it and 4 (8%) always use it. The findings are summarised in table 4.14.

Based on these findings, communication through electronic mail has been identified as one of the main tools students used. There is a growing support for the exclusive use of e-mail for official and personal correspondence in the ODL environment. The findings show that most students would support this, with 37 (71%) of them mentioning that they always accessed their mail through e-mail. The popularity of e-mail services, as indicated above, can be ascribed to the fact that it is effective and quick and that this meets the students' general communication needs. The internet is generally considered a meeting place where students are able to exchange academic and non-academic information; also, e-mails make it easier for users to share different kinds of information.

As was anticipated, the search engine use proved to be immensely popular. Most of the respondents 36 (72%) reported that they always used search engines or that they used them on a daily basis, while only 10 (20%) used them occasionally. This is possibly the easiest and fastest way for students to access resources for assignments, tuition and research. Literature by the University of Freiburg (2014) suggests that cooperation and collaboration in teaching and learning, across the institutions and regional borders, must promote exchanges with students through the use of online meetings and search engines. Also, Brophy and Bawden (2005) suggest that, as the web continues to grow exponentially, search engines that cater for the full-text searching of academic texts will most likely become more prevalent than other scholarly channels of information on the web. The findings reported by these authors (Brophy & Bawden 2005) repudiate the argument that searching tools have played a major role in changing the information setting by providing more rapid access to a greater volume of material.

The results suggest a moderately high use of social network resources by students. The results indicated that 26 (50%) of the respondents always use social network resources. By the look of the findings LMS can be embedded with the latest social network tools to provide the most collaborative and easy-to-use learning environment possible. This is in line with Berg's (2006) suggestion that students are encouraged in a friendly, social environment with lecturers affirming and recognising input and providing opportunities for group cohesiveness to develop. Based on the results, it is clear that students with access to the internet use social networking sites to discuss educational topics and to talk about their assignments. Social networking sites can be regarded as the best option for students to communicate or interact online.

In table 4.14, the use of WebCT, audio/video tapes, the virtual classroom, CD-ROM and video conferencing received a negative response, which is less than 10%, and these responses are, therefore, considered as not significant for this study as the researcher was concentrating on those that are always used.

Table 4. 15: **The amount of time students spend on the internet per week (N=52)**

Times	Frequency	Percentage (%)
0 hours per week.	1	2
1-3 hours per week.	10	19
4-6 hours per week.	8	15
7-9 hours per week.	4	8
10-12 hours per week.	8	15
13-15 hours per week.	3	6
16-18 hours per week.	4	8
More than 18 hours per week.	14	27
Total	**52**	**100**

The respondents were asked to indicate the amount of time they spend on the internet per week. The findings indicated that 14 (27%) of the respondent spend more than eighteen hours per week on the internet, 10 (19%) spend one to three hours, 8 (15%) spend four to six hours, 8 (15) spend ten to twelve hours, 4 (8%) spend sixteen to eighteen hours, 4 (8%) spend seven to nine hours, 3

(6%) spend thirteen to fifteen hours and 1 (2%) spends zero hours per week. A full summary of the findings is given in table 4.15.

Based on the findings the time is limited in everything and this extends to internet for usage. The findings suggest that the respondents can afford the cost associated with the use of the internet, because the majority, 14 (27%), spend more than eighteen hours per week using this service. It was believed that the time spent in the internet would be more limited because it is costly. Measuring the time used on the internet was intended to assist e-learning developers and policymakers in scheduling. The researcher also sought to determine whether students spend more or less time on the internet. This would also help to determine the students' attitude about internet use. For example, one can easily assume that a student who does not use the internet on a weekly basis has a negative attitude about the internet.

Table 4. 16 The amount of time students spend on myUnisa per week (N=52).

Times	Frequency	Percentage (%)
1-3 hours per week.	30	54
4-6 hours per week.	10	19
7-9 hours per week.	6	11
10-12 hours per week.	3	6
13-15 hours per week.	4	8
16-18 hours per week.	1	2
Total	**52**	**100**

The respondents were requested to indicate the number of hours they spend in myUnisa. The respondents indicated the following: one to three hours, 30 (54%); four to six hours, 10 (19%); seven to nine hours 6 (11%); ten to twelve hours, 3 (6%); thirteen to fifteen hours, 4 (8%); and sixteen to eighteen hours, 1 (2%). The results are summarised in table 4.16. Based on these findings and compared to table 4.15, the majority spend more than 18 hours per week, 14 (27%), which means the time spent by respondents on the internet is more than they spend in myUnisa. This implies that they do spend a lot of time on the internet, not only to study but also to engage in a lot of online activities. In table 4.16 the majority of respondents indicated that they spend

one to three hours per week, 30 (54%), on myUnisa. Based on these results, it is surprising to note that students, who are registered in an ODL context, spent only a few hours a week on the e-learning platform. The responsibilities and duties of tuition vary, with a lot of pressure stemming from deadlines and time management.

Table 4. 17: **The percentage of off campus support available/as experienced by students (N=52)**

Statement	Frequency	Percentage (%)
Yes	33	63
No	12	23
Not sure	7	14
Total	52	100

The majority of the students, 33 (63%), reported that they did get support, even off-campus support, whereas 12 (23%) responded negatively, which means that they did not get any support, and only 7 (14%) indicated that they were not sure. The findings illustrated in table 4.17, indicate that many students do not get the support that they are supposed to get. Dalsgaard's (2005) findings, with regard to e-learning support, was that people need to be supported because e-learning covers a wide range of different applications, which includes, among others, discussion forums, chats and file sharing. In general, people do need support, especially with application software and any other tools which are embedded in e-learning platforms. If students do not get the support they want, that may lead to an increase in failure rates and a high number of dropouts caused by technical challenges. The institution should make sure that all students are supported as and when they need support.

Table 4. 18: **Using technology to have access to e-learning (N=52)**

Statement	Frequency	Percentage (%)
Very effective	47	90
Not effective	3	6
Undecided	2	4
Total	**52**	**100**

The researcher sought to find out the effectiveness of technology tools in e-learning as a means to gain access to study material. The findings reveal that 47 (90%) of respondents felt that technology enabled them very effectively, a very small number, 3 (6%), were negative and they did not see technology as effective, whereas 2 (4%) were undecided about the effectiveness of technology. Students, on average, felt that they could make effective use of technology to assist in their tuition, especially on an e-learning platform. This is generally indicative of the growing use of web-based services in the university context. Sun, Tsai, Finger, Chen and Yen (2008) indicated that the quality and reliability of technology, as well as network transmission speed, have an impact on learning. Ozkan and Koseler's (2009) findings, however, refute this, as they maintain that technology quality is the students' perceived quality of IT applied in e-learning. It was very important to establish if students are able access their study resources effectively.

Table 4. 19: **The different contexts used by students to access study resources (N=52)**

Statement	Frequency	Percentage (%)
Computer lab (in library)	12	16
UNISA regional office	10	13
Home PC	27	35
Office PC	27	35
Other: Tablets	1	1
Total	**52**	**100**

To establish the contexts used by students to access study resources, four common devices were listed so that they could select those that were most relevant to them. Also, the option of "other" was included. The findings show that the 54 (70%) used the office computer and home computer, 12 (16%) the computer laboratory, 10 (13%) visit the Unisa regional offices and 1 (1%) indicated the option, "other". The illustrated summary is outlined in table 4.19.

The researcher sought to determine which devices are used by students to gain access to information. Access to information has been identified as one of the main reasons students go online. There is a growing preference for accessing information for official and personal correspondence if one is studying in an open distance learning context. It is common that myUnisa is the most commonly used platform through which students can access information and their tuition material at UNISA. Young and Norgard (2006) reported that students found

online courses offered an advantage over courses that were presented in contact sessions, in other words, face-to-face. In this case, students are not limited to certain platforms or devices in order to access information.

Based on these findings in table 4.19, we can conclude that the majority of respondents 27(35%) used their home computers to access study resources. Accessing information from the home computer requires the user to have internet access and proper network connectivity. These findings refute the findings by Internet World Stat (2012), which stated that the big issue of bandwidth accessibility is affecting the whole of the African continent. Another 27(35%) indicated that they accessed information from their office computers. These results confirm that many Information Science students are working full time while doing their degrees. Also, 12 (16%) and 10 (13%) indicated that they accessed information by using the computer laboratory in the library. It is encouraging to note that even those students who are not working do have places where they can get access to information for their studies. The findings from the graph indicate that UNISA has provision libraries and computer laboratories where students can access information. This statement is in line with the findings by Kunaefi (2006), who suggests that higher education institutions needed to provide wired and wireless networks. That has to be done to avoid universities' e-learning initiatives from being poorly affected.

4.9 OBSTACLES TO E-LEARNING

The researcher sought to determine the challenges to which the respondents are faced with in e-learning.

4.9.1 Challenges experienced in myUnisa

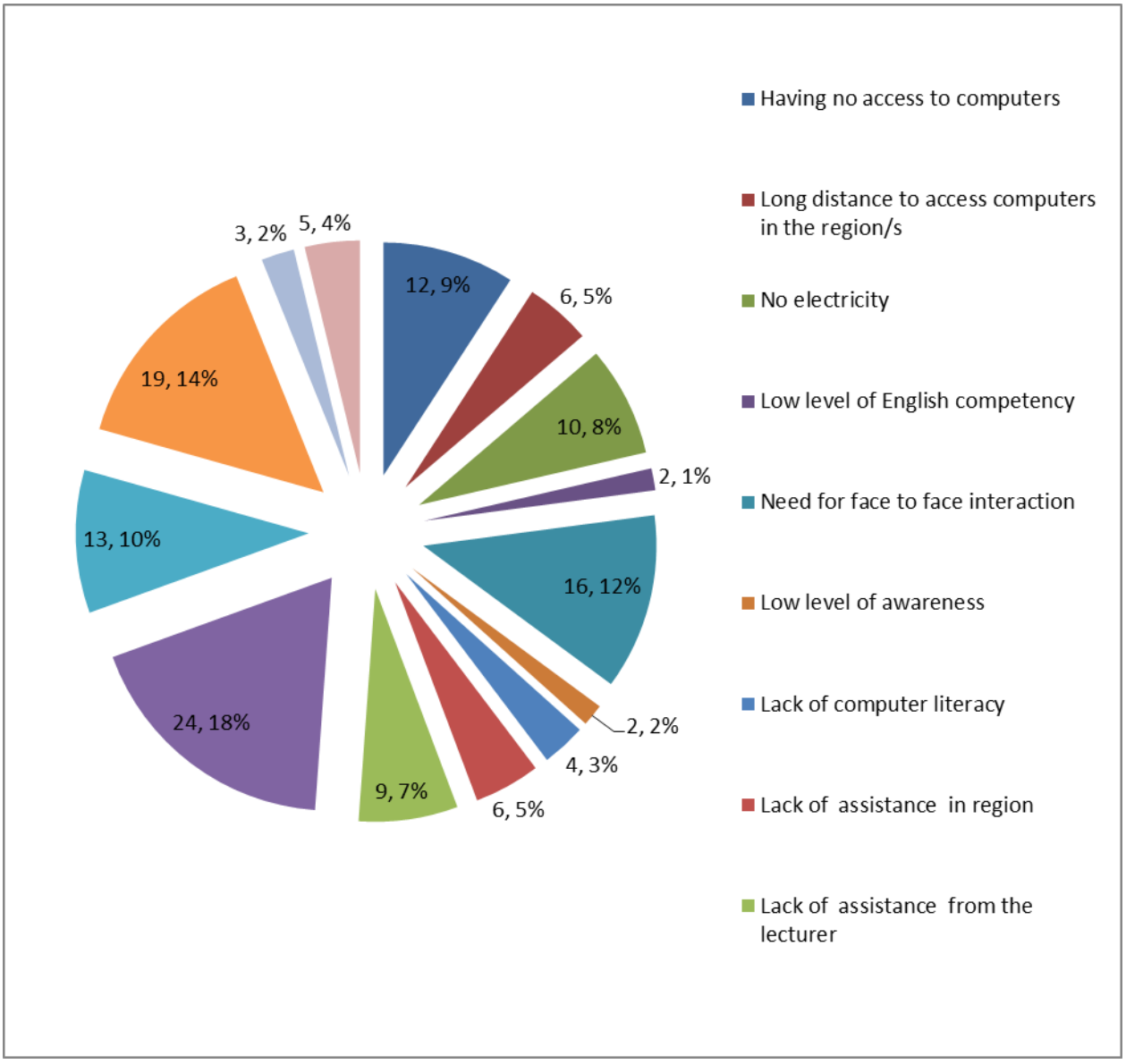

Figure 4. 13: The challenges students experience in myUnisa (N=52)

The researcher aimed to find out about the challenges experienced by students regarding myUnisa. Students were given a list of possible challenges to identify them and also the option of naming any other was given. The findings reveal that a major challenge faced by 24 (18%) of the respondents is a shortage of data bundles, 19 (14%) mentioned the high cost of internet access from their home PC and PDAs, 16 (12%) reported that they need face-to-face interaction, 13 (10%) have difficulties with wireless signals in their areas, 12 (9)% have no access to a

computer, 10 (8%) have no access to electricity, 9 (7%) reported a lack of assistance from lecturers, 6 (5%) reported a lack of assistance from regions, 6 (5%) mentioned the long distances they have to travel in order to access computers in the regions, 5 (4%) mentioned a lack of technical support, 4 (3%) reported that they lack computer literacy, 3 (2%) have identified low motivation on their part, 1 (1%) reported that he/she has a low level of awareness, and 4 (3%) identified a low level of computer literacy. Lastly, they had to state any other challenges that they were experiencing but which had not been listed; however, they did not give any details. An overview of the responses is given in figure 4.13.

Based on the findings presented in figure 4.13, we can identify that the majority (18%) of the students are having a problems with a shortage of data bundles. It is noted that students connect to the internet using their cellphones; therefore, they have to buy internet data bundles. The results also indicate that not all students can afford the internet. This is confirmed by Neo's (2014) statements, which suggest that e-learning is costly as it requires the availability of the internet to access information. The second largest proportions of students, 14%, have a challenge with regard to the high cost of access to home computers and PDAs. This challenge with regard to internet access is a common issue in South Africa because not all university students own a computer or have technological devices that could give them access to information that can assist them with their studies. Based on these findings, the researcher has also noted that access to home-based high speed internet services is a challenge many students face because of the high cost of owning a home computer.

One of the challenges mentioned by 12% of the respondents is the need for face-to-face interaction. It is known that UNISA is an ODL institution and lectures are conducted with the use of e-learning tools. Students feel that they want to meet their lecturers like they would if they were at a contact university. Based on these findings, it is also apparent that students feel that face-to-face interactions would provide them with the opportunities to help each other and, in this way, overcome problems. The purpose of collaborative between students and lecturer is to create a very strong tuition relationship.

In addition, 10% of the respondents indicated that they have difficulties with their wireless signals in their home areas. In South Africa, wireless connections are available, but there are places where it is difficult to detect Wi-Fi signals. The findings further show that 9% of students responded that they have no access to computers. Thus, it would be very difficult for the students to do assignments or to interact with their lecturers or fellow student about their studies. In Educause (2003) the recommendation is that a conducive e-learning context will require the user to own a computer. Another 8% of the respondents indicated that they have challenges with regard to electricity. This could be an indication that some of the students are living in the rural areas where there is no electricity. However, even where there is electricity, there are challenges such as load-shedding, which is currently a critical issue in South Africa.

The findings show that 7% of the respondents experience a lack of assistance from their lecturers. At UNISA classes are conducted through the use of the myUnisa, which is an e-learning platform. Most of the interactions between the lecturer and the students and among students, such as discussions and announcements, are posted on myUnisa. It is not possible to be online 24/7, which means that if students post questions, they may not receive feedback immediately, which is probably what they would prefer. Furthermore, 5% of the respondents indicated that there is a lack of assistance at the UNISA regional offices. Another 4% indicated a lack of technical support. Based on these findings, it is clear that working online or using a learning management system brings with it its own challenges, especially regarding application software and graphic interface. Being at home and having to figure out on your own how to use the different functions available on the e-learning platform, could be a source of frustration for students. It is encouraging for student that there is a help and support button on the system. Berge (2006) suggests that technical assistance in e-learning is to ensure that all e-learning participants have to develop confidence in the network system and software.

The findings also reveal that 3% of the students lack computer literacy skills. This would indicate that a small portion of respondents consider themselves as not competent in computer literacy. The researcher notes that these students are facing a big challenge with regard to their studies because it is not easy to interact on the e-learning platform if one is not computer literate.

This is in line with the findings by Neo (2014), who noted that a lack of computer experience could hinder e-learning.

The low percentage of respondents, 2%, indicates they experience low levels of motivation to use e-learning. Selim's (2007) findings identified students' motivation levels as a factor that could impact on e-learning. Very few of the respondents, 3 (1%), indicated they have a challenge with regard to their English competency levels, the long distances that they have to travel to access information and have low levels of awareness about e-learning. Even if there are graphical user interfaces available on e-learning platforms, information is still written in the English language, which means that it may cause or be a problem for a person who is not competent in English.

It is a fact that there are students who travel a number of kilometres to regional offices in order to get access information on the system. In some provinces in South Africa, especially in the rural areas, there is a huge problem with access to the service points, because of the geographical environment and the remoteness of certain areas.

4.10 FINDINGS FROM LECTURERS

Qualitative data was attained from the interviews and was analysed and interpreted, and it is subsequently presented in this section. Interviews were used to augment the data collected (quantitatively) through the questionnaire. Multi-method or triangulation has a number of benefits, some which have already been explained in chapter three. The two research instruments were used simultaneously because of their ability to cross over or complement each other. The web-based questionnaire was successfully used to reach a large population, while the interviews were used to gain qualitative data on how lecturers influence students' e-learning and to identify the strategies utilised by lecturers to promote e-learning. The researcher conducted a limited number of interviews with the lecturers. A total of five interviews were conducted at the University of South Africa in the Department of Information Science. The lecturers were asked five questions, which generated the following responses:

4.10.1 Assessment on how lecturers influence students' perceptions of e-learning

With regard to this issue the interviewee were asked the following two questions:

- How do you influence students' perceptions for myUnisa?
- How does your teaching style or teaching philosophy or approach influence students' engagement with e-learning?

4.10.1.1 Perceptions of Lecturers in influencing students for myUnisa

The participants were asked how they influence students' perceptions for e-learning (myUnisa). This question is one of the study's objectives. The aim here was to establish what procedures were used by lecturers in order to influence students. The lecturers in an ODL environment are the most frequent users of e-learning as they always interact with the students via online platforms. In the reviewing of the literature, it was found that students' success can be achieved by simply preventing students from withdrawing from the e-learning programmes by influencing them to use e-learning platforms more often (Serwatka 2002). The researcher noted that lecturers are there to keep on influencing and motivating students to appreciate e-learning for their tuition.

Generally, the study findings concur with the literature because the majority of the participants are positively influencing the students' perceptions towards myUnisa. They are encouraging students to register on myUnisa so that they can benefit from using the platform. For example, participants encourage students to use platforms such as discussion forums. They also indicated that they post additional resources and provide some directions in the instances where students seem to be losing focus.

The literature also indicated that there are good influences from lecturers about e-learning. Wilson (2001) opines that a good lecturer in influencing e-learning is the one who does the following: creating positive attitudes towards technology, using different teaching styles and having control of technology. The study further revealed that not all lecturers who are teaching in an e-learning context have relevant knowledge of teaching in such environment. The literature concurs that the dynamic nature of IT in combination with evolving e-learning technologies has created problems for lecturers in higher education institutions because they have to do a lot to

encourage students and to support e-learning initiatives (O'Donoghue & Worton 2005). One lecturer from the Department of Information Science noted:

> *"I am not sure where there is any influence on my side and I do not know because I have no idea what student's current perceptions are. Student's learning styles differs. I think that I might influence some students negatively and other students positively".*

This showed that lecturers as influencers of e-learning are not equipped with all the relevant skills to influence students' perceptions about e-learning. The literature suggests that lecturers must be able to come up with different teaching methodologies in teaching in an e-learning environment (Volery 2000). There are concurring findings with literature because one lecturer revealed that he encourages students to use different e-learning methods that are available to them.

Based on the responses from all the participants, it is clear that they hold substantially different views about how they can influence students, although sometimes there were similarities. Singh, O'Donoghue and Warton (2005) affirm that the key role of e-learning is to promote online-interaction within the e-learning system. The participants sometimes hold opposing views, as one lecturer revealed that he does influence students' perceptions about e-learning as an easy-to-use platform, while another lecturer mentioned that "the platform is not easy to use, because there are few students that are active on discussion forum, for example less than five students who are active". Based on these findings, it is known that facilitating in the e-learning context is a challenge; therefore, lecturers must have the following skills: computer experience, computer ownership, technical problem-solving and time management (Edacause 2003).

4.10.1.2 Teaching style or teaching philosophy or approaches

In this objective the researcher wanted to find out what teaching philosophies or approaches were used by lecturers to influence students in e-learning. The researcher noted that the lecturers must design activities which enable social interaction or problem solving situations which allow students to practice the processes of engaging in an e-learning context. The literature concurs that many teaching strategies may motivate in the use of e-learning by students as well as

lecturers (Wagner, Hassanein & Head 2008). Based on the findings of this objective, the lecturers used different teaching styles in order to influence students' perceptions in e-learning. Some used very interesting strategies to attract students as they opted for "blogs, open systems and smses".

Another concurrence between the literature and findings are those of perceived usefulness and perceived enjoyment which are very significant in encouraging students to use e-learning (Lee, Cheung & Chen 2005). The good influence is that there are various types of content which create fun and provide instant feedback for students. The study also established that there were many teaching styles which can be used for facilitation in e-learning. The study by Dalsgaard (2005) concurs that tools used to support e-learning cover a wide range of different applications such as: discussion forums, chats, file sharing, video conferences, messaging, web blogs and wikis.

Berge (2006) noted that in e-learning there are technicalities hindering participants to develop confidence in the network system and software. The results concurred with the literature because some lecturers noted that it is very difficult to predict which teaching styles influence students. Serwatka (2002) suggests that the enthusiastic lecturer promotes e-learning by using modern social networks such as Facebook, WhatsApp, Skype, twitter and any other methods.

4.10.2 Strategies utilised by lecturers to promote e-learning

In this objective the interviewee were asked the following three questions:

- In what ways do you promote e-learning?
- What do you think is a good strategy to promote myUnisa as an e-learning platform?
- What strategies do you use to implement e-learning?

4.10.2.1 Ways used to promote e-learning.by lecturers

The researcher's observation is that there is an e-learning initiative to be taken into consideration so that e-learning can be functional. E-learning has to be promoted to students within the UNISA campuses and that is fundamental. It does not matter how awesome e-learning courses are; if they are not promoted to students, they will not be of benefit to students. It is noted that lecturers

are good promoters of e-learning in higher education institutions. Lecturers revealed that they are there to advise students to register in myUnisa because it is an enhancer of their learning experience. The findings showed that they go as far as conducting surveys and focus groups to find out what students need. Also they encourage the use of online services such as social networks for tuition.

Actually here the same concept of promotion is emphasised, that is, making students aware of the benefits of e-learning or services. Until students are fully aware of what e-learning is, and how it can benefit them, their interest in and involvement with e-learning will be limited. Also, one cannot deny one important factor, which is that e-learning training programmes are intended for students who are likely to be autonomous and self-directed. Most of UNISA students, for example, have their own job responsibilities, limitations, strengths, profound emotions and learning styles.

Other lecturers are promoting e-learning by allowing students to work as groups, but students cringe at the idea of group work, more so in an online course. The literature has opposed the above statement by stating that it is impossible for lecturers due to barriers inherent in the online format where students envision chaos, frustration and even more work than individual projects entail (Williams, Cameron, Morgan & Wade 2012). Yet, group work benefits students by learning together, collaborating, discussing and sharing.

Research supports the evidence that students, in well-designed learning environments experience meaningful learning, develop higher order thinking, and learn to evaluate and acknowledge multiple viewpoints in groups (An, Kim & Kim 2008). Therefore, the findings agree with the literature because another lecturer noted that he encouraged students to make use of group work using social media. These findings are in line with the statement by Wagner, Hassanein and Head (2008) that lecturer must design activities which enable social interactions or problem solving situations that allow students to practice the processes for applying the course content.

4.10.2.2 Strategy to promote myUnisa as an e-learning platform

The study wanted to establish the good strategies that are used to promote myUnisa as an e-learning platform. The literature suggests that the technological dimension in the e-learning environment is the framework to examine issues of technology infrastructure. It seems to be true that encouraging e-learning in universities must be considered up-front. Aydin and Tasci (2005) opined that there are many instruments that can be used to promote the awareness of e-learning. The literature concurs with the findings of this study because some lecturers revealed the following:

> *"By making students aware of the services on myUnisa that may benefit them, such as the additional study materials that are available, the discussion forums that will assist them in their learning, and so on".*

The findings showed that lecturers have relevant strategies to promote myUnisa as highlighted above. They indicated that they create awareness to students about myUnisa services. They are also there to coordinate students' access. Lecturers are putting more effort into promoting the myUnisa platform as it was noted that some "create FAQ (Frequently Asked Questions) sections, blogs, etc".

Promoting the use of e-learning can be also done in the social media for the analysis of groups for planning promotional strategies. There are many media tools that can help in promoting e-learning. The literature noted that social media is on the growth within education, both outside and inside the classroom (Seaman & Tinti-Kane 2013). Rahimi, van den Berg and Veen (2013) confirm that by using social media, students also have an opportunity to manage their own learning environments and thus become more independent and lifelong students.

4.10.2.3 Strategies used by lecturers to implement e-learning

Strategies to implement e-learning is the one of the factors in universities due to the lack of resources (Muhmud & Gope 2009). In this study the researcher wanted to determine the strategies used by lecturers in promoting e-learning. Also the literature suggests that strategy

assist to delivery of teaching and learning in the universities by promoting e-learning pedagogical-driven initiative (University of Durham 2008). Therefore, the findings and literature agree that lecturers use strategies based on teaching and learning policies in order to implement e-learning. They do that based on the policies provided by the University for Development of e-learning material.

Furthermore, the strategies used to implement e-learning by lecturers were noted which confirmed that there were viable strategies in place. Sharpherd (2002) suggests that to fulfil the demands of e-learning projects requires many different skills such as pedagogical, technical and creativity. The literature is in line with the findings as one lecturer noted that he used institutional knowledge resources for implementation of e-learning.

The development of all strategies utilised in higher education has to be in line with university procedures. UNESCO (2010) suggests that all initiatives which are occurring in higher education institutions have to be well documented. Also, the Project Management Institute (2012) agrees that the policy development or strategy has to be considered because it acts as a framework and guide of operation/s. Brown, Anderson and Murray (2007) suggested these stages to be followed in a viable e-learning situation: government make e-learning possible, integrate e-learning in the education system and transforming the role of e-learning.

4.12 SYNTHESIS OF STUDENTS' AND LECTURERS' RESPONSES

The researcher constantly referred to Chapter Two when interpreting the findings of this study. The scholarship reviewed in Chapter Two augmented and helped synthesise the ideas that were discussed in this study. It was also important to refer to Chapter Two because the study was able to identify gaps and build on arguments by other scholars. The next section gives a summary of this chapter.

4.13 SUMMARY

This chapter presented the data collected from two different categories of respondents at Unisa. Data was collected from students and lectures. There were two data collection methods used, questionnaires and interviews. The key data themes were in relation to the objectives of the study and patterns across data sets are associated with the research questions. The actual words of the respondents have been used to emphasise opinions as they were stated. The chapter presented data on such key issues as background information, rationale for e-learning, benefits of e-learning, accessibility, student perceptions, attitude of students towards e-learning and obstacles to e-learning. The next chapter contains the summary, recommendations and conclusion of the study.

CHAPTER FIVE: SUMMARY OF THE MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the previous chapter, the data collected was analysed, presented and interpreted. This chapter provides a summary of the findings as well as the conclusions and recommendations arising from the study. This study was conducted at the University of South Africa with the purpose of investigating students' perceptions about e-learning. The objective of the study was to find answers to the following research questions:

- Is there any awareness among students of the e-learning platform?
- What are the benefits of e-learning to students' success?
- What are the attitudes of students towards e-learning?
- How do lecturers influence students' perceptions of e-learning?
- In what ways do lecturers promote e-learning?
- To what extent are the e-learning tools usable by students?

5.2 SUMMARY OF THE FINDINGS

In this section, the summary of the findings are presented, based on the objectives of the study.

5.2.1 Awareness of students about e-learning platform

E-learning platforms have different features for specific modules or subjects to offer teaching and learning. These platforms allow students globally with multitudes of opportunities to interact through myUnisa (tuition platform). This research concludes that students' awareness of e-learning has shown that students have got different understandings about e-learning, for instance about myUnisa. Some students highlighted that e-learning is for distance learning, some revealed that it is for online courses and others considered it as web-based training. In addition, a few

students did not know what e-learning is for. The findings in relation to this objective can be summarised as follow:

- Many students are using the following relevant devices in order to access e-learning platforms: cellphones, desktops, laptops and tablets or Ipads.
- Students are using myUnisa for submitting their assignments.
- MyUnisa is noted as a good platform for interacting with other students.
- It enables students to engage and participate in discussion forums.
- MyUnisa keeps students updated because its allow them to check announcements which are usually posted by lecturers and tutors.
- MyUnisa is known as a good e-learning platform for accessing study resources.
- Lastly, a few students revealed that myUnisa can be used for e-commerce.

5.2.2 How students benefit from e-learning

The availability of e-learning is beneficial for students as it reduces the cost of training, as students are able to participate in courses at any time and from anywhere. It promotes the web-based classroom, which means that there are no traditional classroom engagements, where students have to waste a lot of money for transport to get to the lecture halls to attend lectures. This research therefore concludes that the following benefits of e-learning can be identified: ease of access to information, it is a safe digital environment for students to submit their assignments and it enable students to work at their own pace. The findings in relation to this objective can be summarised as follows:

- Many students at UNISA considered e-learning as a flexible teaching and studying method because it is not bound to a particular time and place.
- E-learning promotes ease of use and the sharing of educational material happens quickly.

- E-learning promotes collaboration and greater interaction among students.
- E-learning promotes access to higher education.
- E-learning provides the opportunity for quick feedback.
- E-learning creates confidence in learning.

5.2.3 The attitude of students towards e-learning

E-learning depends on the effective utilisation of ICTs. It has been proved that a positive attitude is created when students are not afraid to engage with ICT tools. It was found that the use of new technologies contributed to the development of a positive attitude for students. The results of the study reveal that most students at Unisa have a positive attitude towards e-learning. The findings regarding students' attitude to e-learning were determined by looking at their attitude to the utilisation of e-learning tool options and the impact their experiences with computers had on their attitude to e-learning. The results about students' attitudes revealed the following:

- It is important that students know how to use the internet.
- Computer literacy should be taught at the first-year level.
- At UNISA e-learning enables interaction between students and their classmates.
- A benefit of e-learning is improved communicate between students and lecturers.

The findings also show that when students had experience with the internet and have used the operating systems on myUnisa and the online library databases, it has helped students to overcome negative attitudes about e-learning.

5.2.4 How lecturers influence students' perceptions of e-learning

The results of the study reveal that lecturers encourage students to register on myUnisa so that they can be actively involved in the discussion forums. The study findings also show that the lecturers offer additional online material which influences students' attitude. Lecturers also revealed that discussion forums influence e-learning. Some lecturers revealed that they do not know what students' perceptions are of e-learning, because students' learning styles are different and this might influence students negatively or positively.

5.2.5 Strategies utilised by lecturers to promote e-learning

The results of this study reveal that lecturers rely on the development of institutional policies before they implement their e-learning strategies. This finding also shows that the lecturers regard the myUnisa learning management platform as an implementation strategy. Other lecturers promote myUnisa to make students aware of services on myUnisa and its usability for students. The research shows that they do promote myUnisa on social media platforms. The results concluded that lecturers continue to post learning materials on myUnisa.

5.2.6 The usability of the e-learning tools available to students

This study has shown that most students were positive about the usability of the e-learning tools. The findings can be summarised as follows:

- Most students at UNISA use the available e-learning services hoping that it will contribute to improving their learning performance.
- The tools have enabled UNISA students to become skilful in using e-learning services.
- The usability of the tools has created a more accessible learning environment for UNISA students.
- Using e-learning services has simplified the learning processes for UNISA students.

- The e-learning services fit well with the way UNISA students learn and the setup of e-learning services are compatible with the way students learn**.**
- The majority of students found that the layout and user interface design of myUnisa is user-friendly.
- The students find it easy to navigate myUnisa.
- Many students feel comfortable using the functions and services provided on the myUnisa website.
- The results conclude that myUnisa website presents complex information in such a way that it is easy to comprehend.

The findings also reveal that the majority of students frequently used e-learning resources such as electronic mail, search engines and social media networks. Lastly, the results show that the average time that students spend on the internet constitutes more than 18 hours per week, while they would only spend one to three hours per week on myUnisa.

5.3 CONCLUSIONS

The objective of the study was to establish students' perceptions of e-learning at UNISA. In this regard, it can be concluded that many students are aware of e-learning irrespective of their gender, age and location. This study can also conclude that e-learning cannot really be defined by one term and that the majority of students considered it as the online presentation of a course. This study concluded that many students use different devices in order to engage in e-learning, with cellphones, desktop computers, laptops and tablets or iPads all commonly used. Also, it has been concluded that students used myUnisa to submit assignments, for general interaction with other students and to retrieve study resources.

It is recognised in the study that students are benefiting from e-learning, because they can easily retrieve information. This study also concludes that students are confident about using e-learning because of the security, which is properly managed and very restricted in cases such as

cyberbullying. It was also indicated that e-learning is preferable because it allows for more freedom for students to engage with their study materials, with fellow students or the lecturer in their own space and at a time that suits them. This study also concluded that many students feel that they are benefiting from e-learning because of its advantages. The majority of students benefit from e-learning because of the support that is available to them when accessing resources. The conclusion is that technology and e-learning are a good enablers in information access.

In terms of perceptions, the study concluded that the students are positive about e-learning. This is based on their self-efficacy, enjoyment, usefulness and their behaviour with regard to e-learning. Another conclusion of this study is that many UNISA students are very efficient in operating the myUnisa tools because of the informative content provided. Students are perceived to be positive about e-learning and about the content available on myUnisa as it enables autonomous learning.

This study concluded that many students have a positive attitude about e-learning. Their willingness to interact with lecturers and other students on myUnisa is a clear indication of a good attitude. This positive attitude developed over time, as they had positive experiences whenever they accessed myUnisa; in other words, each and every time they went online they were able to acquire that they wanted. Although the study also concluded that there are a few students who show a negative attitude about e-learning (see table 4.16), there is a clear illustration about attitudes.

This study concluded that many UNISA students have had some experience with computer operating systems and the internet. This was revealed in the fact that students did not encounter many difficulties when they interacted with the platform. It was also concluded that students are capable of accessing online library databases. The platform (myUnisa) seems to be an effective user interface and it is also user-friendly, as no difficulties were reported in terms of usability and reliability. Even the first-year level students seem to not have any difficulties in navigating the platform. It should continue to provide these services, as required by students. The study also concludes that electronic mail and search engines are accessible and useable to many students. This study also concluded that students seem to spend more time on the internet than on myUnisa.

This study concluded that lecturers have the power to influence students' perceptions about e-learning. Lecturers encourage students through the instructions they give in tutorial letters and other communication media. The researcher can confirm that they are doing a lot to promote e-learning. The majority of lecturers seem to be aware and knowledgeable about e-learning, although they do get discouraged by some students who hardly participate in interactive activities on myUnisa. This study concluded that those lecturers who have adopted a progressive teaching style are also more adept at promoting and using the teaching tools available through e-learning. It was also revealed that lecturers also use different teaching strategies in an e-learning environment.

5.4 RECOMMENDATIONS

The objective of the study was to investigate students' perceptions about e-learning in the Department of Information Science at UNISA. The recommendations below are based on the findings of the study and the literature reviewed.

- The university should carefully establish the level of access that students have to information and communication technologies in rural areas, because this study showed that students in certain provinces, especially in rural areas, are having some challenges regarding access service points. In terms of academic level, this study recommends that the university should provide computer literacy courses at all regional offices in order to assist, especially, the first-year level students. It is a common fact that not all matriculants have acquired computer literacy skills. In other words, all computer laboratories in the regions or education centres must recruit an IT Specialist or International Computers Drivers Licence (ICDL) Trainer. This person will provide assistance to first-year students, when such help is needed, and will be responsible for ensuring that all students who come to the regional offices for a first time get trained in computer literacy. By so doing, all UNISA students will experience the advantages associated with a university that operates in an ODL context. If this initiative is considered, the students will be capacitated with computer skills, which will help them to interact with or engage on an e-learning platform.

- It has been noted that not all students know what e-learning is; therefore, as part of the computer literacy programme for first-time users of the myUnisa learning management system, students should be also be provided with training with regard to the tools that are available on the myUnisa platform. This will ensure that all students are comfortable with the learning management system. From the findings, the researcher can assume that there has been no such investigation, especially with regard to the ICT needs of first-year students. It could be that they do not perform very well in their first year because they are not familiar with the system and they have to learn how to navigate the system before they can learn the content.

- The UNISA management should ensure that there are sufficient funds made available to procure especially those devices used by students to access myUnisa. Though there are initiatives in place to assist students, this is insufficient since not all registered students can afford the devices they would need to access e-learning. UNISA does have discount agreements with service providers for students who want to purchase tablets or iPads, desktop computers and laptops, but not cellphones. The organisations that provide support with finance in this regard, such as Eduloan, do not provide financial support for students to purchase cellphones. Thus, UNISA should take the initiative and allow students the opportunity to purchase all devices needed in an e-learning context. This should be seriously considered, because one of the findings from this study is that many students are accessing myUnisa using cellphones. That is why UNISA and Eduloan should look at this matter.

- The Unisa ICT management should also try to embed the many social networks that are currently available onto the myUnisa platform because that will encourage students to effectively interact with the system. Even though Facebook is not an open source, there many Facebook users who are also enrolled at South African higher education institutions. On the discussion forums, students would organise study groups, but they prefer to create these

groups on WhatsApp. To overcome this, where students organise themselves separately, the university should infuse all these applications on the myUnisa platform.

- The university management should make sure that they can accommodate all students in the myUnisa system, even students who are physically challenged or visually impaired. In other words, UNISA should employ people, who will be available at the regional offices, to assist people with disabilities to be able to engage with the services provided on the e-learning platforms. The researcher assumes that the people who are visually impaired are not benefiting from the myUnisa system compared to other students with no disabilities.

- The university and lecturers should create ways to build students' confidence in the system so that they will participate in e-learning. Also, the skills required for students to retrieve and access information should be prioritised at the institution. This will also help them to interact with many other systems such as search engines, encyclopaedias and online libraries.

- The availability of the internet as an access tool should be provided to all students. It is not only UNISA students who require access to the internet; the rural communities should also be provided with internet access. The South African government should invest more in broadband infrastructure and, in turn, internet access, because not all households can afford to purchase the data needed for access to the internet. One of the findings of this study was that many students could not afford internet data bundles, which is a barrier to them gaining access to information. The provision of free internet for all Unisa students could improve students' attitude to e-learning. The university, as an ODL institution, would then not have to deal with complaints from students in this regard. It is also noted that insufficient data bundle availability contributes to a negative attitude towards e-learning with many students.

- The UNISA lecturers should always be available on the e-learning platforms, as this will contribute to effective usability and reliability of the e-learning systems. By so doing, a more

positive attitude about e-learning will be encouraged. Students will also feel comfortable that they are able to get access help when they need it.

- The ICT department and lecturing staff should make sure that they promote the use of video conferencing, audio/video tapes, CD ROMs and WebCT effectively to promote a viable e-learning context. By so doing, students will be exposed to many interesting e-learning facilities or tools.

- The Unisa management should issue an advisory with regard to the amount of time that students should be on myUnisa. By doing so, students may be encouraged to make themselves more available on the e-learning platforms. There would also be an increase in the number of students engaging on a platform.

- Unisa should encourage all stakeholders within the institution to increase performance, especially in assisting students with the following:

    1. providing students with support regarding all technical aspects
    2. having supplementary plans in place to overcome the challenges regarding load-shedding, which affect many students
    3. ensuring the availability of lecturers on the system to interact with students or to provide assistance
    4. subsidising students with the purchase of internet bundles
    5. revisiting the interventions adopted to augment the high cost associated with the purchasing of all required devices for e-learning in an ODL context

- Lecturers should continue to play a key role in influencing students' perceptions about e-learning.

- Lecturers should be supported by UNISA to develop strategies to promote e-learning. Also, consideration should be given to possible ways to involve students in e-learning.

- Lecturers should be provided with all the necessary skills required for e-learning. Opportunities to attend workshops and seminars, both nationally and internationally, should be granted to them. By so doing, barriers to e-learning that may exist among lecturers will be overcome, which will benefit the institution and students will be able to enjoy the e-learning experience provided by an ODL university.

- The institution can provide support to lecturers in their endeavour to promote e-learning by subsidising lecturers' data bundles for cellphones.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

There are a variety of themes that emanated from the study which may require further attention in the field of e-learning and ICTs in LIS and which could not be covered in this study due to time limitations. The themes that could be considered as topics for future research are mentioned below:

- A comparative study: rural and urban students' access to online resources for tuition

- E-learning as an enabler of information retrieval for UNISA students

- The essence of information technology as a panacea for information access

- The usability of information centres at UNISA regional offices

- Knowledge sharing in an e-learning space in South Africa

5.6 CONCLUSION

The study investigated students' perceptions of e-learning in the Department of Information Science at the University of South Africa. This study was organised into five chapters. Chapter One of this study could be considered the engine that drove the rest of the study. Chapter Two reviewed literature regarding students' perceptions of e-learning and the review was done based on the six study objectives, which are outlined in table 1.1 of the appendix. Chapter Three presented the research methodology, where all applicable methods were explained in detail with regard to the study so that the reader knows exactly "what", "where" and "how" data has been collected and to allow a reasonable replication of the study. Chapter Four presented an analysis, presentation and interpretation of the results of the study, a discussion and an interpretation of the data collected, which was done through the use of questionnaires and interviews. Chapter Five served as a summary of each chapter, including a summary of the results and recommendations, as well as a conclusion to the problem statement and the objectives of the study to make sure that they have been responded to. Finally, the areas for further research were identified, based on the findings.

REFERENCES

Abu-Hassan-Assari, MH. 2005. Adult learners and e-learning readiness: a case study. A paper presented at the European College Teaching & Learning Conference. Athens, Greece 13-17 June.

Al-adwn, A & Smedlley, J. 2012. Implementing e-learning in the Jordanian higher education system: factors affecting impact. *International Journal of Education and Development using Information and Communication Technology* 8(1): 121-135.

Al-Busaidi, KA & Al-Shihi, H. 2010. Instructors' acceptance of learning management systems: a theoretical framework. *Communications of the International Business Information Management Associations* 1-10.

Al Infande, EDD. 2013. Dozen strategies for improving online student retention. http://www.facultyfocus.com/articles/online-education/a-dozen-strategies-for-improving-online-student-retention/. (Accessed 21 January 2015).

Alexander, J, Polyakove-Norwood, V, Johnston, L, Christensen, P & Loquist, R. 2003. Collaborative development and evaluation of an online nursing course. *Distance Education* 24(1): 41-56.

Amaratunga, D, Baldry, D, Sarshar, M & Newton, R. 2002. Quantitative and qualitative research in the built environment: application of mixed research approach. *Work Study* 51(1): 17-31.

An, H, Kim, S & Kim, B. 2008. Teacher perspectives on online collaborative learning: factors perceived as facilitating and impeding successful online group work. *Contemporary Issues in Technology and Teacher Education*, *8*(1): 65-83.

Anderson, J & Poole, M. 2001. *Assignment and thesis writing*. 4th edition. Brisbane: John Wiley & Sons.

Anderson, R & Killenberg, GM. 2009. *Interviewing: speaking, listening, and learning for professional life.* New York: Oxford University Press.

Anderson, T. 2002. Is e-learning right for your organization? *Learning Circuits: ASTD's Online Magazine All About E-learning*. http://www.learningcircuits.org/2002/jan2002/anderson.html. (Accessed 11 November 2013).

Armstrong, DA. 2011. Students' perceptions of online learning and instructional tools: a qualitative study of undergraduate students' use of online tools. *The Turkish Online Journal of Educational Technology* 10(3). http://www.tojet.net/articles/v10i3/10325.pdf. (Accessed 14 December 2014).

Asunka, S. 2008. Online learning in higher education in Sub-Saharan Africa: Ghanaian University students' experiences and perceptions. *The International Review of Research in Open and Distance Learning* 9(3). http://www.irrodl.org/index.php/irrodl/article/view/586/1130. (Accessed 16 December 2014)

Axelrod, P. 2008. Student perspectives on good teaching: what history reveals. Academic matters: *Journal of Higher Education* 24(27).

Aydin, CH & Tasci, D. 2005. Measuring readiness for e-learning: reflections from an emerging country. *Educational Technology and Society* 8(4): 244-257.

Babbie, E & Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

Babbie, E. 2007. *The practice of social research*. 11th edition. Belmont: Thomson Wadsworth.

Babbie, E. 2010. *The practice of social research*.12th edition. Southbank, Victoria: Wadsworth/Thompson.

Batalla-Busquets, JM & Pacheco-Bernal, C. 2013. On-the-job e-learning: workers' attitudes and perceptions. *The International Review of Research in Open and Distance Learning* 14(1). http://www.irrodl.org/index.php/irrodl/article/view/1304/2417. (Accessed 22 September 2015).

Bean, M. 2003. Are you ready for e-learning? Assessing e-learning readiness. *MediaPro Newsletter: Tips and tricks of the trade*. http://www.mediapro.com/html/resources/news1-vol5-01.htm. (Accessed 11 November 2013).

Becker, H. 1991. When powerful tools meet conventional beliefs and institutional constraints. *Computing Teacher* 18(8): 6–9.

Becker, R & Jokivirta, L. 2007. Online learning in universities: selected data from the 2006 Observatory survey – November 2007. The observatory on borderless higher education (OBHE). http://www.obhe.ac.uk. (Accessed 13 November 2012).

BECTA. 2005. ICT and e-learning in further education. A report to Post-16 e-learning policy and project board. http://firgoa.usc.es/drupal/files/ICT_in_FE_report.pdf (Accessed 15 June 2013).

Benson, L, Elliott, D, Grant, M, Holschuh, D, Kim, B, Kim, H, Lauber, E, Loh, S & Reeves, TC. 2002. Usability and instructional design heuristics for e-learning evaluation. In P. Barker & S. Rebelsky (Eds.), *Proceedings of EdMedia: World Conference on Educational*

Media and Technology 2002 (pp. 1615-1621). Chesapeake: Association for the Advancement of Computing in Education (AACE).

Berge, Z. 2006. The role of the online instructor/facilitator facilitating computer conferencing: recommendations from the field. *Educational Technology* 35(1): 22-30.

Berke, WJ & Wiseman, TL. 2004. The e-learning answer. *Critical Care Nurse* 24(2): 80-84.

Bertea, P. 2009. Measuring students' attitude towards e-learning: a case study. 5th International Scientific Conference. Bucharest, 09 April.

Best, JW & Kahn, JV. 2006. *Research in education*. Boston: Pearson Education Inc.

Best, SJ, Krueger B & Hubbard, C. 2001. An assessment of the generalizability of Internet surveys. *Social Science Computing Revisio*n 19(2): 131-145.

Beyth-Marom, R, Chajut, E, Roccas, S & Sagiv, L. 2003. Internet-assisted versus traditional distance learning environments: factors affecting students' preferences. *Computers and Education* 41(1): 65-76.

Brooke, S. 2008. E-Learning pedagogy programme. http://www.jisc.ac.uk/whatwedo/programmes/elearningpedagogy.aspx. (Accessed 05 November 2013).

Brophy, J & Bawden, D. 2005. Is Google enough? Comparison of an internet search engine with academic library resources. *Aslib Proceedings: New Information Perspectives* 57(6): 498-512. http://www.emeraldinsight.com/Insight/ViewContentServlet?Filename=Published/EmeraldFullTextArticle/Articles/2760570602.html. (Accessed 9 June 2013).

Brosnan, MJ. 1998. The role of psychological gender in the computer-related attitudes and attainments of primary school children (aged 6-11). *Computers and Education* 30: 203-208.

Brown, M, Anderson, B & Murray, F. 2007. E-learning policy issues: global trends, themes and tensions. In ICT: *Providing choices for learners and learning*. Proceedings Ascilite 2007. Singapore. http://www.ascilite.org.au/conferences/singapore07/procs/brown-m.pdf (Accessed 11 November 2013).

Bryman, A. 2008. *Social research methods*. 3rd edition. Oxford: Oxford University Press.

Buid, T & Sankaren, S. 2001. Impact of learning strategies and motivation on performance: a study in web-based instruction. *Journal of Instructional Psychology* 28(3): 191-198.

Burgess, JRD & Russell, JEA. 2003. The effectiveness of distance learning initiatives in organizations. *Journal of Vocational Behavior* 63: 289-303.

Buzzetto-More, NA & Sweat-Guy, R. 2006. Incorporating the hybrid learning model into minority education at a historically black university. *Journal of Information Technology Education* 5: 153-164. http://www.jite.org/documents/Vol5/v5p153-164Buzzetto130.pdf. (Accessed 14 December 2014).

Buzzetto-More, NA. 2008. Students' perceptions of various e-learning components. *Interdisciplinary Journal of E-Learning and Learning Objects* 4.

Carry, D, & Willis, J. 2001. Technology and teacher education. *Association of Advancement of Computing in Education*. Charlottesville, VA.

Chang, C. 2008. Faculty perceptions and utilization of a learning management system in higher education. PhD. Columbus: Ohio University.

Chapnick, S. 2000. Are you ready for e-learning? *Learning circuits*: ASTD's online magazine all about e-learning. http://www.learningcircuits.org/2000/nov2000/Chapnick.htm. (Accessed 11 November 2013).

Chen, WLC & Bagakas, JG. 2003. Understanding the dimensions of self-exploration in web based learning environments. *Journal of Research on Technology in Education* 34(3): 364–373.

Chigada, J. 2014. The role of knowledge management in enhancing organisational performance in selected banks of South Africa. PhD. Pretoria: University of South Africa.

Chiu, C & Wang, ETG. 2008. Understanding web-based learning continuance intention: the role of subjective task value. *Information and Management* 45(3): 194-201.

Clark, RC & Mayer, RE. 2003. *E-learning and the science of instruction: proven guidelines for customers and designers of multimedia learning*. San Francisco, CA: Pfeiffer.

Clark, RC & Kwinn, A. 2007. *The new virtual classroom: evidence based guidelines for synchronous e-learning*. New York: John Wiley and Sons Publishers.

Clark, RC & Mayer, RE. 2011. *E-Learning and the science of instruction: proven guidelines for consumers and designers of multimedia learning*. New York: John Wiley and Sons Publishers.

Coates, H, James, R & Baldwin, G, 2005. A critical examination of the effects of learning management systems on university teaching and learning. *Tertiary Education and Management* 11: 19-36.

Cockburn, A & Mackenzie, B. 2001. What do web users do? An empirical analysis of web use. *International Journal of Human-Computer Studies* 1. http://www.cosc.canterbury.ac.nz/andrew.cockburn/papers/ijhcsAnalysis.pdf. (Accessed 17 February 2014).

Cohen, L, Manion, L & Morrison, K. 2000. *Research methods in education*. 5th edition. London: Routledge.

Concannon, F, Flynn, A & Campbell, M. 2005. What campus-based students think about the quality and benefits of e-learning. *British Journal of Educational Technology* 36(3): 501-12.

Connaway, LS & Powell, RR. 2010. *Basic research methods for librarians*. 5th edition. Littleton, CO: Libraries Unlimited.

Coopman, SJ. 2009. A critical examination of blackboard's e-learning environment. *First Monday* 14(6). http://firstmonday.org/ojs/index.php/fm/article/view/2434/2202 (Accessed 11 March 2014).

Creswell, JW. 2003. *Research design: qualitative and quantitative and mixed-method approaches*. Thousand Oaks, CA: Sage.

Creswell, JW. 2009. *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd edition. Thousand Oaks, CA: Sage.

Creswell, JW, Fetters, MD, Plano Clark, VL & Morales, A. 2009. Mixed methods intervention trials. In S Andrew & EJ Halcomb (Eds.). *Mixed methods research for nursing and the health sciences* 161-180. Oxford: Blackwell Publishing.

Creswell, JW. 2011. *Designing and conducting mixed methods research*. 2nd edition. Los Angeles: SAGE.

Creswell, JW. 2012. *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. 4th edition. Upper Saddle River, NJ: Pearson Education.

Dalsgaard, C. 2005. Pedagogical quality in e-learning – designing e-learning from a learning theoretical approach. *E-learning and Education (eleed) Journal* 1(0). http://www.eurodl.org/materials/contrib/2006/Christian_Dalsgaard.htm. (Accessed 12 May 2013).

Daugherty, M & Funke, BL. 1998. University faculty and student perceptions of web-based instruction. *Journal of Distance Education* 13(1). http://www.ijede.ca/index.php/jde/article/view/134/411. (22 September 2015).

De Villiers, MR. 2005. E-learning artefacts: are they based on learning theory? *Alternation* 12 (1b): 345-371.

De Villiers, MR. 2007. An action research approach to the design, development and evaluation of an interactive e-learning tutorial in a cognitive domain. *Journal of Information Technology Education* 6: 455-479.

Demirbag, M. 1994.The dynamics of foreign-local joint venture formation and development in Turkey. Unpublished Ph.D. thesis, University of Bradford Management Centre, Bradford, UK.

Denscombe, M. 2010. *The good research guide: for small-scale social research projects*. Maidenhead: McGraw-Hill, Open University Press.

Doerfling, P, Kopec, JA, Liang, MH & Esdaile, JM. 2010. The effect of cash lottery on response rates to an online health survey among members of the Canadian association of retired persons: a randomized experiment. *Canadian Journal of Public Health* 101(3): 251-54.

Drent, M & Meelissen, M. 2008. Which factors obstruct or stimulate teacher educators to use ICT innovatively? *Computers and Education* 51: 187-199.

EDUCAUSE. 2003. Impact and challenges of e-learning. *Supporting E-learning in Higher Education* 3(0). http://net.educause.edu/ir/library/pdf/ers0303/rs/ers03036.pdf (Accessed 13 March 2014).

Edwards, A & Talbot, R. 1994. *The hard pressed researcher: a research handbook for the caring professions.* New York: Longman.

Ehlers, U. 2004. Quality in e-learning. The learners' perspective. *In European Journal of Vocational Training*. CEDEFOP. Thessaloniki. http://www.eurodl.org/materials/contrib/2004/Online_Master_COPs.html. (Accessed 22 September 2015)

E-learning methodologies. 2011. A guide for designing and developing e-learning courses. Rome, Italy : Food and Agriculture Organisation of the United Nations (FAO).

E-learning Resources from e-Front Blog, 2013. A brief history of e-learning (infographic). http://blog.efrontlearning.net/2013/08/a-brief-history-of-elearning-infographic.html. (Accessed 28 November 2013).

Ellis, R. 2004. Down with boring e-learning! interview with e-learning guru Dr. Michael W. Allen. Learning circuits. http://www.astd.org/LC/2004/0704_allen.htm (Accessed 09 January 2013).

Ely, K, Sitzmann, T & Falkiewicz, C. 2009. The influence of goal orientation dimensions on time to train in a self-paced training environment. *Learning and Individual Differences* 19(1): 146-150.

Engelbrecht, E. 2003. A look at e-learning models: investigating their value for developing an e-learning strategy. *Progressio* 25(2): 38-47.

Epic White Paper, 2011. Organisational benefits of e-learning. http://www.e-learninglist.co.uk/whitepapers/92wp_organisational_benefits_2010.pdf. (Accessed 19

January 2014).

Erikson, P & Kovalainen, P. 2008. *Qualitative methods in business research*. Los Angeles: SAGE.

ETA. 2008. Data collection methods for program evaluation: questionnaires. http://www.cdc.gov/healthyyouth/evaluation/pdf/brief14.pdf (Accessed 15 December 2014).

Ezziane, Z. 2007. Information technology literacy: implications on teaching and learning. *Educational Technology and Society* 10(3): 175-191.

Fančovičová, J & Prokop, P. 2008. Students' attitudes toward computer use in Slovakia course element in e-learning. *Eurasia Journal of Mathematics, Science and Technology Education* 4(3): 255-262.

Fares, A. 2007. *ICT infrastructure, applications, society, and education*. Nairobi: Strathmore University Press.

Ferriman, J. 2013. Hottest e-learning trends [INFOGRAPHIC]. http://www.learndash.com/2013-hottest-e-learning-trends-infographic/ (Accessed 11 November 2013).

Fink, A. 2010. *Conducting research literature reviews: from the Internet to paper*. Los Angeles: SAGE.

Fisher, M. 1991. Computerphobia in adult learners. *Computer Education* 14-19.

Fraenkel, JR & Wallen, NE. 2000. *How to design and evaluate research in education*. New York: McGraw-Hill.

Gasco, JL, Llopis, J & Gonzalez, MR. 2004. The use of information technology in training human resources: an e-learning case study. *Journal of European Industrial Training* 28: 370-382.

Graff, M. 2003. Cognitive style and attitudes towards using online learning and assessment methods. *Electronic Journal of e-Learning* 1: 21-28.

Gray, G & Guppy, N. 2007. *Successful surveys: research methods and practice*. 4th edition. Toronto: Harcourt Canada.

Gutierrez, K. 2015. Shift's e-learning blog. http://info.shiftelearning.com/blog/author/karla-gutierrez. (Accessed 10 January 2015).

Gutwin, C & Greenberg, S. 2002. A descriptive framework of workspace awareness for real-time groupware. *Journal of Computer Supported Cooperative Work* 411- 446.

Haigh, J. 2004. Information technology in health professional education: why IT matters. *Nurse Education Today* 24: 547-552.

Hall, B. 1995. *Return-on-investment and multimedia training: a research study*. Sunnyvale, CA, Multimedia Training Newsletter.

Hall, B & Snider, A. 2000. Glossary: the hottest buzz word in the industry. *Learning* 44(4): 85–104.

Hall, JC. 2001. Retention and wastage in FE and HE. The Scottish Council for Research in Education. http://www.ulster.ac.uk/star/resources/retention%20and%20wastage_hall.pdf. (Accessed 03 February 2015).

Haney, D. 2002. Assessing organizational readiness for e-learning: 70 questions to ask. *Performance Improvement* 41(4): 8-13.

Hart, C. 1998. *Doing a literature review: releasing the social science research imagination.* London, UK: Sage Publications.

Helen, A. 2010. *Doing a literature review in health and social care (electronic resource): a practical guide*. 2nd edition. Maidenhead: McGraw-Hill Education.

Hess, R & Miura, I. 1985. Gender differences in enrolment in computer camps and classes. *Sex Roles* 13: 193-203.

Higgison, C. 2001. Practitioners, experiences in online tutoring: case Studies (online). In: OTiS e-workshop and virtual learning suite, May 2000. http://otis.scotcit.ac.uk/casestudy/. (Accessed 15 July 2012).

Hodgson, VE. 2002. The European Union and e-learning: an examination of rhetoric, theory and practice. *Journal of Computer Assisted Learning* 18: 240-252.

Hollway, W & Jefferson, T. 2000. *Doing qualitative research differently*. London: Sage.

Hong, KS, Ridzuan, AA & Kuek, MK. 2003. Students' attitudes toward the use of the internet for learning: a study at a university in Malaysia. *Educational Technology and Society* 6(2): 45-49.

Hoy, WK. 2010. *Quantitative research in education: a primer*. Thousand Oaks, CA: Sage

Innovative Learning Technologies. 2009. The role of e-learning in higher education: training students to use office it tools. http://www.innovativelearningtechnologies.com/?p=64 (Accessed 14 June 2013).

Internet World Stats. 2012. Internet usage statistics for Africa. http://www.internetworldstats.com/stats1.htm (Accessed 3 April 2014).

Islam, S, Kunifuji, S, Hayama, T & Miura, M. 2006. Towards exploring a global scenario of e-learning in library and information science schools. *School of Knowledge Science, Japan Advanced Institute of Science and Technology* 1-1. Asahidai, Nomi City, Ishikawa 923-1292, Japan. http://dx.doi.org/10.1016/j.iilr. 2011.01.004 (Accessed 4 July 2013).

Ituma, A. 2011. An evaluation of students' perceptions and engagement with e-learning components in a campus based university. Active Learning in Higher Education 12(1): 57–68. http://alh.sagepub.com/content/12/1/57.full.pdf+html. (Accessed 16 December 2014).

Jamlan, M. 2004. Faculty opinions towards introducing e-learning at the University of Bahrain. *The International Review of Research in Open and Distance Learning* 5(2). http://www.irrodl.org/index.php/irrodl/article/viewArticle/185/267%20on%20the%2027 (Accessed 27 March 2014).

Jan, P, Lu, H & Chou, T. 2012. The adoption of e-learning: an institutional theory perspective. *The Turkish Online Journal of Educational Technology* 11(3).

Jay, T. 1981. Computerphobia: what to do about it. *Educational Technology* 1: 47-48.

Keller, C & Cernerud, L. 2002. Students' perception of e-learning in university education. *Journal of Educational Media* 27(1-2): 55-65.

Khan, B. 2003. A framework for e-learning. http://www.bookstoread.com/framework/ (Accessed 24 April 2013).

Khedekar, SM & Magre S. 2011. Awareness of information and communication technology and academic performance of secondary students: a comparative study. *Online International Interdisciplinary Research Journal* 1(2). http://www.oiirj.org/ejournal/apr-may-june2012/18.pdf. (Accessed 22 September 2015).

Koehler, MJ, Mishra, P, Hershey, K & Peruski, L. 2004. With a little help from your students: a new model for faculty development and online course design. *Journal of Technology and Teacher Education* 12(1): 25-55.

Koper, R, Giesbers, B , van Rosmalen, P , Sloep, P , van Bruggen, J , Tattersall, C , Vogten, H & Brouns, F. 2005. A design model for lifelong learning networks. *Interactive Learning Environments* 13(1-2): 71-92.

Kothari, CR. 2004. *Research methodology: methods and techniques*. 2nd edition. New Delhi: Wishwa Prakasham.

Kunaefi, T. 2006. ICT in university teaching/learning and research in Southeast Asia countries: case of Indonesia. http://www.rihed.seameo.org/uploadfiles/ict/ICT_Indonesia.pdf. (Accessed 14 April 2014).

Kvale, D. 1996. *Interviews*. London: SAGE Publications.

Lam, P, Lee, J, Chan, M & McNaught, C. (nd). Students' use of e-learning strategies and their perceptions of e-learning usefulness. http://www.cuhk.edu.hk/clear/download/paper/LLCMcN_GlobalLearn11.pdf. (Accessed 14 December 2014).

Lambropoulos, N, Faulkner X & Culwin F. 2012. Supporting social awareness in collaborative e-learning. *British Journal of Educational Technology* 43 (2): 295–306. http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=947c059d-39d6-4521-b7e2-97eff9ae3477%40sessionmgr112&vid=1&hid=106. (Accessed 14 May 2015).

Laudon, KC & Laudon, JP. 2012. *Management information systems: managing the digital firm.* 11th edition. New Jersey: Prentice Hall, Pearson Education.

Laurillard, 2008. E-Learning in higher education. From changing higher education, edited by Paul Ashwin (RoutledgeFalmer, forthcoming). *Leadership Quarterly* 9(1): 107-121.

Laurillard, D. 2004. E-learning in higher education. In P Ashwin (Ed.). *Changing higher education*. London: Routledge.

Leary, J & Berger, ZJ.2007. Challenges and strategies for sustaining e-learning in small organizations. *Online Journal of Distance Learning Administration* 10(3). http://www.westga.edu/~distance/ojdla/fall103/berge103.htm (Accessed 12 March 2014).

Lee, MKO, Cheung, CMK & Chen, Z. 2005. Acceptance of internet-based learning medium: the role of extrinsic and intrinsic motivation. *Information and Management* 42: 1095-1104.

Leedy, PD & Ormrod, JE. 2005. *Practical research: planning and design*. Upper Saddle River, ND: Prentice Hall.

Liaw, SS & Huang, HM. 2003. An investigation of user attitudes toward search engines as an information retrieval tool. *Computers in Human Behavior* 19(6): 751-765.

Liaw, SS & Haung, HM. 2011. A study of investigating learners' attitudes toward e-learning. *International Conference on Distance Learning and Education* 12: IACSIT Press, Singapore.

Link, MT & Marz, R. 2006. Computer literacy and attitudes towards e-learning among first year medical students. *BMC Medical Education* 1: 6-34.

Lockyer, L, Patterson, J & Harper, B. 2001. ICT in higher education: evaluating outcomes for health education. *Journal of Computer Assisted Learning* 17:275-283. http://onlinelibrary.wiley.com/doi/10.1046/j.0266-4909.2001.00182.x/pdf (Accessed 17 February 2014).

Loose, RM & Worley, KA. 1994. *Research and evaluation for information professionals*. London: Academic Press Inc.

Mackey, A & Gass, SM. 2005. *Second language research: methodology and design*. London: Routledge.

Mahmod, R, Dahlan, N, Ramayah, T, Karia, M & Asaari, N. 2005. Attitudinal belief on adoption of e-MBA program in Malaysia. *Turkish Online Journal of Distance Education* 6(2): 1-10.

Mahmud, R. 2006. ICT readiness among secondary school teachers. Doctoral dissertation, University Kebangsaan, Malaysia.

Makura, AH. 2014. Students' perceptions of the use of ICT in a higher education teaching and learning context: the case of a South African University. *Mediterranean Journal of Social Sciences* 5(11). http://www.mcser.org/journal/index.php/mjss/article/view/2999. (Accessed 22 September 2015).

Malekabadizadeh, F Shokraneh, F & Hosseini, A. 2009. The role of Library and Information Science education in national development. *Library Philosophy and Practice (e-journal) Paper* 259. http://digitalcommons.unl.edu/libphilprac/259. (Accessed 3 November 2014).

Malik, NA, Belawati, T & Baggaley, J. 2005. Framework of collaborative research and development on distance learning technology for Asia. Paper presented at the 19th Annual Conference, Association of Asian Open Universities, Jakarta, Indonesia.http://www.pandora-asia.org/downloads/05-AAOU_MalBelBag.pdf. (Accessed 9 June 2013).

Manjunath, B & Shoba, P. 2006. E-learning and its impact on Library & Information Services. *Information and Communication Technology for Digital Learning Environment* 0(0). DRTC, Bangalore. http://conference.ifla.org/past-wlic/2010/107-dhiman-en.pdf. (Accessed 22 September 2015)

Marcoulides, GA. 1988.The relationship between computer anxiety and computer achievement. *Journal of Educational Computer Research* 4: 151-158.

Martínez-Torres, MR, Marín, SL, García FB, Vázquez, SG, Oliva, MA & Torres, T. 2008. A technological acceptance of e-learning tools used in practical and laboratory teaching, according to the European higher education area. *Behaviour and Information Technology* 27(6): 495-505.

Masemola, SS & De Villiers, MR. 2006. Towards a framework for usability testing of interactive e-learning applications in cognitive domains, Illustrated by a Case Study. In J Bishop & D Kourie (Eds.). *Service-Oriented Software and Systems*. Proceeding of

SAICSIT, 2006 187-197. University of South Africa. ACM International Conference Proceedings Series.

Mason, J. 2002. *Qualitative researching*. 2nd edition. London: Sage.

Mastaglia, B, Toye, C & Kristjanson, LJ. 2003. Ensuring content validity in instrument development: challenges and innovative approaches. *Contemporary Nurse* 14: 281-291.

Maxwell, D.1998. Can qualitative and quantitative methods serve complementary purposes for policy research? Evidence from Accra. http://www.ifpri.org/divs/fcnd/dp/papers/dp40.pdf (04 June 2014).

McPherson, M. 2005. Developing innovation in e-learning: lessons to be learned. *British Journal of Educational Technology* 36:585-586. http://www.ejel.org. (Accessed 18 June 2013).

Mertens, DM. 2003. Mixed methods and the politics of human research: the transformative-emancipatory perspective. In A Tashakkori & C Teddlie (Eds.). *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage: 135-164.

Mertens, DM. 2005. *Research and evaluation in education and psychology: integrating diversity with quantitative, qualitative, and mixed methods*. Thousand Oaks, CA: Sage.

Mertens, DM. 2009. Transformative research and evaluation. New York: Guilford.

Meyer, RE. 2014. Principles for multimedia learning. http://hilt.harvard.edu/blog/principles-multimedia-learning-richard-e-mayer. (Accessed 13 December 2014).

Minocha, S & Sharp, H. 2004. Learner-centred and evaluation of web-based e-learning environments. The 7th HCI Educators workshop: effective teaching and training in HCI. University of Central Lancashire, Preston Publishing.

Mitra, A. 1998. Categories of computer use and their relationships with attitudes toward computers. *Journal of Research on Computing in Education* 30(3): 281-295.

Mohammed, JSA, Rosnaini, M, Kamariah, AB & Ahmad, FMA. 2012. Factors influencing the use of learning management system in Saudi Arabian higher education: a theoretical framework. *Canadian Center of Science and Education* 2(2). http://www.ccsenet.org/journal/index.php/hes/article/view/14465/11537. (Accessed 18 January 2014).

Moore, B. 2014. Improving e-learning usability. http://www.trainingindustry.com/learning-technologies/articles/improving-e-learning-usability.aspx (Accessed 12 March 2014).

Moore, JL, Dickson-Deane C & Galyen K. 2011. E-learning, online learning, and distance learning environments: are they the same? *Internet and Higher Education* 14: 129-135.

Mouton, J. 2001. *The practice of social research*. Cape Town: Oxford University Press.

Mugenda, OM & Mugenda, AG. 2012. *Research methods dictionary*. Nairobi: Applied and Training Services.

Muhmud, K & Gope, K. 2009. Challenges of implementing e-learning for higher education in least developed countries: a case study on Bangladesh. IEEE Computer Society. http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5381225. (Accessed 12 December 2012).

Nasser, R, Cherif, M & Romanowski, MH. 2011. Factors that impact learning management system usage in Qatari schools. *The International Review of Research in Open and Distance Learning* 12(6).

NASSP Bulletin, 2001. *E-learning quality: the concord model for learning from a distance*. Sage. http://www.sagepublications.com/ (Accessed 02 September 2012).

NCTE. 2013. Http://www.ncte.ie/ICTPlanning/ICTInfrastructureResources/#. (Accessed 25 March 2013).

Ncube, S, Dube, L & Ngulube, P. 2014. E-learning readiness among academic staff in the Department of Information Science at the University of South Africa. *Mediterranean Journal of Social Sciences* 5(16): 357-366.

Ndenje-Sichalwe, E. 2010. The significance of records management to fostering accountability in the public service reform programme of Tanzania. PhD Thesis. Pietermaritzburg, University of KwaZulu-Natal.

Neo, M. 2003. Developing a collaborative learning environment using a web-based design. *Journal of Computer Assisted Learning* 19: 462-473.

Neuman, LW. 2006. *Human social research method*. 7th edition. Sydney: Pearson Education.

Ngulube, P.2005. Research procedures used by Master of Information Studies students at the University of Natal in the period 1982 to 2002 with special reference to their sampling techniques and survey response rates: a methodological discourse. *International Information and Library Review* 37(2):127–143. http://dx.doi.org/10.1016/j.iilr.2005.04.002 (Accessed 19 May 2014).

Ngulube, P, Mokwatlo, K & Ndwandwe, S. 2009. Utilisation and prevalence of mixed methods research in library and information research in South Africa 2002-2008. *South African Journal of Libraries and Information Science* 75(2): 105-116.

Ngulube, P. 2009. *Research methods in Information Science*. Pretoria: University of South Africa.

Noe, RA. 2014. E-learning and use of technology in training. http://answers.mheducation.com/business/management/employee-training-and-development/e-learning-and-use-technology-training (Accessed 31 March 2014).

Northrup, PT. 2002. Online learners' preferences for interaction. *Quarterly Review of Distance Education* 32: 219-226.

Nunan, D. 2008. *Research methods in language learning*. Cambridge: Cambridge University Press.

O'Neil, G & McMahon, T.2005. *Student-centred learning: what does it mean for students and lecturers?* All Ireland Society for Higher Education (AISHE), Dublin.

OECD. 2005. *E-learning in tertiary education: where do we stand*? ISBN 92-64-00920-5, €35, 292. Paris.

OECD, 2012. *Assessment of higher education learning outcomes*. OECD Publishing. http://www.oecd.org/edu/skills-beyond-school/AHELOFSReportVolume1.pdf (Accessed 19 March 2014).

Ogata, H & Yano, Y. 1998. Knowledge awareness: bridging learners in a collaborative learning environment. *International Journal of Educational Telecommunications, AACE* 4(3): 219–236.

Ogilvie, RW, Trusk, TC & Blue, AV. 1999. Students' attitudes towards computer testing in a basic science course. *Medical Education* 33: 828-831.

Oliver, TA & Shapiro, F. 2005. Self-efficacy and computers. *Journal of Computer-Based Instruction* 20: 81-85.

O'Malley, J & McGraw, H. 1999. Students perceptions of distance learning, online learning and the traditional classroom. *Online Journal of Distance Learning Administration* 2(4).

Open Learning Centre. 2007. What is e-learning? http://www.openlearningcentre.com/what is e-learning.htm (Accessed 13 November 2012).

Oxford Dictionary. 2013. New York, Oxford University Press.

Ozkan, S & Koseler, R. 2009. Multi-dimensional evaluation of e-learning systems in the higher education context: an empirical investigation of a computer literacy course. *Frontiers in Education Conference* 39: 1-6.

Palaigeorgiou, GE, Siozos, PD, Konstantakis, NI & Tsoukalas, IA. 2005. A computer attitude scale for computer science freshmen and its educational implications. *Journal of Computer Assisted Learning* 21: 330-342.

Panagiotakopoulos, C & Koustourakis, G. 2001. Dealing with 1st year university students' computer anxiety. *Themes in Education* 2(1): 35-46.

Piccoli, G, Ahmad, R & Ives, B. 2001. Web-based virtual learning environments: a research framework and a preliminary assessment of effectiveness in basic IT skills training. *Management Information Systems Quarterly* 25(4): 401-426.

Pillay, H, Irving, K & McCrindle, A. 2006. Developing a diagnostic tool for assessing tertiary students' readiness for online learning. *International Journal of Learning Technology* 2(1): 92-104.

Polit, DF & Beck, CT. 2004. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Research in Nursing ad Health* 29:489–497. http://onlinelibrary.wiley.com/doi/10.1002/nur.20147/pdf (Accessed 18 March 2014).

Project Management Institute. 2012. PMI ethical decision-making framework. http://www.pmi.org/About-Us/Ethics/~/media/PDF/Ethics/Ethical%20Decision%20Making%20Framework%20-%20FINAL.ashx. (Accessed 3 April 2014).

Quinn, C. 2012. *The mobile academy: m-learning for higher education*. San Francisco: Jossey-Bass.

Rahimi, E, van den Berg, J & Veen, W. 2013. Investigating teachers' perceptions about the educational benefits of Web 2.0 personal learning environments. *E-learning Papers.* http://openeducationeuropa.eu/en/article/Investigating-teachers%E2%80%99-perception-about-the-educational-benefits-of--Web2.0-personal-learning-environments-. (Accessed 11 February 2015).

Ramos, M & Ortega, AC. 2006. *Building a successful archival programme: a practical approach*. Oxford: Chandos Publishing.

Ravjee, N. 2007. The politics of e-learning in South African higher education. *International Journal of Education and Development using Information and Communication Technology* (3)4: 27-41.

Razzaq, L. & Heffernan, NT. 2008. Towards designing a user-adaptive web-based e-learning system. *CHI '08 extended abstracts on Human factors in computing systems*: 3525-3530. Florence, ACM Press.

Reeves, T & Reeves, P. 1997. Effective dimensions of interactive learning on the World Wide Web. In BH Khan (Ed.). *Web-based instruction.* 59-66. Englewood Cliffs, N.J.: Educational Technologies Publications.

Rhema, A & Miliszewska, I. 2010. Towards e-learning in higher education in Libya. *Issues in*

Informing Science and Information Technology 7. http://www.iisit.org/Vol7/IISITv7p423-437Rhema735.pdf. (Accessed 4 March 2015).

Rockwell, S & Scott, C. 1997. The effect of communication, writing and technology apprehension on likelihood to use new communication technologies. *Communication Education* 46: 44-62.

Roknuzzaman, M & Umemoto, K. 2009. Knowledge management education in library and information science programs: an exploratory study. In Asia-Pacific Conference on Library and Information Education and Practice. Tzukuba, Japan.

Rosen, L & Maguire, P. 1990. Myths and realities of computerphobia: a meta-analysis. *Anxiety Research* 3: 175-191.

Rosen, LD & Weil, MM. 1990. Computers, classroom instruction, and the computerphobic university student. *Collegiate Microcomputer* 8: 275-283.

Sahin, I & Shelley, M. 2008. Considering students' perceptions: the distance education student satisfaction model. *Educational Technology and Society* 11(3): 216-223.

Saldana, J. 2009. *The coding manual for qualitative researchers*. London: Sage.

Salmon, G. 2004. *E-moderating: the key teaching and learning online*. 2nd edition. London: Kogan.

Sam, HK, Othman, AEA & Nordin, ZS. 2005. Computer self-efficacy, computer anxiety, and attitudes toward the internet: a study among undergraduates in Unimas. *Educational Technology and Society* 8(4): 205-219.

Sarantakos, S. 2007. *Social research.* 2nd edition. Charles Sturt University, Palgrave Publishers.

Saunders, M, Lewis, P & Thornhill, A. 2007. *Research methods for business students*. 4th edition. Harlow: Prentice Hall.

Seaman, J & Tinti-Kane, H. 2013. *Social media for teaching and learning*. Pearson learning solutions and the Babson survey research group. http://www.pearsonlearningsolutions.com/assets/downloads/reports/social-media-for-teaching-and-learning-2013-report.pdf#view=FitH,0 (Accessed 11 February 2015).

Selim, HM. 2007. Critical success factors for e-learning acceptance: confirmatory factor models. *International Journal of Technology Marketing* 2(2): 157-182.

Selwyn, N. 1997. Students' attitudes toward computers: validation of a computer attitude scale for 16-19 education. University of Wales, Cardiff, 21 Scnghennydd Road, Cardiff CF2 4YG, Wales. *Computers Education* 28(1): 35-41.

Serwatka, J. 2002. Improving student performance in distance learning courses. *The Journal of Technological Horizons in Education* 29(9): 46-52.

Sharpe, R & Benfield, G. 2005. The student experience of e-learning in higher education: a review of the literature. *Brooks e-Journal of Learning and Teaching* 3(1):10.

Sharpherd, C. 2002. Skilling up - learning about e-learning. http://www.fastrak-consulting.co.uk/tactix/Features/skillingup.htm (Accessed 11 November 2013).

Siemens, G. 2005. When learning goes underground. http://www.connectivism.ca/blog/47 (Accessed 30 November 2013).

Sife, AS, Lwoga, ET & Sanga, C. 2007. New technologies for teaching and learning: challenges for higher learning institutions in developing countries. *International Journal of Education and Development Using Information and Communication Technology* 3(2): 57-67.

Silverstone, J. 2011. Advantages and importance of e-learning and its future. http://itwigle.com/twig/Advantages_Importance_of_e_Learning_and_its_Future. (Accessed 30 November 2012).

Singh, G, O'Donoghue, J & Worton, H. 2005. A study into the effects of e-learning on higher education. *Journal of University Teaching and Learning Practice* 2(1). http://ro.uow.edu.au/jutlp/vol2/iss1/3. (Accessed 30 July 2013).

Singleton, RA & Straits, BC. 2010. *Approaches to social research*. 5th edition. New York: Oxford University Press.

So, T & Swatman, MC. 2006. *E-learning readiness of Hong Kong teachers*. University of Australia. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.65.8121&rep=rep1&type=pdf . (Accessed 05 November 2013).

Ssemugabi, & de Villiers, MR. 2010. Effectiveness of heuristic evaluation in usability evaluation of e-learning applications in higher education. School of Computing, University of South Africa. *South African Computing Journal* 45(0).

Stangor, C. 2011. *Research methods for the behavioural sciences* .4th edition. Belmont: Wadsworth, Cengage Learning.

Stockley, D. 2003. *Elearning, online training, online learning*. Chirnside Park, Melbourne: Perth.

Stockley, D. 2012. *E-learning, online training, online learning.* Chirnside Park, Melbourne: Perth.

Sun, PC, Tsai, RJ, Finger, G, Chen, YY & Yeh, D. 2008. What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education* 50(14): 1183-1202. http://www.sciencedirect.com/science/article/pii/S0360131506001874. (11 November 2014).

Tagoe, M. 2013. Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana. *International Journal of Education and Development using Information and Communication Technology* 8(1): 91-103.

Tashakkori, A & Teddie, C. 2009. *Foundations of mixed methods research: integrating quantitative and qualitative approaches in the social and behavioural sciences*. Thousand Oaks: Sage Publications.

Tavangarian, D, Leypold, ME, Nölting, K, Röser, M & Voigt, D. 2004. Is e-learning the solution for individual learning? *Electronic Journal of e-Learning* 2(2): 273-280.

Tekinarslan, E. 2008. Computer anxiety: a cross-cultural comparative study of Dutch and Turkish university students. *Computers in Human Behavior* 24:1572–1584. http://www.education.umd.edu/EDMS/fac/Harring/PastClasses/EDMS646/Other/Tekinarslan_ANOVA_2008.pdf (Accessed 19 March 2014).

Teo, CB & Gay, RKL. 2006. A knowledge-driven model to personalize e-learning. *Journal of Educational Resources in Computing* (1): 1-15.

Terre Blanche, M, Durrheim, K & Painter, D. 2006. *Research in applied methods for the social sciences*. Cape Town: UCT Press.

The Writer's Handbook. 2012. Learn how to write a review of literature. http://writing.wisc.edu/Handbook/ReviewofLiterature.html. (Accessed 31 January 2013).

Triacca, L, Bolchini, D, Botturi, L & Inversini, A. 2004. Mile: systematic usability evaluation for e-learning web applications. *Association for the Advancement of Computing in Education Journal* 12(4). http://www.editlib.org/p/11709/. (Accessed 22 September 2015).

Trochim, WMK. 2001. *The research methods knowledge base*. 2nd edition. Cornell: Cornell University.

Tuckman, BW. 2002. Evaluating ADAPT: a hybrid instructional model combining web-based and classroom components. *Computers and Education* 39: 261-269.

UNESCO. 2002. Open and distance learning: trends, policy and strategy considerations. http://unesdoc.unesco.org/images/0012/001284/128463e.pdf. (Accessed 11 August 2012).

UNESCO. 2010. Open and distance learning: trends, policy and strategy considerations.http://unesdoc.unesco.org/images/0012/001284/128463e.pdf. (Accessed 12 November 2013).

UNISA Web. 2013. http://www.unisa.ac.za/default.asp?Cmd=ViewContent&ContentID=833&Preview=True&P_XSLFile=unisa/accessibility.xsl. (Accessed 09 May 2013).

University of Durham. 2008. E-learning strategy: learning and teaching handbook. http://www.dur.ac.uk/learningandteaching.handbook/7/3/1/. (Accessed 06 November 2013).

University of Freiburg. 2014. Why use e-learning? http://www.rz.uni-freiburg.de/services-en/elearning-en/elearning-en?set_language=en. (Accessed 17 January 2014).

University of South Africa, 2007. UNISA policy on research ethics. Pretoria. http://cm.unisa.ac.za/contents/departments/res_policies/docs/ResearchEthicsPolicy_apprvCounc_21Sept07.pdf. (Accessed 25 January 2014).

University of South Africa. Department of Information Science. 2011. Revised edition. *Information Science: only study guide for INS2701: Introduction to information science*. Pretoria.

Ursavaş, OF & Teo T. 2011. A multivariate analysis of the effect of gender on computer anxiety among elementary school teachers. *British Journal of Educational Technology* E19-E20.

Virtual Studies.net. 2005. Role of the student and the instructor in e-learning. http://www.virtualstudies.net/role-of-the-student-and-instructor-in-elearning.php. (Accessed 13 June 2013).

Volery, T. 2000. Critical success factors in online education. *The International Journal of Educational Management* 14(5): 216-223.

Wagner, N, Hassanein, K & Head, M. 2008. Who is responsible for e-learning success in higher education? A stakeholders' analysis. *Educational Technology and Society* 11(3): 26-36.

Walker, J. 2007. Importance of the Internet. https://www.tibetangeeks.com/using_tech/importance/importance_of_internet.html. (10 November 2014).

Waltz, CF, Strickland, OL & Lenz, ER. 2005. *Measurement in nursing and health research*. 3rd edition. New York: Springer Publishing Co.

Webster, J & Hackley, P. 1997. Teaching effectiveness in technology-mediated distance learning. *Academy of Management Journal* 40(6): 1282-1309.

Weinreich, NK. 2006. Integrating quantitative and qualitative methods in social marketing research. http://www.social-marketing.com/research.html. (Accessed 29 January 2015).

Wernet, S, Olligies, R & Delicath, T. 2000. Post course evolution of WebCT classes by social work students. *Research on Social Work Practice 10*(4): 487-504.

Williams, KC, Cameron, BA, Morgan, K & Wade, C. 2012. Facilitation of online group projects: insights from experienced faculty. Paper presented at 28th *Annual Conference on Distance Teaching & Learning.*

Wilson, BG. 2004. Designing e-learning environments for flexible activity and instruction. *Educational Technology Research and Development* 52: 77-84.

Wilson, J. 2001. Lessons of a virtual timetable: education. The Economist, (17 February), p. 1 (CDROM).

Wilson, S. 2005. The PLE debate begins. http://www.cetis.ac.uk/members/scott/blogview?entry=20051126183704. (Accessed 03 August 2013).

Woodrow, JA. 1991. Comparison of four computer attitude scales. *Journal of Educational Computing and Research* 7: 165-187.

Wouters, K, Maesschalck, J, Peeters, CFW & Roosen, M. 2013. Methodological issues in the design of online surveys for measuring unethical work behavior: recommendations on the basis of a split-ballot experiment. *Journal of Business Ethics* 120: 275-289.

Wyatt, JC.2000. When to use web-based surveys. *Journal of the American Medical Informatics Association* 4: 426-429.

Wynd, CA, Schmidt, B & Schaefer, MA. 2003. Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research* 25: 508-518.

Xu, H. (nd). Students' perceptions of University education – USA vs China. *Research in Higher Education Journal*. http://www.aabri.com/manuscripts/10703.pdf. (Accessed 16 December 2014).

Yang, Y & Cornelious, LF. 2005. *Preparing instructors for quality online instruction.* State University of West Georgia, distance education center VIII: I, Spring.

Young, A & Norgard, C. 2006. Assessing the quality of online courses from the students' perspective. *Internet and Higher Education* 9: 107-115.

Young, LE & Parterson, BL. 2007. *Teaching nursing: developing a student-centered learning environment.* Lippcott: Williams and Wilkins.

Yu, S, Chen, IJ, Yang, KF, Wang, TF & Yen, LL. 2007. A feasibility study on the adoption of e-learning for public health nurse continuing education in Taiwan. *Nurse Education Today* 27(7): 755-761.

Zaharias, P. 2009. Developing usability evaluation methods for e-learning applications: beyond functional usability. *International Journal of Human-Computer Interaction* 25(1):75-98. http://www.academia.edu/948919/Developing_a_usability_evaluation_method_for_e-learning_applications_Beyond_functional_usability. (Accessed 15 October 2013).

Zhang, D, Zhao, JL, Zhou, L, & Nunamaker, JF. 2004. Can e-learning replace classroom learning? *Communications of the Association of Computing Machinery* 47(5): 75-79.

Zhang, P. 2013. The affective response model: a theoretical framework of affective concepts and their relationships in the ICT context. *Management Information Systems Quarterly 37(1): 247-274.*

Zheng, Y & Yano, Y. 2007. A framework of context-awareness support for peer recommendation in the e-learning context. *British Journal of Educational Technology* 38(2): 197-210.

APPENDICES

Appendix A: Bachelor of Information Science programme

1st year level modules	2nd year level modules	3rd year level modules
1. AIS1501: Introducing applied Information Science	1. AIS202H: Bibliographic control, basic descriptive cataloguing and classification	1. AIS3701: Descriptive cataloguing
2. AIS1503: Introducing information records and sources	2. AIS204K: Learning how to provide reference services	2. AIS302L: Subject organisation
3. AIS104G: Using the Internet as a reference tool	3. AIS206M: Describing library user groups and meeting their needs	3. AIS3703: Serving the user in library and information practice
4. INS1501: Introduction to Information Science	4. AIS207N: Utilising electronic library systems and services	4. AIS3704: Applying research methodology in Information Science
5. INS1502: Developing information skills for lifelong learning	5. AIS208P: Developing and managing information collections	5. AIS3705: Practical portfolio
6. MNB1501: Business management	6. INS2055: Exploring information user studies	6. AIS3706: Information Entrepreneurship
7. ENN103F: English for academic purposes **OR** AFK1502: Basiese teksvaardighede	7. INS2066: Investigating information ethics in the information era	7. INS3036: Using information: the role of information behaviour
8. COM1501: Fundamentals of communication	8. INS2078: Introducing information management	8 INS3702: Political Economy of Information
9. EUP1501: End user computing (Practical)	9. INS2701: ICTs for Information Science	9. INS3059: Information and Knowledge management
10. AFL1501: Understanding language usage: an African cultural perspective OR AFL1502: African language and culture in practice OR (*for non-SA students*) any 'NQF Level 5' language module offered by Unisa.	10. RSC2601: Research in social sciences	10. INS3707: Information Organization and Retrieval

BInf curriculum for 2013 (UNISA 2013)

Appendix B: Questionnaire for students

STUDENTS' PERCEPTIONS OF E-LEARNING IN THE DEPARTMENT OF INFORMATION SCIENCE AT UNISA

Dear Prospective Respondent

My name is Lancelord Siphamandla Ncube and I am conducting a Master's Degree research in Information Science at the University of South Africa. I am carrying out a study on "**Students' Perceptions of E-Learning in the Department of Information Science at the University of South Africa**". The application for conducting research involving Unisa staff, students or data in respect of the above study has been submitted to the Unisa Senate Research and Innovation and Higher Degrees Committee (SRIHDC) and the permission or ethical clearance was granted on 05 June 2014.

I kindly request your participation in this survey. The information you provide will be used solely for research purposes. You have been selected to participate in this survey because you are registered for the module Information and Communication Technologies for Information Science (INS2701). You are, however, under no obligation to complete the survey and can withdraw from the study prior to submitting the survey. Also note that the survey is developed to be anonymous and I, as researcher, will have no way of connecting the information you provide to you personally. You will not be able to withdraw from the study once you have clicked the send button based on the anonymous nature of the survey. If you choose to participate in this survey, it will take no more than 20 minutes of your time. I do not foresee that you will experience any negative consequences by completing this web-survey. Nevertheless, the researcher undertakes to keep any individual information provided herein confidential, not to let it out of his possession, and to analyse the feedback received only on a group level. The records will be kept for three years for completing a master's for study purposes whereafter it will be permanently deleted from the hard drive of the computer.

It is hoped that the information I gain from this survey will help me in completing my dissertation. You will not be reimbursed or receive any incentives for your participation in the survey. Should you require any further information, want feedback on the study or need to contact the researcher about any aspect of this study, feel free to do so.

Thanking you in advance for your time.

Kind regards

Lancelord Siphamandla Ncube
Department of Information Science
Tel: (012) 429 4344
Cell : 073 872 4708
Fax : 0862763614
Email: ncubels@unisa.ac.za

Consent letter for students

CONSENT Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mr Lancelord Siphamandla Ncube, about the nature, conduct, benefits and risks of this study.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including any personal details, will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

Please tick the box below to indicate your consent.
I HAVE READ THE CONSENT FORM AND HEREBY AGREE TO PARTICIPATE IN THIS STUDY *

☐

SECTION A: BACKGROUND INFORMATION
*Please make a clear cross (**X**) where appropriate*

1. **Gender**

Male	
Female	

2. **Age Group**

Age	
15 – 19	
20 – 24	
25 – 29	
30 – 34	
35 – 39	
40 – 44	
45 – 49	
50 – 54	
55 – 59	
60 – 64	
65 +	

3. **Please indicate the province which you are currently located**

Eastern Cape	
Free State	
Gauteng	
KwaZulu-Natal	
Limpopo	
Mpumalanga	
Northern Cape	
North West	
Western Cape	
Other country, please specify	

4. **Level of study**

1st year	
2nd year	
3rd year	
4th year	

<u>SECTION B:</u> RATIONALE FOR E-LEARNING
AT UNISA E-LEARNING IS IMPLEMENTED THROUGH TO MYUNISA PLATFORM.

5. **What do you understand by the term 'e-learning'?**
*Please make a clear cross (**X**) where all appropriate (you can cross more than one)*

Distance learning	
Online course/learning	
Web-based learning	
Web-based training	
All learning environments	
All of the above	
None of the above	

6. **Which device(s) do you use to access myUnisa?**
*Please make a clear cross (**X**) where appropriate (you can cross more than one)*

Method of Access	
Cellphone (Smartphone)	
Tablet or Ipad	
Desktop	
Laptop	
Other, please specify_____	

7. **For what purposes do you use myUnisa?**
*(Please make a clear cross (**X**) where appropriate)*

For submitting assignments	
For interacting with other students	
To engage and participating in discussion forums	
To check announcements posted by the lecturers or tutors	
To access study resources	
All of the above	
Other, please specify_____	

SECTION C: THE BENEFITS OF E-LEARNING

8. Benefits of using technical (myUnisa) platforms for learning

*Please make a clear cross (**X**) where appropriate (you can cross more than one)*

Ease of access to information	
Ease to get supervision where ever you are	
Safe digital environment for students to submit work	
Combination of both synchronous and asynchronous learning	
Enabling of quality education for increasing numbers of students and lecturers	
Potential for re-use of content	
Students can learn at their own pace	
Facilitates the management of student records	

9. Please rate the benefits of e-learning to you as a student.

Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Flexibility in time and place					
Ease and quick share of educational material					
Improved collaboration and interactivity among students					
Access to higher education for all applicants					
Possibility of working with e-learning					
Accommodates different types of learning styles					
Quick feedback					
Wide and diverse interactions					
Confidence					
Updated learning material					

SECTION D: ACCESSIBILITY

10. Do you get support when you are off-campus in terms of accessing resources?

Yes	
No	
Not sure	

11. Has the technology enabled you to access your study resources effectively?

Very effective	
Not effective	
Undecided	

12. How do you access information from UNISA?

*Please make a clear cross (**X**) where appropriate (you can cross more than one item)*

Method of support	
MyUnisa	
Cellphone/sms	
Landline	
Post Office	
Other, please specify_____	

13. Where do you access your study resources?

*Please make a clear cross (**X**) where appropriate (you can cross more than one item)*

Computer lab (in library)	
UNISA regional office	
Home PC	
Office PC	
Other, please specify_____	

SECTION E: STUDENT PERCEPTIONS

14. How do you perceive e-learning?

Items	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Perceived self-efficacy of using e-learning					
I feel confident using the e-learning system (myUnisa).					
I feel confident operating e-learning functions.					
I feel confident using online learning content.					
Perceived enjoyment of using e-learning:					
I enjoy using myUnisa as an assisted learning tool.					
I enjoy using e-learning functions.					
I am satisfied with learning content.					
I enjoy multimedia instructions.					
Perceived usefulness of using e-learning:					
I believe e-learning content is informative.					
I believe e-learning is a useful learning tool.					
I believe e-learning content is useful.					
Behavioural intention of using e-learning:					
I intend to use e-learning to assist my learning.					
I intend to use e-learning content to assist my learning.					
I intend to use e-learning as an autonomous (free) learning tool.					

SECTION F: THE ATTITUDE OF STUDENTS TOWARDS MYUNISA (E-LEARNING)

15. Attitude of utilisation of internet as part of e-learning?

Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
I would like to communicate with all subject lecturers via the internet.					
I keep in touch with my classmates via the internet.					
I benefit from communicating with my lecturer online.					
Internet should **not** be used.					
It is important for people to know how to use the internet.					
I am afraid of the internet.					
Students should **not** be allowed to communicate with the lecturers online.					
Computer literacy should start from the first level.					

16. Effects of computer experience on e-learning attitudes

Variables	No experience	Little experience	Some experience
Experience with operating systems			
Experience with the internet			
Experience with online library databases			
Experience with e-learning			
Perceived self-efficacy of using e-learning			
Perceived enjoyment of using e-learning			
Perceived usefulness of using e-learning			
Behavioural intention of using e-learning			

SECTION G: USABILITY

17. Usability of myUnisa as a e-learning platform

*Please make a clear cross (**X**) where appropriate (you can cross more than one item)*

Learning to operate the e-learning service is easy for me	
It is easy for me to become skilful at using the e-learning service	
Using the e-learning service can improve my learning performance	
Using the e-learning service can simplify the learning process	
Using the e-learning service fits well with the way I learn	
The setup of the e-learning service is compatible with the way I learn	

18. Reliability of myUnisa as e-learning platform

*Please make a clear cross (**X**) where all appropriate (you can cross more than one)*

The layout and user interface design of myUnisa web site is friendly	
It is easy to navigate myUnisa web site	
MyUnisa web site provides the service I need	
I feel comfortable in using the functions and services provided in myUnisa Web site	
MyUnisa web site provides complete information	
MyUnisa Web site provides information that is easy to comprehend	

19. Which tools do you use frequency for e-learning?

E-learning tools	Always	Occasionally	Seldom	Never
Video conferencing				
Electronic mail				
Search engines				
Audio/video tapes				
Virtual classroom				
CD-ROM				
WebCT				
Social networks				
Other, please specify_____				

20. How much time do you spend on the internet?

*(Please make a clear cross (**X**) where appropriate* ***(cross one)****)*

0 hours per week.	
1-3 hours per week.	
4-6 hours per week.	
7-9 hours per week.	
10-12 hours per week.	
13-15 hours per week.	
16-18 hours per week.	
More than 18 hours per week.	

21. How much time do you spend on myUnisa?

*(Please make a clear cross (**X**) where appropriate* ***(cross one)****)*

0 hours per week.	
1-3 hours per week.	
4-6 hours per week.	
7-9 hours per week.	
10-12 hours per week.	
13-15 hours per week.	
16-18 hours per week.	
More than 18 hours per week.	

SECTION H: OBSTACLES TO E-LEARNING

22. Which challenges do you experience with myUnisa?

*Please make a clear cross (**X**) where appropriate (you can cross more than one item)*

Having no access to computers	
Long distance to access computers in the region/s	
No electricity	
Low level of English competency	
Need for face to face interaction	
Low level of awareness	
Lack of computer literacy	
Lack of assistance in region	
Lack of assistance from the lecturer	
Shortage of data bundles	
Difficulties with wireless signal in my area	
High cost of access on Home PC, PDAs	
Low motivation	
Lack of technical support	
Other, please specify_____	

Thank you very much for your valuable comments /suggestions and time!

Appendix C: Interview for lecturer

STUDENTS' PERCEPTIONS OF E-LEARNING IN THE DEPARTMENT OF INFORMATION SCIENCE AT UNISA

Dear Respondent

My name is Lancelord Siphamandla Ncube and I am doing research with my supervisor Dr Luyanda Dube, Senior Lecturer in the Department of Information Science towards a MA in Information Science at the University of South Africa. I am carrying out a study on "**Students' Perceptions of E-Learning in the Department of Information Science at the University of South Africa**". The application to conduct research involving Unisa staff, students or data in respect of the above study has been submitted to the Unisa Senate Research and Innovation and Higher Degrees Committee (SRIHDC) and the permission was granted on 05 June 2014.

By participating in this interview, you agree that the information you provide may be used for research purposes. You have been selected to participate in this interview because you are a lecturer in the Information Science Department. You are, however, under no obligation to participate in the interview and can withdraw from the study. If you choose to participate in this interview it will take not more than 10 minutes of your time. I do not foresee that you will experience any negative consequences by participating in this interview. Nevertheless, the researcher undertakes to keep any individual information provided herein confidential. The records will be kept for three years for study purposes where after it will be shredded and electronic versions will be permanently deleted from the tape recorder.

It is hoped that the information I gain from this interview will help me in completing my dissertation. You will not be reimbursed or receive any incentives for your participation in the interview. Should you require any further information, want feedback on the study or need to contact the researcher about any aspect of this study, feel free to do so.

Your invaluable effort in participating in the interview is greatly appreciated.

Thank you in advance for your time.

Siphamandla Ncube

Department of Information Science

Tel: (012) 429 4344

Cell : 073 872 4708

Fax : 0862763614

Email: ncubels@unisa.ac.za

Consent letter for lecturers

CONSENT Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Mr Lancelord Siphamandla Ncube, about the nature, conduct, benefits and risks of this study.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including any personal details, will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

I HAVE READ THE CONSENT FORM AND HEREBY AGREE TO PARTICIPATE IN THIS STUDY *

Lecturers' interview schedule

"AT UNISA E-LEARNING IS IMPLEMENTED THROUGH TO MYUNISA PLATFORM"

A. ASSESSMENT ON HOW LECTURERS INFLUENCE STUDENTS' PERCEPTIONS OF E-LEARNING

1. How do you influence students' perceptions for myUnisa?

.....
.....
.....
.....

2. How does your teaching style or teaching philosophy or approach influence students' engagement with e-learning?

.....
.....
.....
.....

B. STRATEGIES UTILISED BY LECTURERS TO PROMOTE E-LEARNING

3. What strategies do you use to implement e-learning?

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.....
.....
.....

4. What do you think is a good strategy to promote myUnisa as e-learning platform?

.....
.....
.....
.....

5. In what way do you promote e-learning?

.....
.....
.....
.....

Thank you very much for your valuable comments /suggestions and time!

Appendix D: Ethical clearance award

PROF L LABUSCHAGNE
EXECUTIVE DIRECTOR: RESEARCH DEPARTMENT
***Tel**: +27 12 429 6368 / 2446*
***Email**: llabus@unisa.ac.za*
***Address**: Theo van Wijk Building, 10th Floor, Office no. 50 (TvW 10-50)*

10 July 2014

Mr LS Ncube
Department of Information Science
College of Human Sciences

Dear Mr Ncube

PERMISSION TO DO RESEARCH INVOLVING UNISA STAFF, STUDENTS OR DATA

A study into "Students' perceptions towards e-learning in the Department: Information Science at Unisa"

Your application regarding permission to conduct research involving Unisa staff, students or data in respect of the above study has been received and was considered by the Unisa Senate Research and Innovation and Higher Degrees Committee (SRIHDC) on 05 June 2014.

It is my pleasure to inform you that permission has been granted for this study as set out in your application.

We would like to wish you well in your research undertaking.

Kind regards

PROF L LABUSCHAGNE
EXECUTIVE DIRECTOR: RESEARCH

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