



**Determining the effectiveness of e-learning for higher education students: A case of the Durban University of Technology**

By

Mbalenhle Khumalo

Submitted in fulfilment of the requirements of the Master of Management Sciences in Administration and Information Management

Department of Information and Corporate Management

Faculty of Accounting and Informatics

Durban University of Technology

Durban, South Africa

November 2018

**APPROVED FOR FINAL SUBMISSION**

Supervisor



Date: 2019-04-11

Dr KS Ngwane

Co-supervisor



Date: 2019-04-11

Mr BonganiQwabe

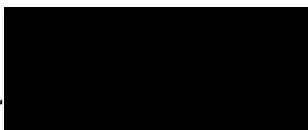
## DECLARATION

I, the undersigned, certify that:

- I am familiar with the rules regulating higher qualification at the Durban University of Technology, and understand the seriousness with which DUT will deal with violations of ethical practice in my research.
- Where I have used the work of others this has been correctly referenced in the study and again referenced in the reference list. Any research of similar nature that has been used in the development of my research project is also referenced.
- This project has not been submitted to any other educational institution for the purpose of qualification.
- All subsidy-earning output (artefacts and publication from postgraduate) studies will be in accordance with the intellectual property policy of the Durban University of Technology.
- Where patents are developed under the supervision of Durban University of Technology involving institution expenditure, such patents will be regarded as joint property entitling the Durban University of Technology to its share, subject to the Durban University of Technology policy on the Management and Commercialization of intellectual property.
- I understand that plagiarism is wrong and incurs severe penalties.

I hereby declare that the above facts are correct.

Signed..



Date

2019-04-12

## ABSTRACT

A number of studies have been conducted in relation to electronic learning (e-learning) in higher education and many have noted the effectiveness of e-learning over recent decades. However, only a few have investigated on the use of e-learning and whether or not it satisfies its users. The internet is greatly used as an educational tool that enables students to access information and instant communication. Accessing the internet can occur anywhere and anytime. E-learning is one of the educational tools that can help students study anywhere and anytime; learning does not have to be done in lecture rooms. The purpose of this study was to determine how helpful e-learning is towards students' academic progress at the Durban University of Technology. It specifically investigated on how academics encourage students to make use of e-learning, how often students make use of it and whether or not they are satisfied with e-learning as a tool of teaching and learning.

The results of the research indicate that even though majority of the students know about e-learning and make use of it, some students are still left in the dark and do not at all use this platform. While some students feel that e-learning has assisted a lot and has improved their academic progress, some feel that more needs to be done to certain that everyone is satisfied with the implementation and effectiveness of e-learning.

Following an in-depth analysis of the findings, this study recommends that the Durban University of Technology should consider conducting workshops that will educate students on the importance of e-learning and its power when used accordingly and continuously, that every academic has to do their part in ensuring that Think Learn Zone is a success and impacts tremendously on students' academic progress. The study further recommends that students should be encouraged to at least make use of this tool every day so there could be an improvement in their academic progress. Notes and learning materials should be posted on a daily basis and that students can be encouraged to make use of e-learning.

## ACKNOWLEDGEMENTS

He is Lord! He has risen from the dead and He is Lord. Every knee shall bow and every tongue confess that Jesus Christ is Lord. Heavenly Father none of this would have been possible without You. Thank you for Your promises and grace!

To my supervisor, Dr Ngwane I am incredibly thankful for your guidance, assistance and encouragement.

Mr Bongani Qwabe (co-supervisor), your guidance, trust and support is immensely appreciated.

The Durban University of Technology, I am forever grateful for the opportunity and funding.

Mr Deepak Singh (Statistician) and Dr H L Garbharran (editor) thank you so much for the assistance.

My grandmother Mrs Stulela Khumalo, thank you so much for being my rock, a shoulder to cry on and an ear that listens to everything even the most stupid things. Your prayers have kept and continue to keep me going and pushing hard. May I never run out of ways to make you proud.

The Khumalo family, nothing could ever put into words how blessed and grateful I am to have you in my life. May you all be blessed abundantly.

My friends: Tembutfo Kunene, Nokwanda Mabaso, Nkululeko Mbatha, Wendy Ntuli, Nombulelo Mahumane, Sanelisiwe Gwama, Fundisiwe Khoza, Yulie Ngcobo, Tevin Ray and Busisiwe Kunene. Your support, love and friendship during the hardest and happiest times of my life is appreciated very much. May you all be granted your heart desires.

Last but not least, Charles Allan Olivier thank you so much for pushing me to my limits, bringing out the absolute best in me, loving me unconditionally and teaching me to do so even in the hardest times, but most importantly, thank you so much for supporting my dream and ensuring that it becomes a reality. Not many would do what you did for me. This one is for you! This achievement is dedicated to you. I know you are looking down and smiling. May your soul rest in eternal peace. You will forever be loved and missed.

## TABLE OF CONTENT

|                       |      |
|-----------------------|------|
| COVER PAGE            | i    |
| DECLARATION           | ii   |
| ABSTRACT              | iii  |
| ACKNOWLEDGEMENT       | iv   |
| TABLE OF CONTENT      | vi   |
| APPENDIXES            | vii  |
| LIST OF FIGURES       | x    |
| LIST OF TABLES        | xi   |
| LIST OF ABBREVIATIONS | xiii |

| <b>CHAPTER ONE</b>                   | <b>PAGE</b> |
|--------------------------------------|-------------|
| 1.1 Introduction                     | 1           |
| 1.2 Definitions                      | 2           |
| 1.3 Content                          | 3           |
| 1.4 Research Problem                 | 3           |
| 1.5 Aims and objectives of the study | 4           |
| 1.6 Research methodology             | 5           |
| 1.7 Significance of the study        | 5           |
| 1.8 Scope of the study               | 6           |
| 1.9 Theoretical framework            | 6           |
| 1.10 Content of the chapters         | 6           |
| 1.11 Conclusion                      | 7           |
| <br>                                 |             |
| <b>CHAPTER TWO</b>                   | <b>PAGE</b> |
| 2.1 Introduction                     | 8           |
| 2.2 Definition of e-learning         | 9           |
| 2.3 types of e-learning              | 9           |
| 2.4 E-learning tools                 | 10          |
| 2.5 E-learning trends                | 11          |
| 2.5.1 Blended learning               | 11          |
| 2.5.2 Gamification                   | 11          |
| 2.5.3 Personalised learning          | 12          |

|  |             |
|--|-------------|
| 2.5.4 Continuous learning                            | 12          |
| 2.6 Implementation of e-learning in higher education | 12          |
| 2.7 Challenges of e-learning                         | 14          |
| 2.8 Challenges faced by academics on e-learning      | 15          |
| 2.8.1 Learning styles and culture                    | 16          |
| 2.8.2 Pedagogical e-learning challenges              | 16          |
| 2.8.3 Technological challenges                       | 16          |
| 2.8.4 Technical training challenges                  | 17          |
| 2.9 Advantages and disadvantages of e-learning       | 18          |
| 2.9.1 Advantages of e-learning                       | 18          |
| 2.9.2 Disadvantages of e-learning                    | 19          |
| 2.10 E-learning in developed countries               | 20          |
| 2.11 E-learning in non-developed countries           | 21          |
| 2.11.1 Challenges for developed countries            | 22          |
| 2.12 Educational impact on e-learning                | 23          |
| 2.13 Impact of e-learning on academics               | 24          |
| 2.14 Learning Management Systems in South Africa     | 25          |
| 2.15 Blackboard as a learning tool                   | 27          |
| 2.16 Satisfaction of e-learning                      | 29          |
| 2.17 Students' performance                           | 29          |
| 2.18 Role of computer skills in e-learning setup     | 31          |
| 2.19 Students characteristics                        | 32          |
| 2.20 Conceptual framework                            | 33          |
| 2.21 Conclusion                                      | 34          |
| <b>CHAPTER THREE</b>                                 | <b>PAGE</b> |
| 3.1 Introduction                                     | 35          |
| 3.2 Research Design                                  | 35          |
| 3.2.1 Quantitative design aspects                    | 36          |
| 3.3 Target population                                | 37          |
| 3.4 Sampling   | 37          |
| 3.4.1 Sampling frame                                 | 40          |
| 3.5 Data collection                                  | 40          |
| 3.5.1 Questionnaire design                           | 40          |

|   |    |
|---|----|
| 3.5.1.1 Students questionnaire          | 41 |
| 3.5.2 Structured interviews             | 42 |
| 3.6 Administration of questionnaire     | 43 |
| 3.7 Pretesting the questionnaire        | 44 |
| 3.8 Ethical considerations              | 44 |
| 3.9 Confidentiality                     | 45 |
| 3.10 Reliability                        | 45 |
| 3.11 Validity                           | 46 |
| 3.12 Data presentation                  | 46 |
| 3.13 Data analysis                      | 47 |
| 3.13.1 Descriptive statistical analysis | 47 |
| 3.14 Conclusion                         | 48 |

| <b>CHAPTER FOUR</b>   | <b>PAGE</b> |
|---|-------------|
| 4.1 Introduction  | 49          |
| 4.2 Biographical analysis of students                                   | 49          |
| Figure 4.1 Gender of respondents  | 49          |
| Figure 4.2 Students age   | 50          |
| Figure 4.3 Racial compositions of students                              | 51          |
| Figure 4.4 Students department  | 52          |
| Figure 4.5 Level of study   | 53          |
| 4.3 Analysis  | 54          |
| Figure 4.6 Use of computer at residential address                       | 55          |
| Figure 4.7 Place where students access e-learning                       | 56          |
| Figure 4.8 Use of e-learning  | 57          |
| Figure 4.9 Lecturers instruction to use e-learning                      | 58          |
| Figure 4.10 E-learning helps me catch up on lectures I have missed      | 59          |
| Figure 4.11 Notes and slides on e-learning me revise after lectures     | 60          |
| Figure 4.12 E-learning is a useful mean of communication                | 61          |
| Figure 4.13 Notes on e-learning help me understand lectures I find hard | 62          |
| Figure 4.14 E-learning serves as backup for materials and handouts      | 63          |
| Figure 4.15 E-learning enables students to ask questions                | 64          |
| Figure 4.16 E-learning helps students revise in convenient places       | 65          |
| Figure 4.17 E-learning helps students' student in convenient places     | 66          |



|   |    |
|---|----|
| Figure 4.18 Do lecturers upload everything on e-learning? | 66 |
|---|----|

## **4.2 ACADEMICS INTERVIEWS**

|  |    |
|--|----|
| 4.2.1 How often do you instruct students to log on to Think Learn Zone?  | 67 |
| 4.2.2 Do you upload everything you lecture on in class on Think learn Zone and is it useful to students?                           | 67 |
| 4.2.3 Are students able to communicate with you through e-learning before lectures or even on weekends and holidays?               | 67 |
| 4.2.4 How do you use e-learning as a tool of teaching especially for students who do not understand in class or who do not attend? | 68 |
| 4.2.5 Which variety of resources do you upload on e-learning platform that can be helpful to students?                             | 68 |
| 4.2.6 Do you post notes well in advance for students to read through and prepare for lectures?                                     | 68 |
| 4.3 Conclusion   | 69 |

## **CHAPTER FIVE**

|  | <b>PAGE</b> |
|--|-------------|
| 5.1 Introduction   | 70          |
| 5.2 Achievement of objectives on key findings  | 70          |
| 5.2.1 To investigate the determinants of satisfaction of e-learning as a tool of teaching and learning | 70          |
| 5.2.2 To investigate lecturer's strategies to promote e-learning                                       | 71          |
| 5.2.3 To identify the level of use of e-learning by DUT students                                       | 71          |
| 5.2.4 To determine how e-learning impacts on students' academic progress                               | 72          |
| 5.3 Recommendations  | 73          |
| 5.4 Suggestions for future study   | 74          |
| 5.5 Limitations of the study   | 74          |
| 5.6 Conclusions  | 74          |
| <b>LIST OF REFERECES</b>   | <b>75</b>   |

| <b>APPENDIXES</b>  | <b>PAGE</b> |
|--|-------------|
| Appendix A – Permission to conduct study at DUT          | 88          |
| Appendix B – IRIC letter of information and consent form | 89          |
| Appendix C – Students questionnaire                      | 90          |
| Appendix D – Academics interview schedule                | 93          |

| <b>LIST OF FIGURES</b>  | <b>PAGE</b> |
|---|-------------|
| Figure 2.1 E-learning research focus developed countries versus developing countries                  | 22          |
| Figure 2.2 Process of computer literacy   | 31          |
| Figure 2.3 Conceptual framework of e-learning   | 33          |
| Figure 4.1 Gender of the respondents  | 49          |
| Figure 4.2 Students age   | 50          |
| Figure 4.3 The racial composition of students   | 51          |
| Figure 4.4 Students department  | 52          |
| Figure 4.5 Level of study   | 53          |
| Figure 4.6 Use of a computer at residential address   | 54          |
| Figure 4.7 Places where students access e-learning  | 55          |
| Figure 4.8 Use of e-learning  | 56          |
| Figure 4.9 Lecturers instruction to use e-learning  | 57          |
| Figure 4.10 E-learning helps me catch up on lectures that I have missed                               | 58          |
| Figure 4.11 Notes and slides on e-learning help revise after lectures                                 | 59          |
| Figure 4.12 E-learning is a useful mean of communication  | 60          |
| Figure 4.13 Notes and other materials on e-learning help me understand lectures I find hard           | 61          |
| Figure 4.14 E-learning serves as backup for materials and handouts given in class                     | 62          |
| Figure 4.15 E-learning enables students to ask questions that they normally find hard to ask in class | 63          |
| Figure 4.16 E-learning helps students revise in places and times that are convenient for them         | 64          |
| Figure 4.17 E-learning helps me study in places and time that is convenient for students              | 65          |
| Figure 4.18 Do lecturers upload everything they lecture on in class on Think Learn Zone?              | 66          |

## LIST OF ABBREVIATIONS

|                 |   |
|-----------------|---|
| CPUT            | Cape Peninsula University of Technology         |
| DUT             | Durban University of Technology                 |
| E-communication | Electronic communication                        |
| E-learning      | Electronic Learning                             |
| FCs             | Facilitating Conditions                         |
| HEIs            | Higher Education Institutions                   |
| HLE             | High Level Engagement                           |
| ICT             | Information Communication Technology            |
| IRIC            | Institutional Research and Innovation Committee |
| LMS             | Learning Management System                      |
| MIS             | Management Information System                   |
| NMMU            | Nelson Mandela Metropolitan University          |
| SA              | South Africa                                    |
| SPSS            | Statistical Package of Social Sciences          |
| TLZ             | Think Learn Zone                                |
| TUT             | Tswane University of Technology                 |
| UCT             | University of Cape Town                         |
| UKZN            | University of KwaZulu Natal                     |
| UJ              | University of Johannesburg                      |
| UK              | United Kingdom                                  |
| UP              | University of Pretoria                          |
| US              | University of Stellenbosch                      |
| UWC             | University of Western Cape                      |

## **CHAPTER ONE**

### **CONTEXT OF THE STUDY**

#### **1.1 INTRODUCTION**

The evolvement from traditional classroom to distance learning and now electronic learning has made electronic learning (e-learning) a prevalent tool. With the progression of technology and the Internet, educational institutions are changing their learning techniques to meet demands of user in providing a perfect learning environment. The use of e-learning method involves the opportunity of learning from information delivered electronically through sending or receiving emails, online courses, online discussion forums, video conferencing and etc.

The use of e-learning techniques in higher education is becoming ever frequent. In some institutions, e-learning has completely substituted the traditional teaching methods, while in others the implementation is still taking place. E-learning is becoming increasingly thought-provoking for society and educational institutions because it supports the concept of lifelong learning and because knowledge is becoming more and more significant. This increases the demand for various educational forms and means (Umek, 2015:1). He adds that different education programmes around the world cater to this increased demand and offer new forms of education that are frequently supported by information and communication technology (ICT).

## **1.2 Definitions**

### *1.2.1 Electronic learning*

E-learning in learning and education refers to the use of modern technologies such as computers, digital technology, networked digital devices and associated software and course ware (Wikipedia, 2014). Kassa and Balunywa, (2013:45) state that e-learning as opposed to distance learning is a term that is used to refer to all ICTs, networks, internet and other forms of electronic media that can be used to enhance teaching and learning so as to transfer knowledge and skills.

E-learning is an inclusive term that describes educational technology that electronically or technologically supports learning and teaching (Wikipedia, 2014). Daniel (2009:75) observed that e-learning plays an important role in professional development for adults in the workforce. As the world strives to meet development goals, there is increasing recognition of the potential of e-learning to meet growing educational challenges.

### *1.2.2 Gamification*

Hamari, (2014:50) defines gamification as the process of augmenting e-learning facilities by incorporating gaming elements, which engages people independently and communally in commerce and education sectors.

### *1.2.3 Information and Communication Technology (ICT)*

Information and Communication Technology have fundamentally changed in the education sector. ICTs encompass the utilization of computer software and hardware, and telecommunication gadgets to manipulate, convert, store or protect, send or receive digital data (Olifer, 2016:44).

## **1.3 CONTEXT**

Luaran, Samsuri, Nadzri and Rom (2013:1) explain that e-learning can be used to provide instructional programmes to students who are separated by distance and from instructors or lecturers especially in higher education sectors. According to Bedrule-Grigoruta and Rusua, (2014:13), e-learning encompasses Web-based learning (WBL), Internet-based training (IBT), and advanced distributing learning (ADL) and online learning (OL). In a broader sense, Ole,

Salleh and Lahad, (2010:201) referred to e-learning as instruction delivered via all electronic media such as the Internet, Intranets, extranets, and hypertext or hypermedia documents. With online learning as a type of e-learning, students generally can access online courses at any time and at any place they have Internet access. Various course management systems that are utilized for online learning allow both synchronous and asynchronous communication between students and instructors.

The university selected for this study was born of a merger in April 2002 between the two technikons, ML Sultan and Technikon Natal. It was later (March 2006) named the Durban University of Technology. According to the University's website, DUT enrolls approximately 23 000 students per year. It is located in the cities of Durban and Pietermaritzburg. DUT has six (6) faculties, namely, the Faculties of Accounting and Informatics, Health Sciences, Management Sciences, Applied Science, Arts and Design and of Built Environment and Engineering. All of these faculties are targeted and take part in the study to determine the how effective e-learning is.

Research has shown that students in higher educational institutions that engaged in e-learning generally performed better than those face-to-face courses, hence the reason why DUT adopted the Think Learn Zone.

#### **1.4 RESEARCH PROBLEM**

Between the end of last century and the beginning of this, the world has witnessed many developments and changes led by the information, communication and technology (ICT) revolution. This has been characterized by rapid development and which continues to influence the smallest detail of our lives. Coinciding with this revolution are explosions of population and of knowledge. Indeed, knowledge has increased beyond learners' capacities to attend to all relevant kinds of information. These developments challenge education and in particular the problems of increasing learner demand and the shortage of instructors, especially in higher education. The impact of these conditions necessitates research about options in learning and requires educational institutions to develop efficient and effective systems that can meet the needs of communities driven to absorb tremendous scientific and technological progress (Mahmoodi, 2015:102).

In the context of the South African Higher Education system where the directive to improve access and increase student enrolment at undergraduate level while meeting the need to educate the nation, has been apprehensive with the number of challenges for lecturers. The nature of these challenges are diverse but include the need to find creative ways to reach the enormous numbers of students in their lectures, being aware of diverse academic needs of said students in addition to the provision of ongoing quality assessment as well as providing timeous, fair and meaningful feedback.

Poor performance rate in different modules negatively impact on students' overall performance, some major contributions to this problem could be that the subject matter is too difficult, lack of motivation, skipping classes, not being able to understand the amount of work required and failure to assume responsibility. Evidence has shown that students' are faced with the challenges of low standard academic performance

The above-mentioned factors could have a huge impact on these students and to the inability of them gaining information in all levels of learning properly. To this end, electronic approaches including blackboard have been assumed to offer solutions to the teaching and learning process. The use of e-learning could effectively and efficiently improve the manner in which information is being passed or shared. In this way, students would have the opportunity to use technology in the learning process and incorporate the use of mobile phones, laptops and tablets on and off campus.

This research therefore seeks to determine the effectiveness of e-learning and how it could positively impact towards the challenge of low standard academic performance.

## **1.5 AIMS AND OBJECTIVES OF THE STUDY**

The aim of this study was to determine the perceived usefulness of e-learning for the students of the Durban University of Technology (DUT).

In order to achieve this aim, the research set the following objectives:

- To investigate the determinants of satisfaction of e-learning as a tool of teaching and learning;



- To investigate lecturer's strategies to promote e-learning;
- To identify the level of use of e-learning by DUT students;
- To determine how e-learning impacts on students' academic progress;

## **1.6 RESEARCH METHODOLOGY**

A quantitative method methodology was used. Quantitative data was gathered through the use of closed questions of a questionnaire administered to students from the Faculty of accounting and Informatics. The questionnaire employed statements to which respondents were asked to respond in a Likert scale from "strongly agree" to "strongly disagree". To strengthen the students' responses, the researcher used qualitative data collected from the closed-ended questions through interviews which were conducted with some of the academics from the Faculty of Accounting and Informatics. The target population of this study is discussed and the use of probability sampling is explained and justified as the means used to select the respondents who participated in the study. The sample for this study comprised of academics and students from the Faculty of Accounting and Informatics.

## **1.7 SIGNIFICANCE OF THE STUDY**

This study should assist the university and its students to understand the importance of e-learning and how it can positively impact on students' academic performance if continuously and correctly used. It is envisioned that the findings and recommendations of the study will provide a new insight into the use of e-learning. These insights should also emphasize on how e-learning enhances that teaching and learning process. This study is also significant in that it provides additional material to enhance the use and satisfaction of e-learning.

## 1.8 SCOPE OF THE STUDY

This study was conducted at the Durban University of Technology. It covered that Faculty of Accounting and Informatics in Durban and Pietermaritzburg. Although it was a case study of the Durban University of Technology and only focused on the helpfulness of e-learning at this one institution, the study could have relevance to similar institutions elsewhere, particularly other universities of technology in South Africa and Africa as a whole.

## 1.9 THEORETICAL FRAMEWORK

A theoretical framework is a vital aspect in the process of any research study, whether it is made explicit or remains implicit. Saunders, Lewis and Thornhill (2009:56) indicate that research philosophy can be positivist or phenomenological or a combination of both. Each has its own strengths and weaknesses. This case study combines quantitative and qualitative elements in the research design. It is therefore a combination of positivist theoretical position, which seeks to discover the truth through verifiable quantifiable data, which is phenomenological framework which understands that human knowledge is socially constructed. The positivist paradigm informs the statistical analysis obtained from the questionnaires and the interpretivist paradigm informs the analysis of data gathered from the opinions expressed within the closed-ended questions within the interviews.

## 1.10 CONTENTS OF THE CHAPTERS

This study consists of five chapters:

**Chapter one** presents a brief introduction of the study. The research problem is outlined with the support of recent and older relevant literature. The main aim and objectives of the study were also explained along with the significance and scope of the study and an explanation of the theoretical framework. The chapter concludes with a breakdown of the contents of each of the five chapters.

**Chapter two** provides a comprehensive review of the literature related to the study; as well as expanding and elucidating key concepts further. The literature review also considers examples of different types of e-learning and advantages and disadvantages of e-learning

**Chapter three** discusses the methodology employed in the study.

**Chapter four** provides a detailed analysis of the data through an interpretation of the results of the survey and interview sessions. The quantitative data are also displayed in tabular and graphic form.

**Chapter five** is the last chapter and contains recommendations and conclusions that are drawn from the findings in chapter four and from the literature discussed in chapter two. This chapter also contains suggestions for further research and the limitations of the study are outlined.

## **1.11 CONCLUSION**

This chapter gave a summary of dissertation and placed it in the context. It gave a motivation for the study, providing an explanation of the research aim and objectives, and outlined the methodology that was undertaken to achieve the desired outcomes.

The next chapter is a literature review which presents and discusses both primary and secondary literature sources related to this study.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

The previous chapter gave a brief introduction of the study. The background, research problems, aims and objectives, significance of the study, scope of the study, theoretical framework and the content of the chapters were also discussed in chapter one. This chapter will discuss the literature which pertains the study. According to Shuttleworth (2015:5) literature review is a very critical and depth evolution of previous research by scholars and researchers, it is a summary and synopsis of a particular area of research. He further states that there are a number of purposes literature review is important when conducting a research study as, to provide a theoretical framework for the study, to familiarise the researcher with the current issues and contemporary knowledge regarding the topic and to compare the different research investigations and results from previous researchers. This chapter presents the satisfaction of e-learning in teaching and learning, how academics promote e-learning and the level of use of e-learning by students. It further identifies the advantages and disadvantages of e-learning. This chapter also identifies how e-learning impacts on students' academic progress.

Wani (2013:1) defines e-learning as a technology which supports teaching and learning via a computer and the web technology. He further explains that it bridges the gap between an academic and a student in two different geographical locations and advancement in internet and multimedia technology is the basic enable for e-learning. E-learning applications facilitate online access to learning content and administration. Luaran, Samsuri, Nadzri and Rom (2013:1) state that the internet is widely used as a research and educational tool, providing a society with access to global information and instant communication. They further add that access to the internet can take place anywhere including homes, work, schools, fast-food restaurants, on an airplane and even on a beach. Furthermore, e-learning is one of the instructional education programmes that can help students in their studies.

## 2.2 DEFINITION OF E-LEARNING

Luaran, Samsuri, Nadzri and Rom (2013:1) explain that e-learning can be used to provide instructional programmes to students who are separated by distance and from the instructors or lecturers especially in higher education sector. They add that e-learning uses the internet, computers, networking and multi-media. Bedrule-Grigoruta and Rusua, (2014:6) state that the common use of new technologies such as the internet, social networks and mobile phones affect the process of education at universities and technology plays a significant role in education, making both a better communication and implementation of the newest information systems. Luaran, Samsuri, Nadzri and Rom (2013:2) elaborate that e-learning refers to a wide range of applications and processes designed to deliver instruction through electronic devices such as CD-ROM or video-conferencing through satellite transmission. Further, it also includes online learning, web based training and computer based training and this means e-learning is the use of technology to improve classroom interaction via positive environment through the use of internet, CD-ROM, interactive multimedia and others. It is a self-study in which students engage in online tutorials to complete a task given to them. Learning through this medium can engage students' interest because it usually comes together with interactive graphics, texts, sounds, videos, collaborative sharing and others. At the same time, it can be accessed anywhere and anytime as long as we have a computer and an internet connection (Oye, Salleh and Lahad, 2010:103).

## 2.3 TYPES OF E-LEARNING

Magnoson, (2010:51) states that the use of electronic technologies has led the development of educational opportunities and helps students develop their skills. Recent studies show that e-learning can have a profound and positive impact on students' involvement, positive attitudes of academics, personalized learning and students' creativity. Mahmoodi (2015:16) identifies the following six different types of e-learning that are mostly used in higher education:

- *E-learning with physical presence and without e-communication (face-to-face);*
- *E-learning without presence and without e-communication (self-learning);*

- *E-learning without presence and with e-communication (asynchronous);*
- *E-learning with virtual presence and with e-communication (synchronous);*
- *E-learning with occasional presence and with e-communication (blended or hybrid-asynchronous); and*
- *E-learning with presence and with e-communication (blended or hybrid-synchronous)*

## **2.4 E-LEARNING TOOLS**

Epignosis (2014:50) indicates that e-learning makes use of many technologies – some of which have been developed specifically for it, whilst others conveniently complemented the learning process, for example computer games. Epignosis further emphasises that communication technologies are widely used in e-learning, starting with the use of emails and instant messaging, messaging forums and social networks.

E-learning tools are any computer software or application, ranging from sophisticated, online, real-time, multi-player games to basic applications like Microsoft PowerPoint and Microsoft Word. These tools fulfil many functions in the teaching and learning process such as content presentation, assessment administration, collaboration facilitation, communication facilitation, management of assessment results and information dissemination (Kigundu, 2014:127). He further explains that active engagement in the construction of knowledge can be through the use of e-learning tools to facilitate the learning process.

## **2.5 E-LEARNING TRENDS**

Bezhovski and Poorani (2016:50-57) state that e-learning is present in the society and business for several decades and here to stay. They state that it might seem as a simple process of delivering learning materials and examining the proficiency and/or knowledge by electronic means but the development and flexibility of the Information Technology enables many different approaches and implementation of new methods regarding the process of learning helped by the technology and we can consider that it is still evolving. They further emphasise that as the technology develops and some best practices are confirmed certain aspects and tools are adopted and widely used by many institutions and business. Some of the established and emerging trends include but are not limited to:

### ***2.5.1 Blended Learning***

Blended learning can be defined as the process of combining two or more teaching methods such as web-based technologies, pedagogical approaches, instructional technologies and job tasks (Friesen, 2012:64). Kovalski (2004:56) concurs with Friesen that blended learning has been used to imply to training that combines traditional classroom sessions with e-learning and self-study. In addition, blended learning technique uses different medium to create a training course for learners and traditional teaching method and digital teaching method complements each other according to the course needs. Bersin (2004:102) concludes that the objective of blended learning is to make training media into a combined unit to create great impact on students' day-to-day learning in the institutions of higher learning.

### ***2.5.2 Gamification***

Hamari, (2014:50) defines gamification as the process of augmenting e-learning facilities by incorporating gaming elements, which engages people independently and communally in commerce and education sectors. He further states that the more challenging part in gamification process is designing the player experience and students or player experience design process that can be divided into building a gaming application and organizing. Burke (2014:88) affirms that the gamification method mainly focuses on the design part to achieve students' objectives in lesser time.

### **2.5.3 Personalized learning**

Rather than relying completely on service providers and expecting to improve the service; personalized learning offers an opportunity for students to partake completely and becoming co-producers in choosing the content and structuring the learning instructions (Leadbeater, 2005:31). Subsequently, new pedagogical prototypes, tools and methods which support collaborative learning are developed consequently to the growing necessity and for creating new outlooks. Personalized learning involves authentic and performance modes of assessment, so it can build authenticity and interest (OECD, 2006:31-42).

### **2.5.4 Continuous learning**

Continuous learning or “lifelong learning” can be identified as the continuous pursuit for knowledge and expertise for own or vocational purpose. This trend can be defined as the extension of educational facilities beyond the orthodox school ages and to aid education as a tool to improve the distinction of life (Sharma, 2004:78). Field (2006:122) goes on to say that it a profound learning method that is possible only after continuous involvement in a confined learning environment. Longworth (2005:47) outlines the three principals of continuous learning and they are centrality of learner, equality of opportunity, high quality and relevance. According to Long (2005:47) there are two types of continuous learning: work-based learning which instructs and trains for employment and short-term necessity, life-based learning coaches for employment and for fulfilled life in the long term.

## **2.6 IMPLEMENTATION OF E-LEARNING IN HIGHER EDUCATION**

With the ever present need to demonstrate value for money and maximise efficiency and effectiveness from training and development within an often restricted time and expenditure framework, measuring the impact of enhancing knowledge management by using technology is of constant interest and importance (Smedley, 2010:44). Upadhyaya and Mallik, 2013:25) believe that the management of the educational institution has to deliver if the introduction of blended learning leads to better students’ results (higher grades, fewer admissions to exams), lower costs and the satisfaction of all stakeholders.



In the last two decades, the use of Information and communications technology (ICT) in the education process has caused many challenges in teaching approaches and techniques. Academics have new possibilities to make the pedagogical process more interesting and interactive (Aristovnik, Kerzic, Tomazevic and Umek, 2016:3). Ahmed (2013:422) highlights that the rapid development and widespread of internet and communication technologies have materially altered many characteristics and concepts of the learning environment. He states that nowadays, the traditional teaching in universities' classrooms becomes no longer sufficient for our students. Furthermore, e-learning emerged as an imperative paradigm of modern education unrestricted time or place, offering new possibilities to higher education institutions for providing flexible and cost-effectives remote or distance learning environment, thus many universities such as the Durban University of Technology put in their programs, depending mainly on the internet as a delivery medium. In developing countries such as South Africa e-learning can reimburse the weakness of traditional education methods. Ahmed (2013:422) argues that while a considerable amount of research has been conducted on e-learning, little has tested it from the perspective of instructors as a determinant or requirement for any successful implementation.

Ahmed (2013:425) indicates that universities can achieve numerous benefits from implementing e-learning programs, including personalized instruction, content standardization, accountability, on-demand availability, reduced cycle time, increased conveniences for students, improved tracking capabilities and reduced cost. Brown and Charlier (2012:103) adds that e-learning systems provide a configurable infrastructure that integrates learning material, books and services into a solution to effectively and economically create and deliver educational content and as a result, it has become an important alternative to traditional classroom and growing at fast rate among higher education institutions. Bhuasiri (2012:100) argues that existing e-learning systems pose a serious challenging to instructors, specifically in developing countries. He continues and says that higher education instructors in developing countries are relatively accustomed to traditional teaching approaches; as a consequence, creating educational technology awareness and changing instructions' intentions and behaviour to use it are required for the success of e-learning implementation.

According to Thomas and Omotoke (2015:303) lack of technical and social skills required in the implementation of e-learning contributes to failure of e-learning projects. They elaborate on the four obstacles affecting the total implementation of e-learning in developing countries like South Africa:

- **Connectivity:** *Limited or lack of connectivity in many developing countries including South Africa impedes access to online learning*
- **Equipment:** *E-learning requires equipment that can facilitate learning, but in some universities the equipment such as computers, digital technology and internet are not available for proper utilization.*
- **Software:** *Software enables educators to design and develop learning content. These softwares are costly and not available for use in some of our universities, to facilitate e-learning programme.*
- **Training:** *No combination of connectivity, equipment and software will achieve anything if people are not trained to use them. Some lecturers and students are not trained to make use of some of the e-learning equipment's. This affects e-learning programme in our universities.*

## **2.7 CHALLENGES OF E-LEARNING**

In general, South African (SA) students have challenges which include diverse backgrounds, languages and race; they are divided between wealth and have skilled instructor and instructor difficulty to create content (Rohleder, 2008:103). He mentions that teaching strategies are hard to employ and it is hard to gain insights into learner difficulties, especially in large classes, therefore learners from poor backgrounds may lag behind. He warns that educational challenges demand a mixed approach like blended learning that is innovative to address problems of class and cultural diversity, students' prior learning experience, increased education demand and changing learning needs. The SA post-apartheid policy documents advocate for equal opportunities in education sector; however, practice varies

from policy (Rohleder, 2008:64). Brown (2008:103) recommends collaboration, joint projects and sharing of good practice and approach to address the challenges.

In line with international benchmarks, e-learning has been identified in many institutions as an appropriate tool to support and improve and enhance the quality of teaching and learning (Thomas and Omotoke, 2015:303). For example, at Durban University of Technology, it was felt that there was a need to invest in Information and Communication Technology to enable students to learn to work with ICT in their daily activities, to provide easier access to educational materials and information and to overpass the gap between secondary and tertiary education. Many institutions across the world have adopted a variety of Learning Management Systems (LMS) as platforms for e-learning implementation.

## **2.8 CHALLENGES FACED BY ACADEMICS ON E-LEARNING**

Islam, Beer and Slack (2015:103) point out that there are many challenges faced by academics regarding the use and success of e-learning in an academic environment. They articulate that current discussion around the challenges in this area can be divided into four categories which are learning styles and culture, pedagogical e-learning, technology, technical training and time management challenges and these challenges are further discussed below:

### ***2.8.1 Learning styles and culture***

Sywelem (2012:60) mentions that everyone has their own learning style along with their cultural influences; the ones who are taught using their own learning styles and taking into consideration cultural aspects of individuals will perform better academically. Islam, Beer and Slack (2015:103) add that in order to achieve the best learning outcome it is desirable to have an understanding of students and their learning styles. Sywelem (2016:61) talks about how online students' learning styles can be unclear; he states that this has implications on how academics develop learning material and further states that some students learn through interacting, some prefer learning through visual presentation and some listening to instruments and using written notes. This challenge has an implication on the learning outcomes and poses a serious issue for academics to understand the learning styles of their students in an e-learning environment (Islam, Beer and Slack, 2015:105)

### **2.8.2 Pedagogical E-learning Challenges**

As outlined above, pedagogy is concerned with enabling the best way to achieve learning; if pedagogy is not considered then the desired learning outcome will not be achieved (Islam, Beer and Sack, 2015:103). They go on to say that successful pedagogy requires academics to understand how students appropriately, so that knowledge and skills are passed on. In this regard, e-learning will produce the return on investment.

As e-learning is widespread, academics who are not fully equipped to grip developments of materials and delivering online modules are not showing how useful e-learning is and need skills development. Morley, (2010:31) explains that in order for academics to effectively make the transition to become online academics they necessitate to do more than just develop new ICT skills; it should be pedagogy based. Other researchers add that learning different pedagogical online strategies by teachers is not sufficient in an online learning environment, it should include academics correctly interpreting students' online written text, understanding the context and understanding group dynamics with individual needs. This will then make online learning more successful (Loveless, 2014:56). In conclusion, Jackson and Fearon, (2013:10) mentions that having a well-designed course that is pedagogically focused, and academics understanding the different strategies of online learning with the understanding of diversity, context, group dynamics is not sufficient, all require the institution management marketing the pedagogical benefits of online learning with practice examples that academics can relate to so they are encouraged to use the e-learning technology.

### **2.8.3 Technological challenges**

Technological challenges refer to development issues such as the bugs, the speed, the errors, functions and features not correctly working or do not work according to what academics require (Islam, Beer and Slack, 2015:106). Chua and Dyson, (2014) state that issues have been raised that include: usability problems, bad performance, institutions being unable to customise according to their requirements and sometimes criticized for having a teacher centred system rather than learner centred system.

Nielsen (2011:96) adds that institutions have variety of applications and computer operating systems for various uses such as the student registration system, and research support

applications such as NVIVO and SPSS and all these applications have to be merged and linked within one e-learning environment to make it accessible and enable central support; however, this requires the merging and linking of various applications. He goes on to say that this creates increased network traffic to support the centralised infrastructure, thus it should be strong and have enough capacity and capability to handle student academic communication. Islam, Beer and Slack (2015:106) point out that technical errors, bugs, slowness is critical if academics are to use the system and is critical to the success of the e-learning technology, if the system does not function correctly then the technology will not be used and negatively will arise in using e-learning technology, which has a big ramification for institutions as they have invested hugely so the technology should be used effectively for the return in investment.

#### **2.8.4 Technical training challenges**

Training challenges refer to the training requirements that will enable academics to learn the e-learning features and functions correctly and use them effectively (Nielsen, 2011:97).

Islam, Beer and Slack (2015:106-107) explain that there is various criticism of poor training provided by institutions to academics. They add that issues have been raised that include not enough training, inadequate training, training styles in use that do not fit academics personal preferences, lack of hands on practice and also how to create materials according to the pedagogical requirements was missing from the raining scenario. Volery and Lord (2000:218) identify the three requirements needed for effectiveness e-learning success and are listed below:

- *Technology*
- *Instructor characteristics*
- *Students characteristics*

Technology needs to improve; however, the academics characteristics and familiarity with technology are most important in terms of having a successful learning experience. Academics that are motivated and have an encouraging attitude towards the e-learning technology will enable a positive learning outcome (Islam, Beer and Slack, 2015:106-107). They further emphasise that it is crucial that the instructor has good control of technology and

is able to perform basic trouble shooting tasks, e.g. adding a student at the last minute, modifying students' password, changing course settings.

In conclusion, they recommend that instructors should have the ability to motivate students, show empathy, resolve emergency problems and respond to emails rapidly because a positive attitude on e-learning depends on how confident they feel about the technology.

## **2.9 ADVANTAGES AND DISADVANTAGES OF E-LEARNING**

According to Arkorful and Abaidoo, (2014:401) the adoption of e-learning in education, especially for higher educational institutions has several benefits and given its several advantages and benefits, e-learning is considered among the best methods of education. Quite a lot of studies have provided benefits and advantages derived from the adoption of e-learning technologies into schools. Some of the advantages as stated by Arkorful and Abaidoo, (2014:401) are:

### **2.9.1 Advantages of e-learning**

- *It is flexible when issues of time and place are taken into consideration. Every student has the luxury of choosing the place and time that suits him or her.*
- *E-learning enhances the efficiency of knowledge and qualifications via ease of access to a huge amount of information.*
- *It is able to provide opportunities for relations between students by the use of discussion forums. Through this, e-learning helps eliminate barrier that have the potential of hindering participation including the fear of talking to other students. E-learning motivates students to interact with others, as well as exchange and respect different point of views. E-learning eases communication and also improves the relationships that sustain learning (Arkorful and Abaidoo, 2014:401).*
- *E-learning is cost effective in the sense that there is no need for students to travel. It is also cost effective in the sense that it offers opportunities for learning for maximum number of students with no need for many buildings.*

- *E-learning always takes into consideration the individual students differences. Some students, for instance prefer to concentrate on certain parts of the course, while others are prepared to review the entire course.*
- *E-learning helps compensate for scarcities of academic staff, including instructors or lectures as well as facilitators.*
- *The use of e-learning allows self-pacing. For instance, as the asynchronous way permits each student to study at his or her own pace. It therefore increases satisfaction and decreases stress (Algahtani, 2011:101)*

## **2.9.2 Disadvantages of e-learning**

Arkorful and Abaidoo, (2014:401) outline that e-learning, in spite of the advantages that it has in education it also has some disadvantages and these disadvantages of e-learning are:

- *E-learning as a method of education makes the students undergo contemplation, remoteness, as well as lack of interaction or relation. It therefore requires a very strong inspiration as well as skills with to the management of time in order to reduce such effects.*
- *With respect to clarifications, offer of explanations, as well as interpretations, the e-learning method might be less effective than the traditional method of learning. The learning process is much easier with the use of face-to-face encounter with academics.*
- *When it comes to improvement in communication skills of learners, e-learning as a method might have a negative effect to learners.*
- *Since test for assessments in e-learning are possibly done with the use of proxy, it will be difficult, if not impossible to control or regulate bad activities like cheating.*
- *E-learning may also probably be misled to piracy and plagiarism, predisposed by inadequate selection skills, as well as the ease of copy and paste.*

- *E-learning may also deteriorate institutions' role socialization role and also the role of instructors as the directors of the process of education.*
- *Also not all fields or discipline can employ the e-learning technique in education. For instance, the purely scientific fields that include practical cannot be properly studies through e-learning.*
- *E-learning may also lead to congestion or heavy use of some websites. This may bring about unanticipated costs both in time and money disadvantages.*

Arkorful and Abaidoo, (2014:403) elaborate that e-learning involves the use of digital tools for teaching and learning and it makes use of technological tools to enable students study anytime and anywhere. They further add that it involves the training, delivery of knowledge and motivates students to interact with others, as well as exchange and respect different point of views. Despite some challenges that e-learning is facing, e-learning has made a strong impact in teaching and learning. Its adoption in some institutions has increased faculty and students' access to information and has provided a rich environment for collaboration among students which have improved academic standards (Arkorful and Abaidoo, 2014:403).

## **2.10 A REVIEW OF E-LEARNING CRITICAL FACTORS IN DEVELOPED COUNTRIES**

Taha, (2014:39) states that numerous studies on the implementation of e-learning and critical factors have been conducted in the context of developed western countries. For example, Salmon (2005:56) in Australia proposed a four-quadrant model as a framework in an e-learning strategy in universities. Taha, (2014:39) further states that implementing technologies in an e-learning environment requires careful planning, development and support in staff and academics, and excellent provision of ICT within university systems. He further states that they require insightful planning mission, objectives, student requirements and new resources for the support and development of the technology and secondly, many new technologies are appropriate for off-campus use for dynamic delivery of content and the support of distance learning so therefore, new understanding of the use of knowledge creation, sharing and sources that can be deployed and developing appropriate e-learning pedagogy through evaluation, feedback and research. Taha, (2014:40) found that staff development and new systems and processes will be necessary for successful deployment of e-learning and every



student, regardless of location or mode of learning, should receive equivalent services and learning experiences.

Alsabawy (2013:99) has studied the role of IT infrastructure services that influence the success of e-learning systems in the context of an Australian university. The study proposed a model to evaluate the success of e-learning systems. According to the study, the factors that were essential elements of successful for e-learning system implementation were as follows: infrastructure services, perceived usefulness, user satisfaction, customer value and organizational value. In addition, the research highlighted the infrastructure services construct, which was a foundation to achieve the success of e-learning systems via its impact on the usefulness, user satisfaction and enhancing customer value. Moreover, the study pointed out the value from using e-learning systems to academic staff was inadequate. Alsabawy (2013:99) states that academic staff sometimes are not able to use some functions of e-learning and do not fully understand the purpose of these functions so the shortfalls in experiences of using all the functions of e-learning can affect both the quantity and quality of the benefits achieved by staff from this system. As a solution to this issue, the research proposed training courses to provide academic staff with experiences of using e-learning that could be useful in educating them on the benefits. Additionally, more attention should be paid to the role of IT infrastructure services in supporting students in different directions. For instance, consider the students' evaluation and feedback about ICT division performance, adapting more channels to enable students to contact with ICT staff such as using chat and provide students with some online courses or educational videos and lectures about using the e-learning systems and the main functions in these systems, (Alsabawy, 2013:99).

## **2.11 REVIEW OF ELEARNING CRITICAL FACTORS IN DEVELOPING COUNTRIES**

Andersson, (2009:100) states that e-learning has the potential to make a positive contribution to learning in the developing world by increasing the access to education, particularly for marginalised groups in rural or isolated areas, in spite of shortages in academics or facilities. Pandey, (2013:36) adds that studies have shown that some developing countries have been early adopters of e-learning that has proven beneficial for students and the vocational and workplace training establishments in developing countries have not yet been sufficiently explored.

### 2.11.1 CHALLENGES FOR DEVELOPING COUNTRIES

Andersson (2009:101) points out that there is a range of research conducted on the area of e-learning in developing countries. He undertook a thorough review of academic papers to categorise the challenges of e-learning and the differences between developing and developed countries. He outlines four categories grouped the challenges: individual, course, contextual and technological. By comparing the numbers of papers that research each challenge, it is seen that context and technology are widely researched in developing countries (Figure 2.1). This could indicate that the challenges relating to technology and context may be greater for developing countries than their developed counterparts, whilst the challenges relating to the course are similar and to the individual is significantly less in developing countries (Andersson, 2009:101).

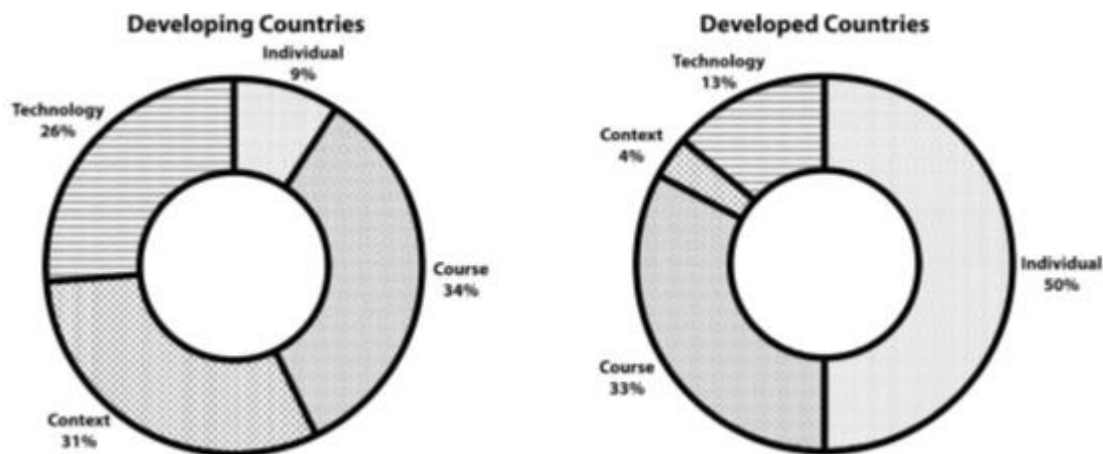


Figure 2.1: E-learning research focus developed countries versus developing countries (based on Andersson (2009:106))

Sekakubo (2011:56) has shown that some of the common challenges when using technology in developing countries are the lack of systematic approach to the implementation of ICT, awareness and attitudes when introducing ICT, administrative support, technical support, staff development and inadequate funds. Gemmell, (2015:43) establishes that given the advances in technology in the recent times, especially the speed of technology reducing the digital divides, it is likely that concerns may be overcome.

## 2.12 EDUCATIONAL IMPACTS OF E-LEARNING

The impact of the internet on education at all levels has captured both academics and students' attention in recent years (Elkaseh, 2016:54). Carvalho, 2011:64) states that in some countries, the use of ICT on education has been strongly supported by the government through initiatives from primary schools through to higher education. He adds on that they have encouraged the acquisition of laptop and computers for students and academics with favourable conditions and secured broadband connections in all public places.

Zare, Sarikhani, Salari and Mansouri, (2016:1) believe that the research on efficiency of Information and Communication Technology (ICT) based methods in improving generic skills in addition to content skills among future workforce is increasing. Gorbi (2013:56) adds that the use of ICT has the potential to open opportunities of new ways of doing things, thus developing creativity in learning. Furthermore, ICT has been found to be associated with creativity.

Punie and Redecker, (2008:70) indicate that information and communication technology provide new opportunities for education and training, as they enhance learning and teaching and facilitate collaborations, innovation and creativity for individuals and organizations. Gorbi, (2013:96) further indicate that although often used as an extension of other teaching tools, the use of ICT has the potential to open opportunities of new ways of doing things, thus developing creativity in learning. Furthermore, ICT use has been found to be associated with creativity. The use of ICT can support development of public policy for educational change that promotes creativity and innovative university environment (Cachia, Ferrari and Punie 2011).

Zare, Sarikhani, Salari and Mansouri, (2016:36) state that higher institutions reported the following goals for ICT programs:

- *To prepare students for the future*
- *To improve student achievement*
- *To promote active learning strategies*
- *To individualize student learning experiences*
- *To encourage more co-operative and project-based learning*

- *To give students drill and practice exercises*
- *To make the learning process more interesting and engaging*

As outlined above by Zare, Sarikhani, Salari and Mansouri, (2016:36), these goals include using e-learning for more traditional efforts to improve students' academic performance as well as newer objectives related to the development of technical and social skills important in the marketplace. They add that e-learning programs are expected to influence a broad array of skills and due to their potential to affect the educational system from pedagogy to curriculum to their integration needs to be done at multiple levels of the education system.

### **2.13 THE IMPACT OF E-LEARNING TECHNOLOGIES ON ACADEMICS AND THEIR CLASSROOM PRACTICE**

In order to better understand how e-learning technologies in a classroom setting affects student learning, one must also examine how they might affect their lecturers, their classroom practice and their institutions (Garrison, 2011). Research by Haddead and Draxler (2002) conducted in the UK and Africa (Ghana, Rwanda and South Africa) identifies two main reasons why academics use ICT in their classrooms. First, lecturers feel that their own use of computers benefits their students and lastly, academics feel that students benefit from using computers themselves.

### **2.14 LEARNING MANAGEMENT SYSTEMS USAGE AT SOUTH AFRICAN UNIVERSITIES**

Although many universities across the world have incorporated internet-based learning systems, the success of their implementation requires an extensive understanding of the end-user acceptance process (Al-Adwan, 2013:15). Like any information system, user acceptance and usage are important primary measures of system success (Saade, 2007:15).

Students learn best when they are fully engaged in the learning process (Parsons and Taylor, 2011:17-36), therefore engagement is an important factor in successful implementation of e-learning. Kong, 2003:16) defines student engagement as students' psychological investment in an effort directed towards learning, understanding, or mastering the knowledge, skills or crafts that academic work is intended to promote. High level engagement (HLE) is a process

in which students make multiple and varied responses, through creative and sustained reflections, to instructional cues (Schoe, 2007:64).

Latchem and Jung, (2012:16) state that although e-learning is the use of technology for teaching, learning and assessment, there is no common approach to it across South African Higher Education Institutions and is therefore a concern that the full potential of e-learning approach is not utilised.

Bagarukayo and Kalema (2015:172) confirms that the University of Pretoria (UP) was among the first universities to take up e-learning in 1998 with the WebCT Learning Management Systems after running long-distance programmes from 1995 using video conferencing, broadcasting, multimedia, web based courses. According to OERAFRICA (2014), UP has over 48 000 campus-based students and over 24 000 off-campus part-time and distance students and the department of Telematics of Learning and Education Innovation assists academic instructor in learning design activities.

Venter (2012:100) states that at the University of South Africa (UNISA), the instructors use e-learning to distribute resources and facilitate interaction and use mobile technology for students' communication. He further states that over 200 000 active students are enrolled on "myunisa" platform, customized for user needs for administrative functions, academic collaboration and tuition related interaction and on that note, of the 90% of the students access the system, 13% are active in discussions, 64% are frequent users, 23% are occasional users and 10% are infrequent users. The platform was mainly used for administrative purposes as passive observers; hence it is not fully utilised to its potential that is why there is a need to increase active students to improve learning (Venter (2012:100).

(Sakai, 2006:201) mentions that the University of Cape Town (UCT) initially used WebCT and Moodle developed by OSS Vula is currently used by 25 000 students and instructor of the university of SA and North West University. Sakai (2006:201) states that this LMS supports teaching by notes and announcement distributions and it is also used as a transfer medium.

At the university of Stellenbosch (US) and Cape Peninsula University of Technology (CPUT), a proprietary LMS WebCT is used as learning transfer medium (Mlitwa, 2011:105). He further states that the system was adopted without consultation with academics and therefore there

is minimal instructor engagement and emphasises that there is a usage of the LMS at US because of their compulsory intake clause. Even (Mlitwa, 2011:105) adds that CPUT lacks a policy or forum for users to select the LMS.

Mlitwa (2006:203) states that at the University of Western Cape (UWC), a home-grown and developed OSS KEWL is used. It lacks full interactive engagement between social and technical factors because academics do not understand the potential benefits and are resistant to change stated

Ssekakuubo (2011:98) points out that the Nelson Mandela Metropolitan University (NMMU), the SharePoint 10 content and document management system is used to avail courses for sharing and collaboration in blended learning environment and that the platform is less flexible with limited interactivity options and was replaced by Moodle.

OERAfrica, (2014) indicates that the university of Johannesburg (UJ) has over 45 000 full-time, part-time and face-to-face students across seven campuses. It uses a commercial LMS to supplement course delivery with extra support to students in large classes with online materials and instructors are offered support in learning design which makes the usage of the system easy (OERAfrica, 2014).

Sibanda and Donnelly, (2014:214) mentions that the University of KwaZulu Natal (UKZN) has been using the Moodle platform for teaching and learning for instructor and students. They also mention that the instructors use the platform to upload notes and deliver assignments, announcements, discussion forums and other interactive exercises and that there is no additional learner support which makes system usage and adoption challenges.

According to OERAfrica, (2014) the Tshwane University of Technology (TUT) “electronic campus” was the initial LMS in 2011, but this was later replaced by Blackboard (MyTutor), a content repository where instructors upload notes, assignments and grades. He adds that TUT have systems for wireless internet, one for checking grades and an instructor portal for instructor-related information.

And finally the Durban University of Technology (DUT) uses Blackboard (Think Learn Zone) a platform where instructors upload notes and deliver assignments.

## 2.15 BLACKBOARD AS A LEARNING MANAGEMENT TOOL

Learning Management Systems currently available to South African Higher Education institutions include open-source, customisable systems such as Moodle and WebCT in addition to complete LMS packages such as the Blackboard. Blackboard has been invested in by management of the selected university and such the deployment of the system has been planned and implemented over a period of years.

Riley, (2013:75) explains that Blackboard provides a number of tools to lecturers and students for a technologically enhanced learning experience. The assessment tools available in Blackboard in particular have been identified as being able to provide a possible solution for our lecturers who struggle to create, administer and provide timeous and quality feedback to their vast numbers of students. It must however, be noted that Blackboard tools are just that, they are tools and like a hammer, garden hose or high pressure cleaner, efficiency is largely dependent on how the tool is used. Blackboard affords lecturers and students the opportunity to move a large part of the learning environment online in order to facilitate better contact sessions.

She further points out the following popular blackboard tools:

- **Course content**

Course content is essentially the homepage, the first page that students can view when they login to a blackboard-based course. This space allows lecturers to provide the students with a variety of content related to their course including pencasts; podcasts; policy documents; course material; additional readings and the like, limited only by the skill and initiative of the lecturers. The danger of this is content dumping, which can be described as the transfer of traditional courses online wholesale without sufficient reflection or development for the online environment and without adding much value to students' experiences.

- **Announcements**

The announcements tool allows for the lectures to broadcast announcements of his or her class by way of electronic communication. Announcements function as an electronic notice board and are public to the group, alleviating the need for students to come onto campus unnecessarily or informing them of requirements for a specific lecture.

- **Emails**

The email tool in blackboard functions the same way as other email applications. The blackboard email however, is specifically linked to enrolled groups and allows for small group or individual communication between group members and between students and lecturers.

- **Discussion tools**

Discussion tools are divided into three categories: threaded discussions; blogs and journals. Threaded discussions can be initiated by students or staff and the “threaded” nature of the discussions make for the easy following of an argument or discussion topic. Students can also utilise threaded discussions as an open forum for solutions to commonly-held campus or course-based issues, questions or challenges, the utilisation of the tool is the users and such is user-driven. Blogs can be described as a narrative posted by either staff or students and can be set up as either open for comment with a read-only setting. Blog topics can be utilised by the lecturer to initiate discussion or as a mini presentation to the group by individual students on a specific topic to which grades can be assigned. Finally, journals are the online version of traditional journal and are set as private between the students and lecturers

- **Assessment tools**

The assessment tools available on blackboard pertain specifically to traditional test-type assessments. These are in the form of quizzes; surveys and self-tests. The quiz option is employed for graded assessments providing the lecturer with a selection of question types including but not limited to MCQ's; True or False; matching; calculated; short or long answer questions. While many of the options allow for pre-determined answers and instant marking upon submission, some question types such as short or long answer questions will require a



level of lecturer input prior to the results being released to the students. The survey option allows for anonymous evaluation of the course, lecturer or programme by the students and the self-fast option is set up in the same way as a quiz but is not attached to grades, allowing the student to take the test more than once in preparation for a summative assessment such as exams.

- **Assignment tool**

Assignment tools afford the student the opportunity to submit their assignments online. The lecturers then have the option of reviewing the assignment online or printing the assignment for manual marking.

- **Calendar tool**

The calendar tool is essentially a self-management tool providing staff and students automated notifications of assignment due dates, assessments dates and course related events. Students also have the option to personalise their own calendars.

## **2.16 SATISFACTION OF E-LEARNING**

El-Masri and Tarhini, (2015) state that the development of Information and Communication Technologies (ICTs) has provided academics and students with an innovative learning environment to stimulate and enhance the teaching and learning process. They add that many higher educational institutions around the world are investing heavily to equip themselves with e-learning tools to support their traditional learning and teaching because it is flexibility, low cost and convenience. Abu-Shanab (2014) states that by using e-learning tools such as web-based learning systems, the students will be able to download learning content submit assignments and interact with their instructors and other colleagues.

Alvarez (2013:196) states that despite the perceived advantages of e-learning tools, previous research has shown that the students are not fully utilizing its importance. McGill (2014:88) proclaims that if the students refuse to use the system then it will boom to failure. Lam (2012:69) examines that the acceptance of e-learning by undergraduate students found that

only 14.8% of students used related feature for online discussion. Another study conducted by Islam (2013:105) in Finland found that the students were mainly using the web-based learning system to download their course materials and submitting their assignments only. Furthermore, recent studies have shown that e-learning system implementation is not simply technological solution but also a process of many different factors, such as social factors, organizational factors such as Facilitating Conditions (FCs) and individual factors such as computer efficiency (Tarhini, Hone and Lui 2014:128). Abu-Shanab, Momani and Ababneh, 2012:55 emphasise that such factors play an important role in how system is developed and used.

## **2.17 STUDENTS PERFORMANCE**

Sibanda and Donnelly (2014:478) state that learning and teaching methods driven by Information Technology and Communication are fast becoming common in higher education worldwide. Taffs and Holts, (2013:501) argues that even though the use of ICT in higher education to support student learning is expanding, student usage has been low and the value of e-learning resources has been under investigation. Sibanda and Donnelly (2014:478) state that online learning has received much attention from higher education institutions and scholars alike in the past fifteen years and the success of first-year students requires an appropriate orientation programme to prepare them for the university environment. In most cases first-year students are underprepared and the most vulnerable are non-traditional students who come from poor families and are generally first-generation students (Brock, 2010:105).

E-learning has become a pillar of success in higher education as it enhances the quality of teaching and learning (Bhuasiri, 2012:99). A positive relationship exists between the use of learning technology and students' engagement and desired learning outcome (Chen, Lambert and Guidry, 2010:368). However, Chen (2010:36) states that high wear and tear rates emanating from online learning have been of concern to educators worldwide and that studies have been conducted on students' preference for online learning versus face-to-face learning. Students prefer face-to-face learning to acquire conceptual knowledge in the subject matter, while online learning is preferred in acquiring self-regulated learning skills (Paechter and Maier, 2010:205). According to Paechter and Maier (2010:296), online learning does not only provide students with time and place flexibility, but also with the ability to apply one's

knowledge and meta-cognitive self-regulation strategies such as monitoring one’s learning progress. Chen, (2010:369) argues that although mixed findings related to students success and the use of online platforms have been documented, most scholars show that online learning tools enhance students engagement and lead to them achieving the intended outcomes and that students using e-learning platforms are more likely to make use of deep approaches of learning like higher order thinking, reflective learning and integrative learning in their study and they reported higher gains in general education, practical competence and personal and social development. Furthermore, according to Chen (2010:369) students who engage in e-learning platforms further adversely affect lecture attendances as students can easily access learning resources such as PowerPoint slides online.

## 2.18 THE ROLE OF COMPUTER SKILLS ON PERFORMANCE IN E-LEARNING SETUP

Owino (2015:24) states that some learners are better prepared than others to use e-learning technologies to facilitate their educational progress; individual “readiness” seems to be crucial factor in accounting for the success of e-learning applications in education. Looker and Thiessen (2002:106) notes that digital divide for Canadian youth, remarked that access to, and experience with computer technology determines computer competency and that this competency is generally associated with urban residents of higher economic status.

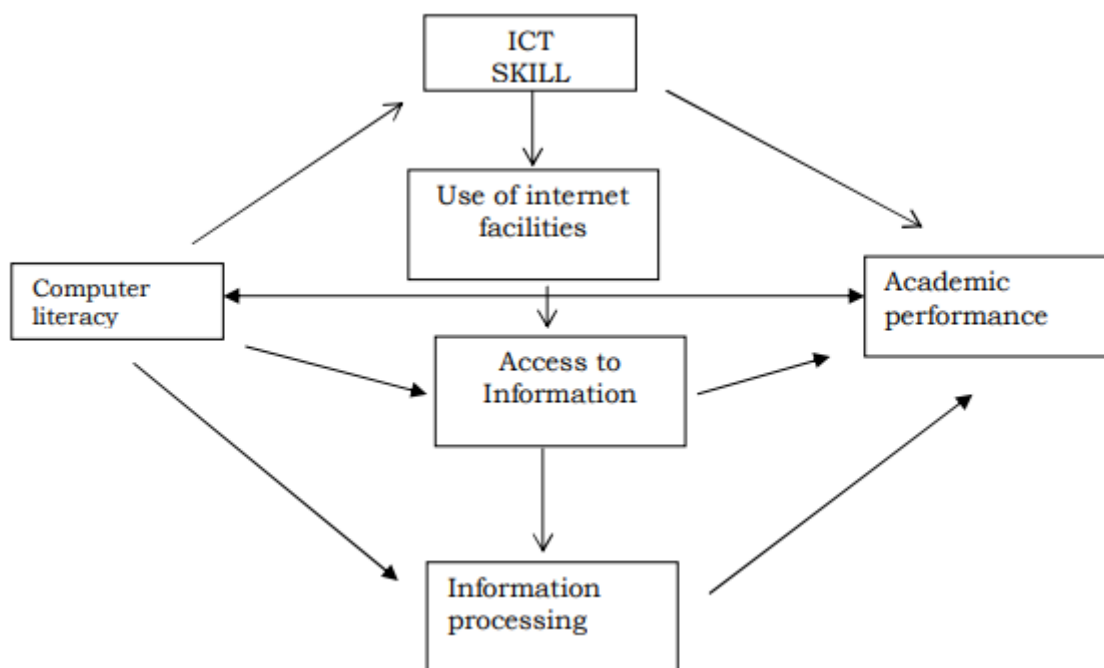


Figure 2.2: Process of computer literacy (Aitokhuehi, Oeghale and John, 2016:266)

The above processing computer model indicates that computer literacy is the bed rock of sound academic performance. ICT skill is developed and when the skill is developed, the use of internet facilities become very easy due to constant practices. Consequently, one gets efficient and has access to information which is later processed and when this processed information is relevant and usable; there may be an improved academic performance of students (Aitokhuehi, Oeghale and John, 2014:266).

## **2.19 STUDENTS CHARACTERISTICS**

Taha (2014:33) explains that e-learning is about using new technology to provide flexibility in learning to deliver and enable interaction and communication between students and academics, and to deliver effective learning. Therefore, the process and growth and implementation of e-learning will greatly depend upon students' characteristics. He further adds that a number of studies have examined the influence of students' characteristics in the implementation process. According to Selim (2007:105) the student factor is considered crucial to determine the acceptance of e-learning technologies and tools and also, the characteristics of students play an important role in the success of e-learning implementations. One of the most important factors that influence e-learning is computer skills and competencies in order to be successful in the e-learning era (Selim, 2007:105). Malik (2010:26) outlines that students' characteristics commonly consist of computer skills, motivation and attitudes towards e-learning and he emphasises that the most critical skill for students is computer efficiency, which is necessary for engaging in online environments. Lack of computer skills leads to anxiety in the online experience and will result in the students' inability to reap the benefits of e-learning (Selim, 2007:106). Owino, (2013:33) states that some students are better prepared than others to use e-learning technologies to facilitate educational progress; individual readiness seems to be a crucial factor for the success of e-learning in education.

## 2.20 CONCEPTUAL FRAMEWORK

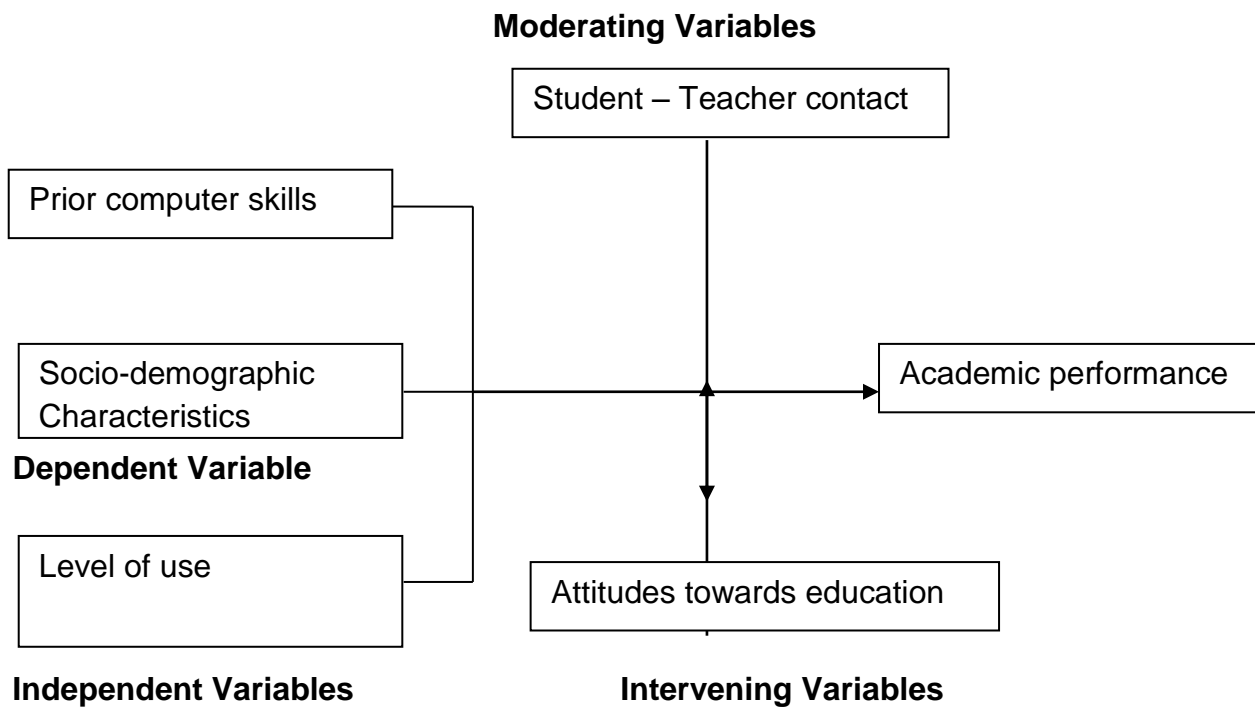


Figure: 2.3 Conceptual framework of e-learning (Garrison, 2011:45)

The above conceptual framework is used in the study, the variables is prior computer skill, socio-demographic characteristics and hours spent online or offline that may influence the academic performance of individual. Prior computer skills are thought to make it easy for students to use computers and computer software that are used to deliver academics; socio-demographic characteristics include elements such as gender and number of students (Garrison, 2011:45).

## **2.21 CONCLUSION**

In this chapter, a review and analysis of existing literature and findings are presented to identify the factors that influence e-learning. The different types of e-learning, advantages and disadvantages of e-learning are discussed. This chapter also covers the critical factors of e-learning in developed and developing countries as South Africa being a developing country. E-learning challenges, e-learning usage and students' satisfaction are also discussed.

The following chapter provides an overview of the research methodology that was employed in this study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter portrays and explains the research methodology employed in this study. The discussion includes the research design, the target population, sample size, sample frame and data collection methods, including the types of questionnaire, the administration of the questionnaire, data analysis techniques, and reliability and validity issues. Interview schedules and interviews conducted are also be discussed.

#### **3.2 RESEARCH DESIGN**

Research design refers to a complete plan that can be used to connect the conceptual research problems to the relevant practical research and it also speaks to what data is needed, what methods are going to be utilised to collect and analyse data, and how this is going to address the researcher's research questions (Sekaran and Bougie, 2013:95). On the other hand, authors like Rugg and Petre (2010:60) point out that research design is about planning strategies to find things out systematically with the intention that the findings should contribute to the existing body of knowledge.

The research design involved gathering quantitative data. The data was gathered from the students of the faculty of Accounting and Informatics and lecturers from the same faculty. In order to unravel the research problem and collect the required data, the researcher opted to disseminate a questionnaire. The questionnaires were distributed to students. Interviews were also conducted with lecturers who agreed to be interviewed for this research project to strengthen the students' responses and find out how they contribute towards students performance.

It is envisaged that this research will contribute to the effectiveness of e-learning for the selected university and that it may have a wider relevance for similar tertiary institutions in South Africa.

### 3.2.1 Quantitative design aspects

Mukhopadhyay and Gupta (2014:109) define quantitative research as the mainstream and commonly used methodology in science and is also the leading methodology used for investigative studies in social science and management, and that quantitative methodologies make use of the positivist paradigm. Furthermore, Johnson (2015:334) state that quantitative methods are often employed to empirically test theory-based hypothesis in a deductively manner with various forms of statistical analysis. Bezzina and Saunders (2014:34) point out that generalisability and accuracy of measurement are some of the advantages of quantitative methods.

The following are the characteristics of quantitative research, as listed by Struwig and Stead (2001:3):

- Examining variables based on the hypotheses derived from a theoretical scheme
- Establishing casual relationships (cause and effect) between constructs
- Results are often generalised beyond the confines of the research sample
- Replication of a study a way of determining the extent of which finding are applicable to other contexts; and
- The individual is the focus of the empirical inquiry

The following are the characteristics that distinguish qualitative research and quantitative research (Struwig and Stead, 2001:11):

- The researcher is interested in analysing and interpreting research data in association with the participants.
- Contextualism is emphasised whereby a comprehensive description and analysis of the environment or social context of the research participants is provided. It is process oriented whereby interrelated events along a developmental continuum are examined.



- Research is relatively open and unstructured and less reliant on theory.

Quantitative data was collected by means of a questionnaire disseminated to students from some of the DUT residences from the faculty of Accounting and Informatics. The quantitative method was chosen because of its accuracy and that data analysis is less time consuming and allows the researcher to reach a large proportion of the population and it provides a precise and numerical data that can be easily interpreted.

### **3.3 TARGET POPULATION**

Castillo (2009:1) defines target population as the entire group of individuals or objects to which researchers are interested in generalizing the conclusions and it usually has varying characteristics. Sekaran and Bougie (2009) state that effective research requires population of the study to be clearly defined to enable a representative sample size to be determined in order to be generalizable. In order for a sample size to be generalizable, the researcher opted to choose first, second and third years' students from the faculty of Accounting and Informatics at the Durban University of Technology as a target population for this study. Sekaran and Bougie (2013:234) advise that a target population is necessary because it is not easy to collect data from the entire population. The study focused more on students and academics because they are the ones who make use of e-learning the most. The target population comprised of 6 035 students and 45 lecturers from the faculty of Accounting and Informatics.

The information regarding the target population was requested from the university's Management Information System department.

### **3.4 SAMPLING**

Sekaran and Bougie (2013:244) state that sampling refers to a process of choosing an appropriate number of the elements from the population to certify that a study of the sample, and an understanding of its properties or characteristics, make it possible to generalise such properties to the population elements. They add that it is crucial that the right individuals, objects or events are selected as representatives for the entire population.

According to Cooper and Schindler (2001:123) there are two categories of sampling, one being probability sampling and non-probability sampling. Probability sampling is based on the

concept of random selection – a selection procedure that ensures that each element of the population is given a known chance of selection. They also describe general concepts associated with probability sampling namely:

- The sample obtained should be representative of the population from which it is drawn.
- The sample must be selected randomly from the population
- Every element or member in the population has an equal probability of being chosen once they are included in the sampling frame.
- It is possible to generalise the findings from the sample to the population.
- Probability sampling, thus, exists within the positivist paradigm as it is based on scientific assumptions of developing generalised knowledge about categories and aspects of reality and not about the individual and the unique.

| Type          | Description   | Advantages  | Disadvantages   |
|---------------|---|---|---|
| Simple random | Each population element has an equal chance of being selected into the sample. Sample drawn using random number table/generator | Easy to implement with automatic dialling (random digital dialling) and with computerised voice response systems.                 | Requires a listing of population elements. Take more time to implement. Uses larger sample sizes. Produces larger errors. expensive     |
| Systematic    | Selects an element of population at a beginning with a random start and following the sampling fraction selects every even      | Simple to design. Easier to use than the simple random. Easy to determine distribution of mean or proportion. Less expensive than | Periodicity within the population may skew the sample and results. If the population list has a monotonic trend, a biased estimate will |

|            |   |  |   |
|------------|---|--|---|
|            | element.  | simple random  | result based on the start point.  |
| Stratified | Divide population into sub-populations or strata and use simple random sample on each strata. Results may be weighted and combined. | Researcher controls sample size in strata. Increased statistical efficiency. Provides data to represent and analyse subgroups. Enables use of different methods in strata.                         | Increased error will result if subgroups are selected at different rates. Expensive, especially if strata on the population have to be created. |
| Cluster    | Population is divided into internally heterogeneous subgroups. Some are randomly selected for further study.                        | Provides an unbiased estimate of population parameters if properly done. Economically more efficient than simple random. Lowest cost per geographic clusters. Easy to do without a population list | Often lower statistical efficiency (more error) due to subgroups being homogenous rather than heterogeneous.                                    |

Source: adopted from Cooper and Schindler, (2000:243)

In this study, the researcher felt that simple random sampling would be suitable to address the objectives of the study as there are a large number of students whose understandings are likely to be parallel.

### **3.4.1 Sampling frame**

Sekeran and Bougie (2013:268) define a sampling frame as a representation of all units or elements in the population from which the sample is drawn. They also point out that if the population is 6 035, a sample size of 361 should be adequate to support the research findings (Sekeran and Bougie, 2013:268). The researcher opted to use simple random sampling for selecting this sample size of students and academics. This was done through using the Microsoft Excel by creating a random number table and the participants were selected according to each random number until the sample size for students was reached. Academics were also included in the study and most lecturers from the faculty of Accounting and Informatics were requested to participate. This was done because academics are expected to be well trained and understand a lot about e-learning and mostly encourage students to use it.

## **3.5 DATA COLLECTION**

Data can be obtained from primary and secondary sources (Sekaran and Bougie 2013:113). Primary sources are used to generate data directly from the field, while secondary data refers to information gathered from sources that already exist (McDonald, Gan, Oke and Anderson, 2015:300). In this study the researcher required to seek data from both primary and secondary data in order to address the objectives of the study. Primary data was collected using questionnaires and structured interviews, while secondary data was collected using trusted online sources like Google Scholar and relevant university documents.

### **3.5.1 Questionnaire design**

Questionnaire design is the process of designing the format and questions in the survey instrument that will be used to collect data about particular phenomenon (Lavrakas, 2008:1). The use of questionnaires for this study enabled the researcher to collect data efficiently across the faculty of Accounting and Informatics. Questionnaires are a well-known method of collecting data because researchers can get information easily and the responses are easily coded Sekeran and Bougie, (2013:115).

#### *Categories of questions*

Saunders et al. (2009:178) explains that the questions included in the questionnaire should individually and collectively provide the data required for successful achievements. A well-constructed questionnaire also has a range of question categories, each consisting of a small number of related questions intended to elicit information of a particular type relating to the

research topic. Some of the common categories of questions suggested by Saunders et al. (2009:178) are:

- Socio-demographic questions: to develop a profile of the respondents by asking questions about gender, marital status, age group, occupation, income and related personal information.
- Orientated questions: to orientate the respondent on the core issues relating to the research and sometimes to test his/her level of grasp of the topic that follows.
- Behavioural questions: to measure attitudes, beliefs, opinions, motives and behaviours. Attitude questions record how respondents feel about something; belief and opinion questions record what respondents believe or think is true or false. Items that focus on the motives and behavioural variables elicit data on what individuals did in the past, do now, will do in the future and the motive for these behaviours.
- Content-related questions: to elicit data on the major purpose and content area of the research topic.

The questionnaire assisted the researcher in getting information from students and understanding their perceptions and experiences in the effectiveness of e-learning.

In this study a self-administered questionnaire was considered the most suitable instrument for data collection because of the nature of the data required to answer the research questions. The researcher used closed-ended questions and the questionnaire used was a Likert type rating scale with the following categories: strongly agree/agree/neutral/disagree and strongly disagree with numerical ratings from 1 to 5.

### **3.5.1.1 Students' questionnaire**

The student's questionnaire had five pages and two sections (Section A and B) and included the letter of information and consent form. Section A consisted of biographical details had five questions (1.1 to 1.5) covering gender, race, age, department and level of study. This was done for statistics purposes.

Section B had fourteen (14) questions and all of the questions were closed-ended questions.

The questionnaire had a Letter of Information and Consent Form. This letter contained the title of the research study, the researcher details, the supervisor's details, the purpose of the study, procedures involved in completing the questionnaire and any risks or benefits involved for the participants. The participants were assured that they could withdraw from the study at any time and that anonymity and confidentiality would be maintained. Contact details of the responsible persons were given in the event of participants having any problems or queries. The above information was given to assure participants that the appropriate ethical processes were followed in the study.

### **3.5.2 STRUCTURED INTERVIEWS**

Interviews are the most universal format of data collection in qualitative research. According to Oakley (2016), qualitative interview is a type of framework that practices and standards are not only recorded, but also achieved, challenged and also reinforced. Sekaran and Bougie, (2013:120) explain that in structured interviews, questions should be asked to everybody in the same manner.

According to Kvale (1996:98) the quality of the interview determines the quality of the data elicited from the interview during the data analysis stage of the project. He went to identify the following six guidelines or criteria to be kept in mind by interviewers as a quality control mechanism:

- A quality interview should according to Kvale (1996:98) elicit spontaneous, rich and focused answers from the interviewee;
- It should be characterised by short questions on the part of the interviewer accomplished by long answers by the interviewee;
- It should involve a dialogue during which the interviewer follows up on unanswered questions and seeks clarification where necessary;
- Quality interviews should involve an initial interpretation during the course of the interview;

- Which should be verified by the interviewee;
- Finally, wherever possible the interview should be largely “self-communicating” so that additional clarification is not necessary on the part of the interviewer.

Prior to the interviews taking place, an interview schedule was prepared and the interviews with the lecturers were conducted following the schedule. An email request was sent to the lecturers to check whether or not they will be available for the interviews. The researcher attached the interviews schedule together with the letter from the Institutional Research and Innovation Committee (IRIC) which gave permission to the researcher to conduct the study. The schedule gave respondents enough time to prepare for the interviews. Dates and times of the interview were discussed between the researcher and the interviewees. The interviews were conducted in the period of one week in the month of September 2018. The interviews were conducted on a one-on-one basis at the lecturers’ offices.

Permission to record the interviews were obtained from the participants as this gave the researcher the opportunity to listen carefully and pay attention during the interviews. The interviews were very enlightening because the interviewees provided fertile information that helped a lot. The researcher only managed to get six interviews with the lecturers. The other lecturers were very busy and had no time to squeeze for the interviews.

### **3.6 ADMINISTRATION OF THE QUESTIONNAIRE**

Surveys can be conducted in different settings and different questionnaire methods involve either paper or pencil, electronic (computer mouse/keyboard) or telephone key pad vehicles for collecting data (Steward, 2009:2). Sekaran and Bougie, (2010) feel that self-administered questionnaires are an effective way to collect data when the survey is restricted to a local area.

The questionnaire in this study was self-administered. The researcher decided to use this method because as a student at DUT distributing and collecting the questionnaires would not a hard task since I am familiar with the intuitions’ residences.

The questionnaire together with the Letter of Information and Consent Form were personally administered to all students. Students and lecturers from the Faculty of Accounting and

Informatics were included in the survey. The researcher requested the participants to leave the questionnaires with the security guard from their respective residences. The researcher did not experience any difficulties in terms collecting disseminated questionnaires from the respondents. A total of 416 questionnaires were distributed but the researcher only received 406 which was a reasonable response rate.

### **3.7 PRETESTING THE QUESTIONNAIRE**

Bazeley (2013:55) indicates that the researcher places all his proposed research procedures including strategies for analysis, through a dry run with the kind of settings or people who will eventually become the research focus. Olsen (2012:84) explains that pre-testing the study allows the researcher to determine whether the design will generate analysable data that are relevant to the purpose of the study and will help the researcher assess how long analysis is likely to take. He further explains that an extended pretesting period may be needed to get an accurate survey in the sense of a close fit between what was meant to be asked, how it is understood and what the answers mean over a wide range of types of people in different places, to increase accuracy, give the enumerator or interviewer an opportunity to note down details of any difficulties they came across. The purpose of pretesting was to purify the questionnaire so that respondents would have no problems in answering the questions and there would be no difficulties in recording the data. Pretesting also enabled the researcher to assess the questions' validity and reliability of the data that would be collected. For this study, data was collected from ten (10) respondents as a questionnaire pre-test. This was done before distributing the main questionnaire to selected respondents. Simple and straightforward questions were created to ensure easy understanding and the reliability of the study was enhanced since the participants were able to fill in the questionnaire without any struggles. Responses from the pilot were then read and analysed. These respondents were then excluded from the main study.

### **3.8 ETHICAL CONSIDERATIONS**

David and Resin (2011) outline that there are numerous reasons why it is important to follow ethical norms in research. They state that these norms endorse the aims of the research and disallow against fabricating, falsifying or misrepresenting research data. Anonymity, confidentiality and informed consent were taken into consideration

According to David and Resin (2011), there are numerous reasons why it is significant to follow ethical norms in research. These norms promote the aims of research, such as



knowledge, truth, and avoidance of error. For example, prohibitions against fabricating, falsifying, or misrepresenting research data promote the truth and avoid errors. This study took into consideration anonymity, confidentiality and informed consent. Written permission to conduct the study was obtained from the Institutional Research and Innovation Committee (IRIC) at the Durban University of Technology with the study proposal being approved by IRIC.

Letters of Information and Consent forms were attached to the questionnaire. The researcher assured the respondents that the information introduced will be kept strictly anonymous and confidential. The Letter of Information introduced the title of the study, why and how participants should participate in the study. The researcher's, supervisor's and co-supervisor's contact details were provided in case the participants needed clarification as far as any aspects of the study were concerned. The participants of the study were informed that their participation was voluntary and that they had a right to not participate in the study.

### **3.9 CONFIDENTIALITY AND ANONYMITY**

The Concise Oxford Dictionary defines confidentiality as spoken or written in confidence; charged with secrets while anonymity is defined as unknown name, of unknown authorship.

The following measures were taken into consideration: respondents were asked to fill in their names and sign the consent letters for quality run in data collection and proof purposes. No names were required on the questionnaire or even mentioned during the analysing process. All identifying information was separated and stored in a safe place. Furthermore, all respondents that were interviewed were guaranteed that the transcriptions were undertaken by the researcher and were only made available to the co-supervisor and supervisor when requested.

### **3.10 RELIABILITY**

Strudwig and Stead (2001:138) define reliability as the degree to which an instrument measures what it is intended to measure. Tavakol and Dennick (2011:53) state that it is possible to objectively measure the reliability of an instrument and Cronbach's alpha is most used objective to measure reliability. They further state that improper use of alpha can lead to situations that either test or scale is wrongly discarded or the test is criticized for not generating trustworthy results. The Cronbach's alpha was applied by a qualified statistician in this study.

Table 3.1 Reliability for students' questionnaire

| Reliability Statistics |            |
|------------------------|------------|
| Cronbach's Alpha       | N of Items |
| 0.931                  | 10         |

### 3.11 VALIDITY

Claire, (2006:156) explains validity as the assurance that the research instrument would repeatedly represent the same results. As outlined by Picardi and Masick, (2014:88), there are basic ways to access validity and they are:

- **Content validity:** *is the extent to which the measuring instrument provides adequate coverage of the topic under study. If the instrument contains a representative sample of the universe of subject matter of interest, then content validity is good.*
- **Criterion-related validity:** *this approach reflects the success of measures used for prediction or estimation. You may not want to predict an outcome or estimate the existence of a current behaviour or condition.*
- **Construct validity:** *this approach evaluates a measure by how the measure conforms to theoretical expectations.*

The validity of this study was tested using content validity. It was ensured through the construction of the questions in the questionnaire.

### 3.12 DATA PRESENTATION

Data presentation is one of the most imperative elements as far as data analysis is concerned and it involves the process of coding the data collected. After collecting all the questionnaires, the questions were coded and captured using the SPSS version 23.0 by a qualified statistician. All captured questionnaires were numbered.

### **3.13 DATA ANALYSIS**

Kumar (2011:104) states that the main focus of quantitative research is to understand, explain, explore, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people. Content analysis systematically assesses the symbolic contents of all forms of recorded communications, allowing the researcher to analyse large amounts of textual information and systematically identify its properties such as the presence of certain words, concepts, themes or sentences (Sekaran and Bougie, 2013:141). The researcher grouped the research questions per objectives and categorised them to demonstrate patterns and draw general conclusions from the data. The quantitative data was analysed into broad categories using descriptive analysis. A multiple regression analysis was applied:

- The first type of analysis worked at frequencies, for example, the number of times a certain response was made.
- Variables were then screened, identifying those variables that were highly influential on the dependent variables of the study.

After the data was captured, the results were presented in the form of charts and graphs.

#### **3.13.1 Descriptive statistical analysis**

Welman, (2006:231) states that descriptive statistics are concerned with the description and/or review of the data obtained from a group of individual units of analysis. Adams (2007) further states that descriptive statistics are used to sum up data collected and to smooth the progress of an understanding of the information through the use of graphs and frequency analysis and it also facilitates the identification of patterns and data distribution of the study variables through simple summaries and generally forms the foundation of most quantitative studies. For this study, the closed of the descriptive questionnaire were used:

- Determine the perceptions of students regarding the effectiveness of e-learning
- Identify the level of use of e-learning by students
- Identify how e-learning impacts on students' academic progress

### **3.14 CONCLUSION**

This chapter provided an overview of the methodology that was adopted to conduct this study. Questionnaires were employed involving recognised data instruments. This instrument collected quantitative data. The questionnaires were personally completed by the students. Pretesting was also conducted to take care of reliability and validity issues in the study. Ethical issues were taken into account to ensure that the research was conducted within established ethical parameters.

The following chapter presents the findings of the study.

## CHAPTER FOUR

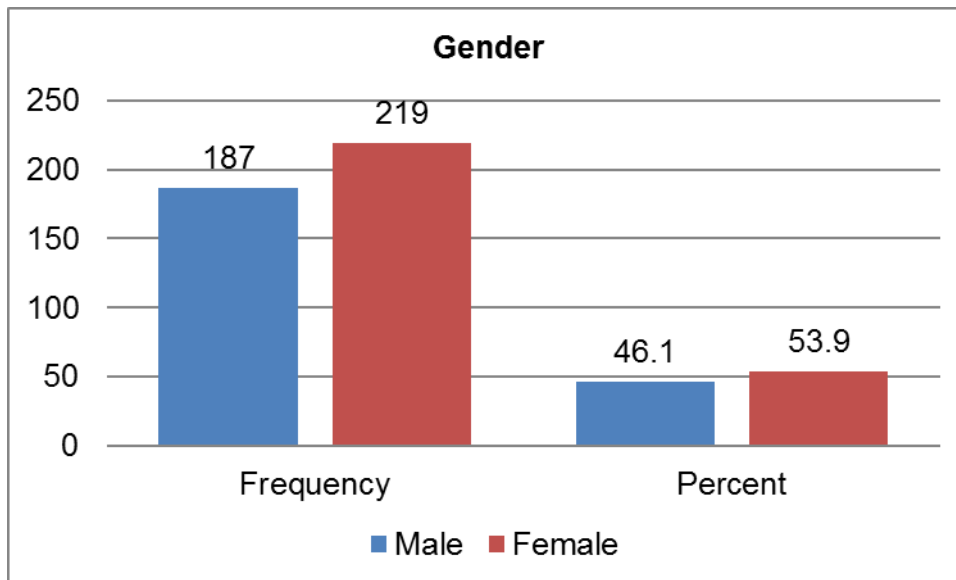
### DATA ANALYSIS, RESEARCH FINDINGS AND INTERPRETATION

#### 4.1 INTRODUCTION

This chapter provides a detailed analysis of the findings from the data and an interpretation of the results. The objectives of this study include investigating the determinants of satisfaction of e-learning, to investigate lecturer's strategies to promote e-learning, identify the level of use of e-learning by DUT students and also to determine how e-learning impacts on students' academic progress. The data collected from the responses was analysed with SPSS version 23.0. The results are presented as descriptive statistics in the form of graphs and figures. The analyses of the results are presented according to each objective.

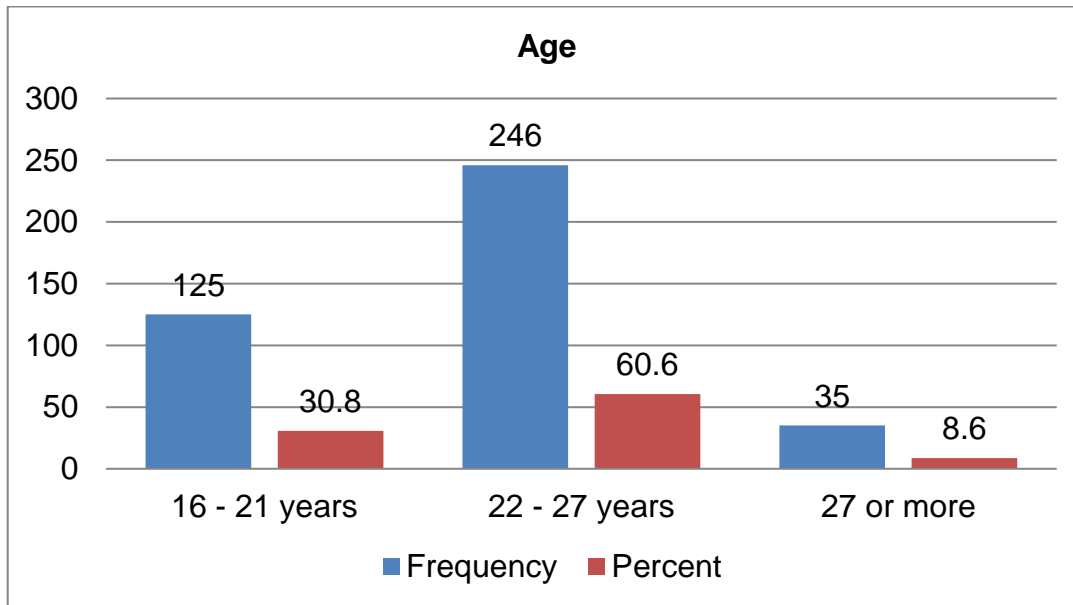
#### 4.2 SECTION A - BIOGRAPHICAL ANALYSIS FOR STUDENTS

**Figure 4.1 Gender of the respondents**



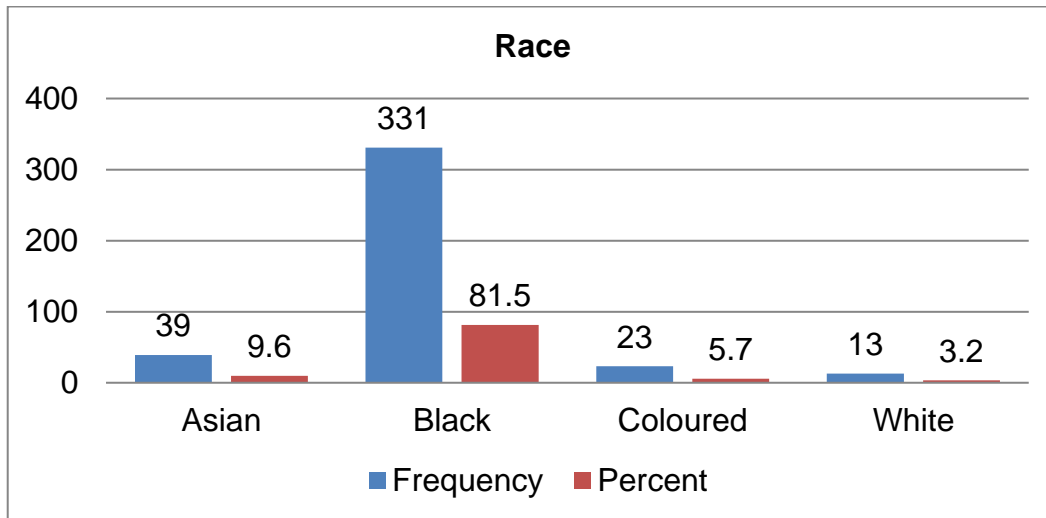
The findings of figure 4.1 indicate that 187 (46.1 percent) of the respondents were males and 219 (53.9 percent) were females. These results show a reasonable balance between the genders (46% males and 53.9% females). This is a close gender difference amongst students in the university and country as a whole.

**Figure 4.2 Students age**



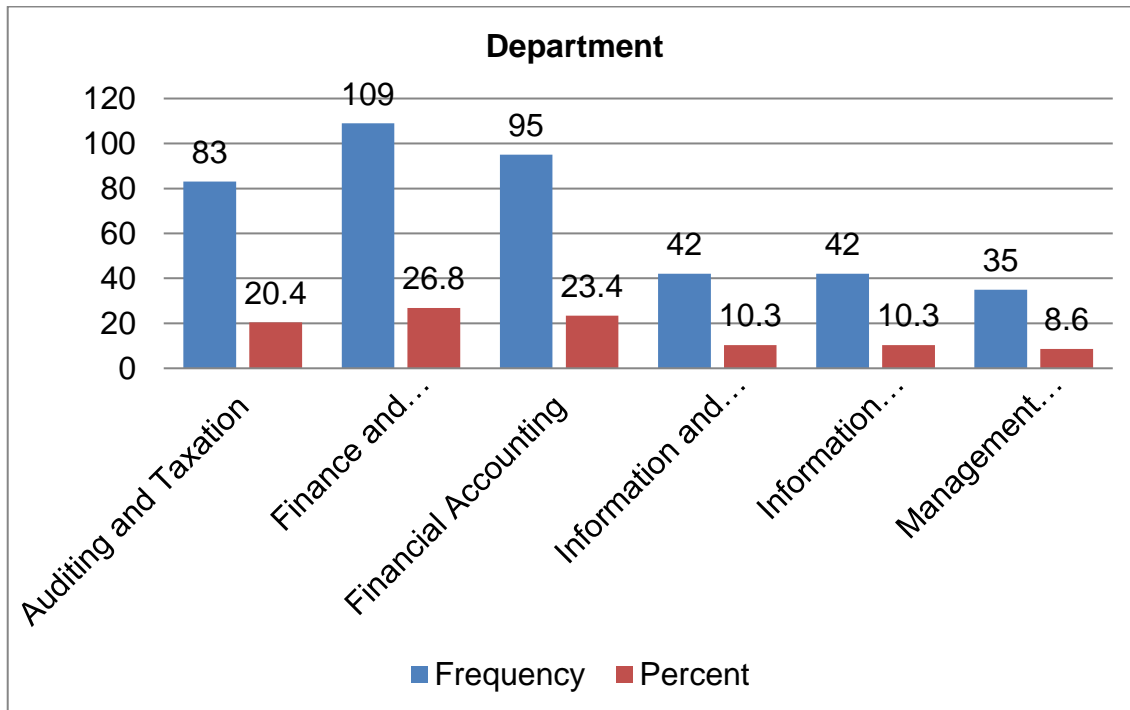
The results in figure 4.2 show that 127 (30.8 percent) of the respondents were between the ages 16 and 21, majority of 246 (60.6 percent) were between 22 and 27 years of age and the least of the respondents were 27 years and older.

**Figure 4.3 The racial composition of students**



The results indicate that 39 (9.6 percent) of the respondents were Asian, 331 (81.5 percent) were Black, while 23 (5.7 percent) were Coloured and 13 (3.2 percent) were White. It is noted that majority of the respondents were Black and this is a reflection of the racial composition of students at the university quite closely.

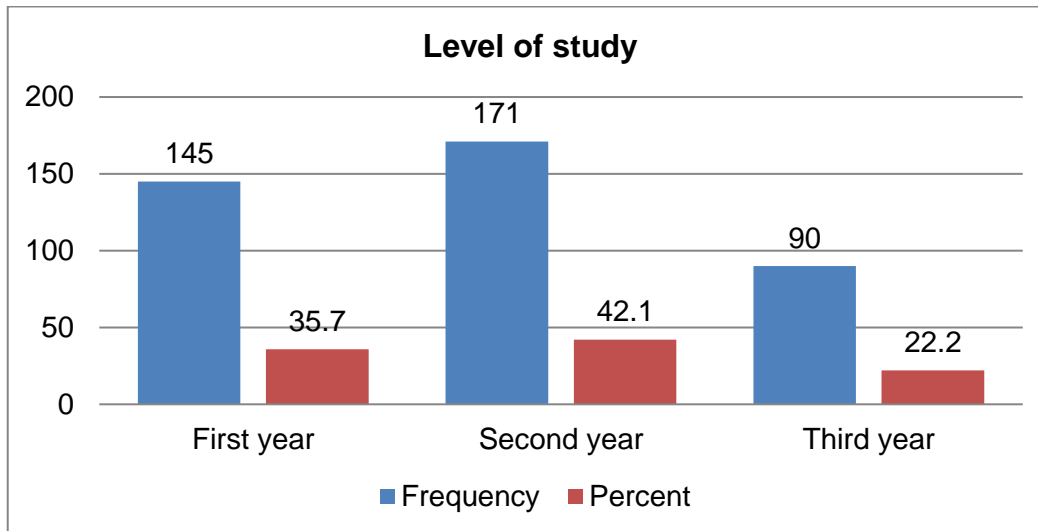
**Figure 4.4 Students department**



The results in figure 4.4 show that 83 (20.4 percent) of the respondents were from the department of Auditing and Taxation, majority of the respondents were from the department of Finance and Information Management, 95 (23.4 percent) of the respondents were from the department of Financial Accounting, 42 (10.3 percent) were from Information and Corporate Management (26.8 percent), 42 (10.3 percent) were from the department of Information Technology and the least of the respondents were from the department of Management Accounting.



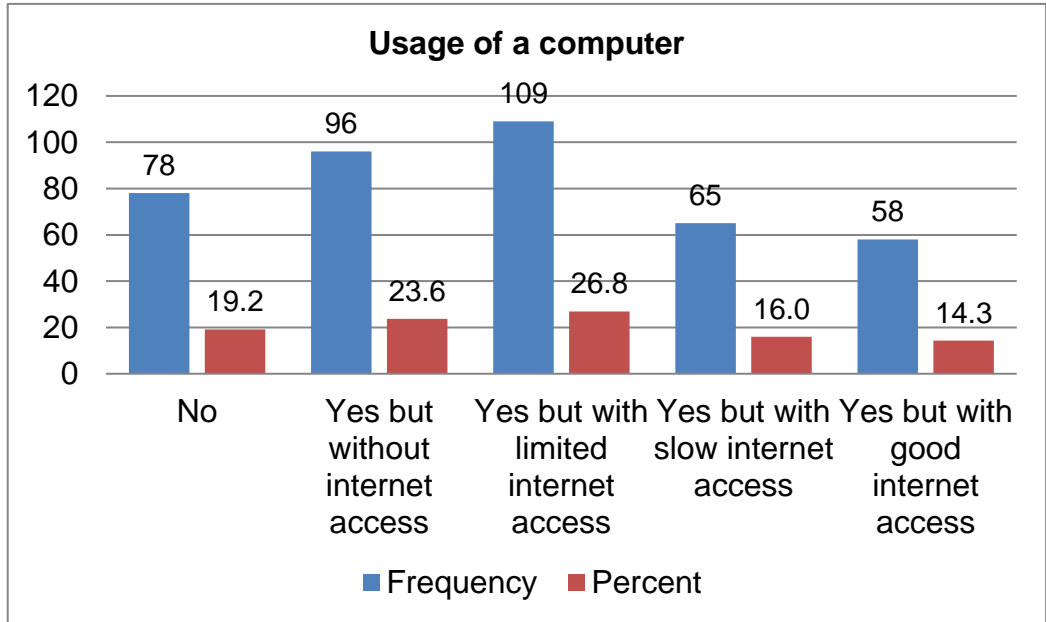
**Figure 4.5 Level of study**



The results in figure 4.5 show that 145 (35.7 percent) were first year students, 171 (42.1 percent) of the respondents were in second year and 90 (22.2 percent) were third year students. The findings reflect that majority of the respondents were doing their second year.

### 4.3 SECTION B – ANALYSIS

Figure 4.6 Use of a computer at residential address



The results in figure 4.6 indicate that 78 (19.2 percent) of the respondents do not computers at all, 96 (23.6 percent) of the respondents uses computers at their residences but without internet access, majority of the respondents use computers but with limited internet access (26.8 percent), 65 (16.0 percent) of the respondents use computers but with slow internet access and 58 (14.3 percent) of the respondents use e-learning with good internet access. These findings reflect that most students use the internet but have limited access which makes it somehow hard to do schoolwork.

**Figure 4.7 Places where students access e-learning**

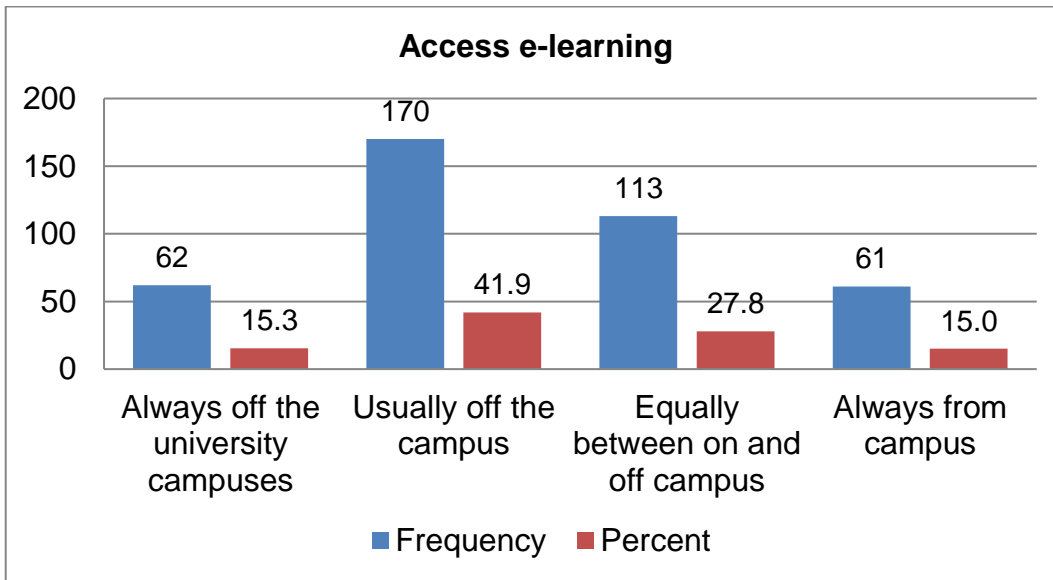
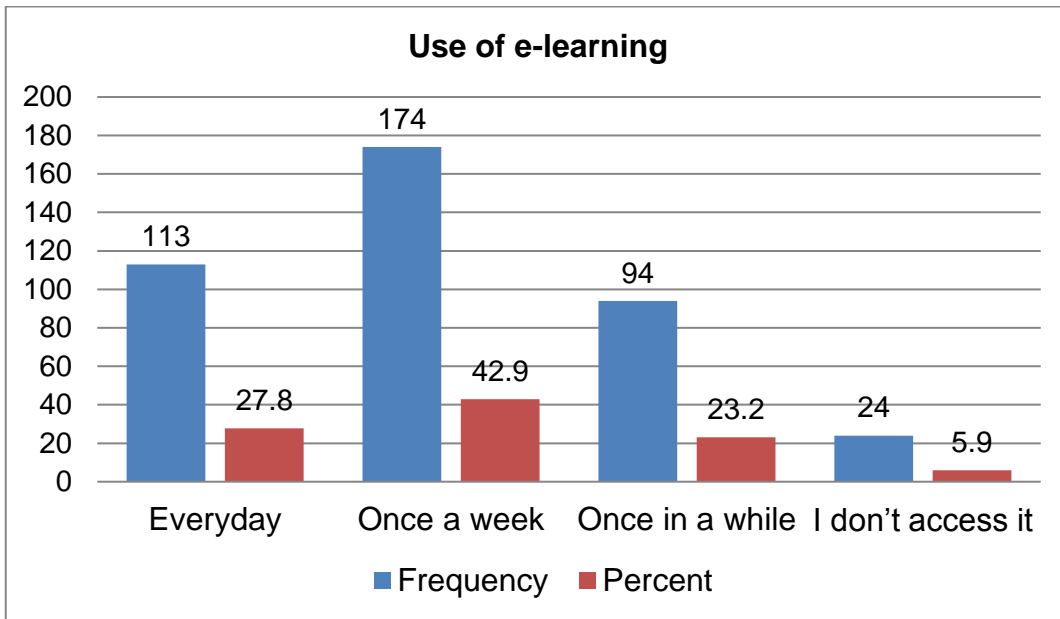


Figure 4.7 show that 62 (15.3 percent) of the respondents always access e-learning on campuses, 170 (41.9 percent) of the respondents' access e-learning on campus, 113 (27.8 percent) equally access it between on and off campus and 61 (15.0 percent) of the respondents' access e-learning away from campus. The above graph reveals that majority of the respondents' only access e-learning on campus.

**Figure 4.8 Use of e-learning**



The results in figure 4.8 indicate that 113 (27.8 percent) of the respondents use e-learning every day, 174 (42.9 percent) use it once a week, 94 (23.2 percent) access it once in a while and only 24 (5.9 percent) of the respondents don't access it at all. The findings show that most of the respondents' access e-learning once a week.

**Figure 4.9 Lecturers instruction to use e-learning**

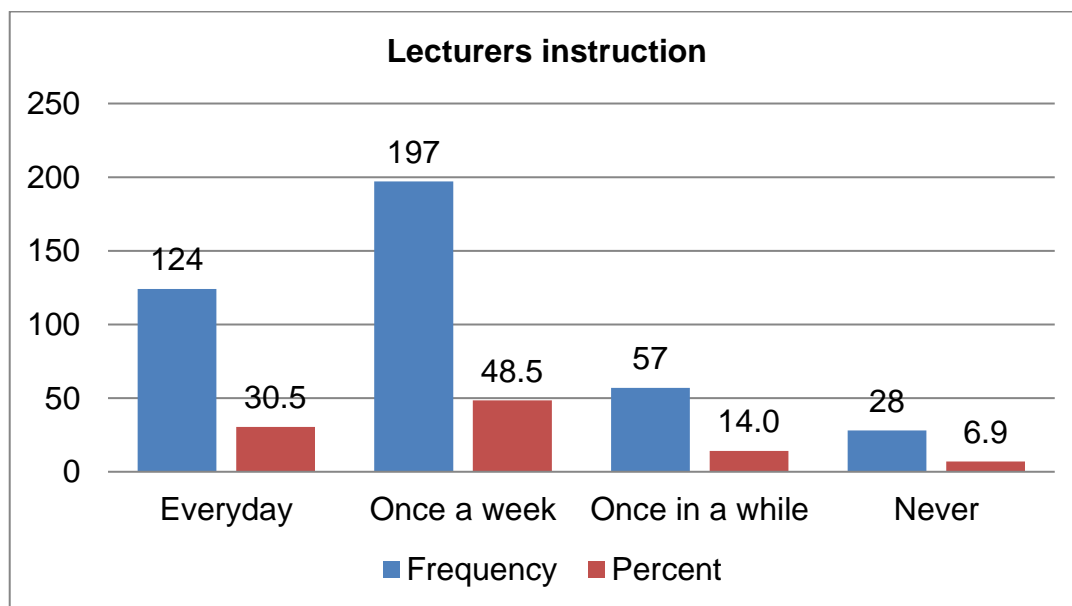
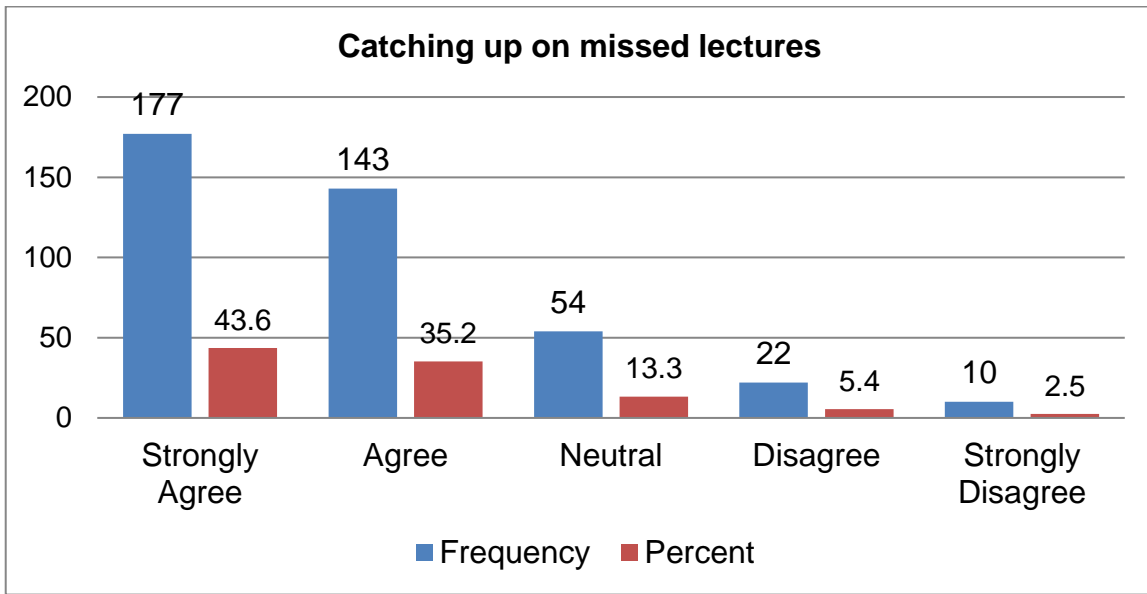


Figure 4.9 reveals that 124 (30.5 percent) of the encourage students to use e-learning every day, 197(48.5 percent) instruct students to use e-learning once a week, 57 (14.0 percent) instruct them once in a while and 28 (6.9 percent) of the respondents are never instructed to use e-learning.

**Figure 4.10 E-learning helps me catch up on lectures that I have missed**



The results given in figure 4.10 show that 177 (43.6 percent) of the respondents believed that e-learning helps them catch up on missed lectures, 143 (35.2 percent) agree that e-learning helps them catch up on missed lectures, 54 (13.3 percent) were neutral, while 22 (5.4 percent) disagreed and 10 (2.5 percent) strongly disagreed.

#### 4.11 Notes and slides on e-learning help revise after lectures

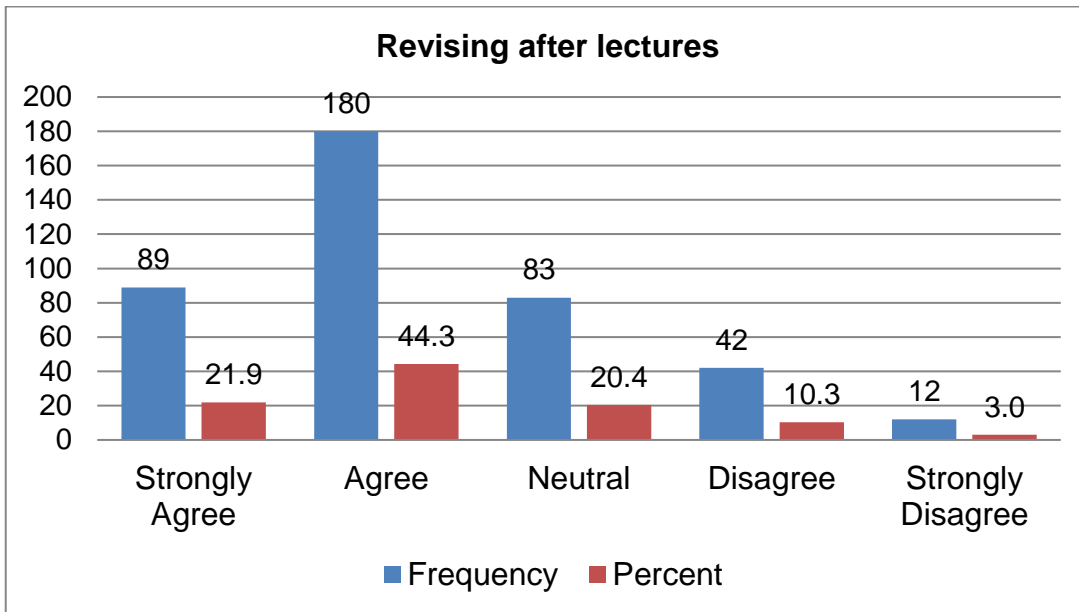


Figure 4.11 indicates that 89 (21.9 percent) of the respondents strongly agreed that notes and slides on e-learning help them revise after lectures, 180 (44.3 percent) agreed, 83 (20.4 percent) were neutral, 42 (10.3 percent) disagreed and 12 (3.0 percent) strongly disagreed.

**Figure 4.12 E-learning is a useful mean of communication**

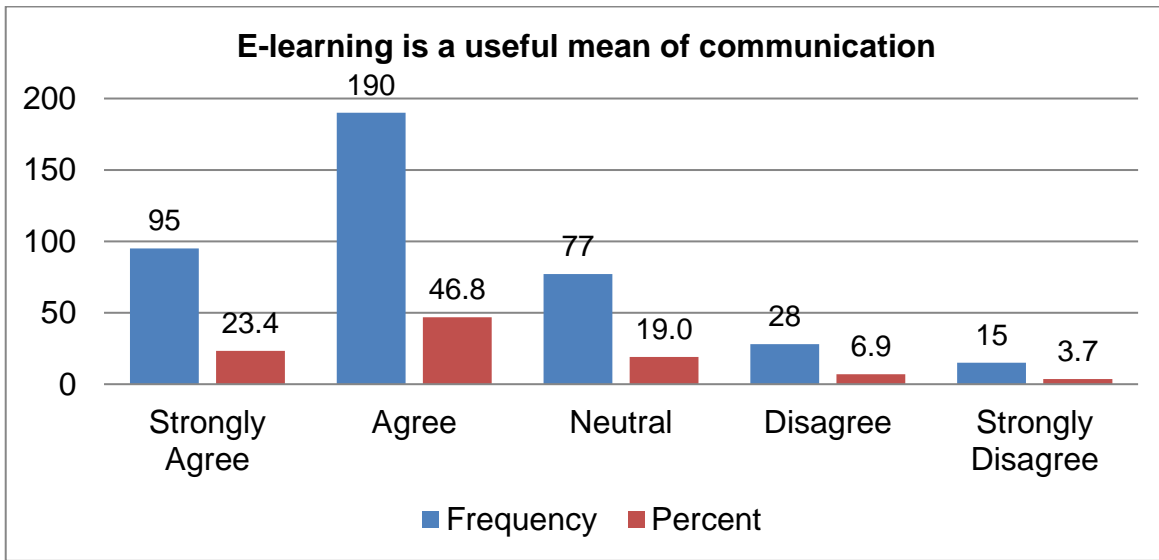


Figure 4.12 reveals that 95 (23.4 percent) of the respondents strongly agreed that e-learning is a useful mean of communicating with lecturers, 190 (46.8 percent) agreed, 77 (19.0 percent) were neutral, 28 (6.9 percent) disagreed and 15 (3.7 percent) strongly disagreed.



**Figure 4.13 Notes and other materials on e-learning help me understand lectures I find hard**

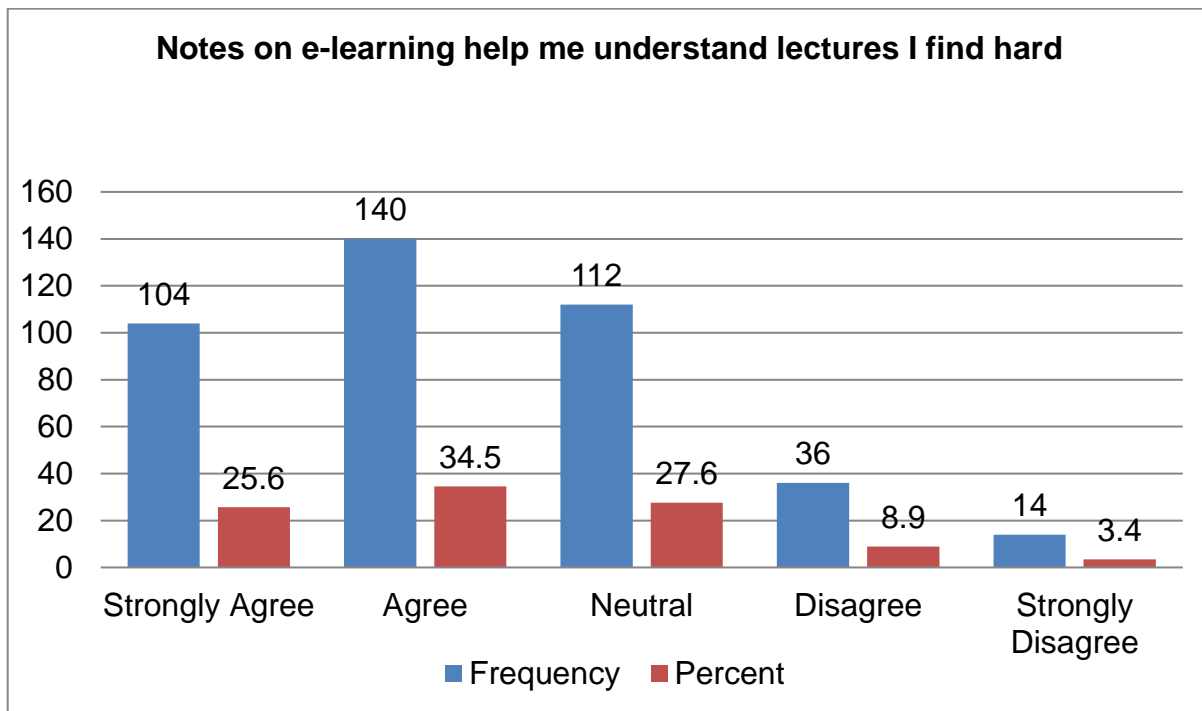


Figure 4.13 indicated that 104 (25.6 percent) of the respondents strongly agreed, 140 (34.5 percent) of the respondents agreed, 112 (27.6 percent) of the respondents were neutral, 36 (8.9 percent) of the respondents disagreed and 14 (3.4 percent) of the respondents strongly disagreed that e-learning helps them understand lectures that they find hard. These findings show that most respondents agree that that e-learning helps them understand lectures they find hard and stated that it helps with their academic performance.

**Figure 4.14 e-learning serves as backup for materials and handouts given in class**

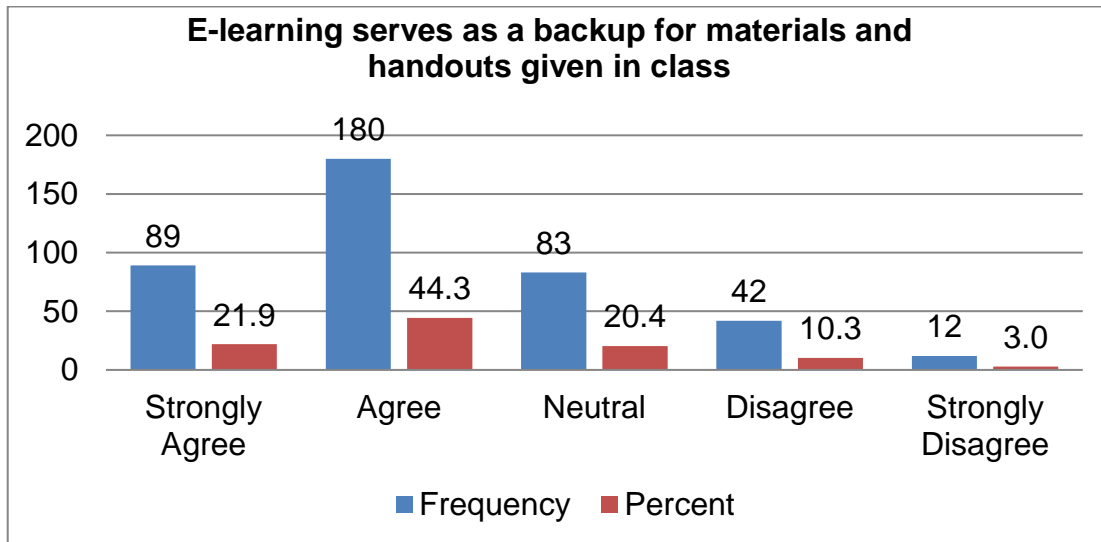


Figure 4.14 shows that 89 (21.9 percent) of the respondents strongly agreed that e-learning serves as a backup for materials and handouts that were given in class, 180 (44.3 percent) of the respondents agreed, 83 (20.4 percent) of the respondents were neutral, 42 (10.3 percent) disagreed and 12 (3.0 percent) of the respondents strongly disagreed. The findings reveal that least of the respondents strongly disagree that e-learning serves as a backup for materials and handouts given in class, while most agree.

**Figure 4.15 E-learning enables students to ask questions that they normally find hard to ask in class**

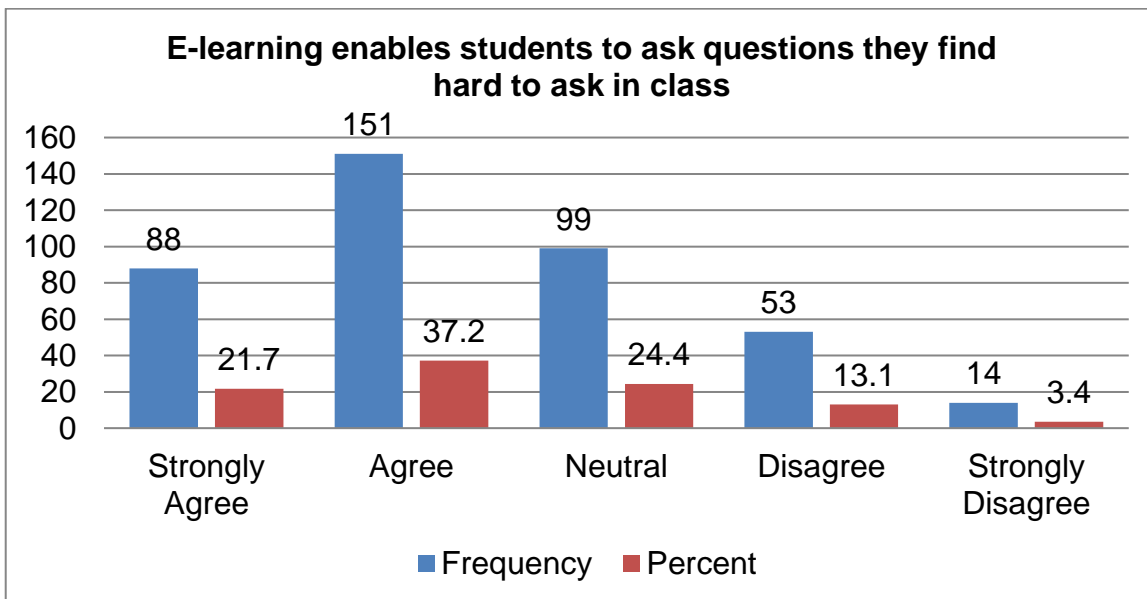


Figure 4.15 reveals that 88 (21.7 percent) of the respondents strongly agreed that e-learning enables them to ask questions that they find to ask in class, 151 (37.2 percent) of the respondents agreed, 99 (24.4 percent) of the respondents were neutral, 53 (13.1 percent) of the respondents disagreed and 14 (3.4 percent) of the respondents strongly disagreed that e-learning enables them to ask questions that they find to ask in class.

**Figure 4.16 E-learning helps students revise in places and times that are convenient for them**

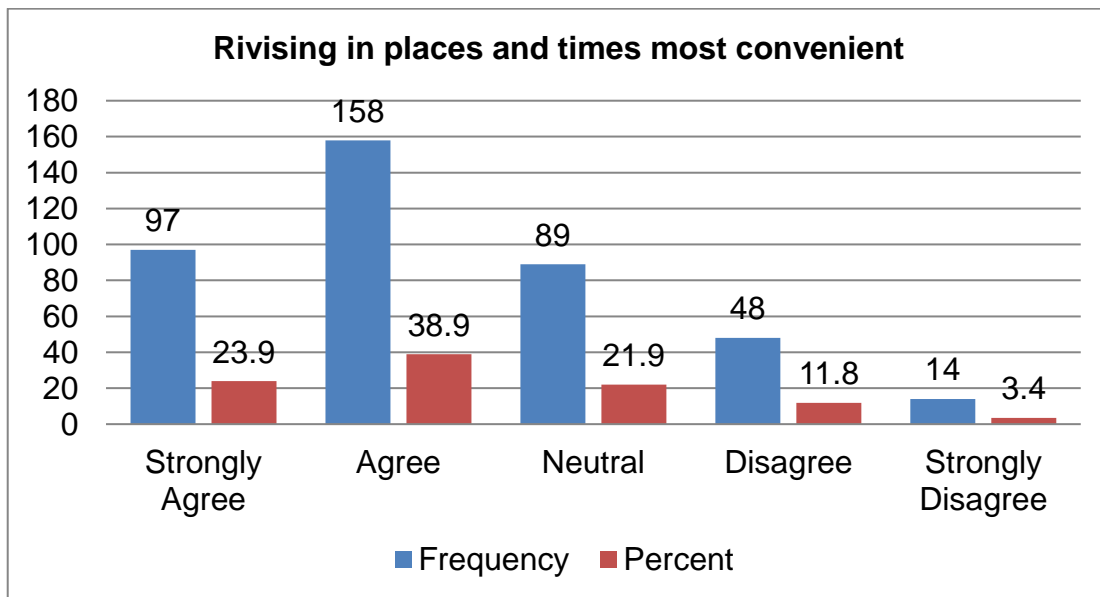


Figure 4.16 show that 97 (23.9 percent) of the respondents strongly agreed that e-learning helps them revise in places and times that are most convenient for them, 158 (38.9 percent) of the respondents agreed, 89 (21.9 percent) of the respondents were neutral, 48 (11.8 percent) of the respondents disagreed and 14 (3.4 percent) of the respondents strongly disagreed.

**Figure 4.17 E-learning helps me study in places and time that is convenient for students**

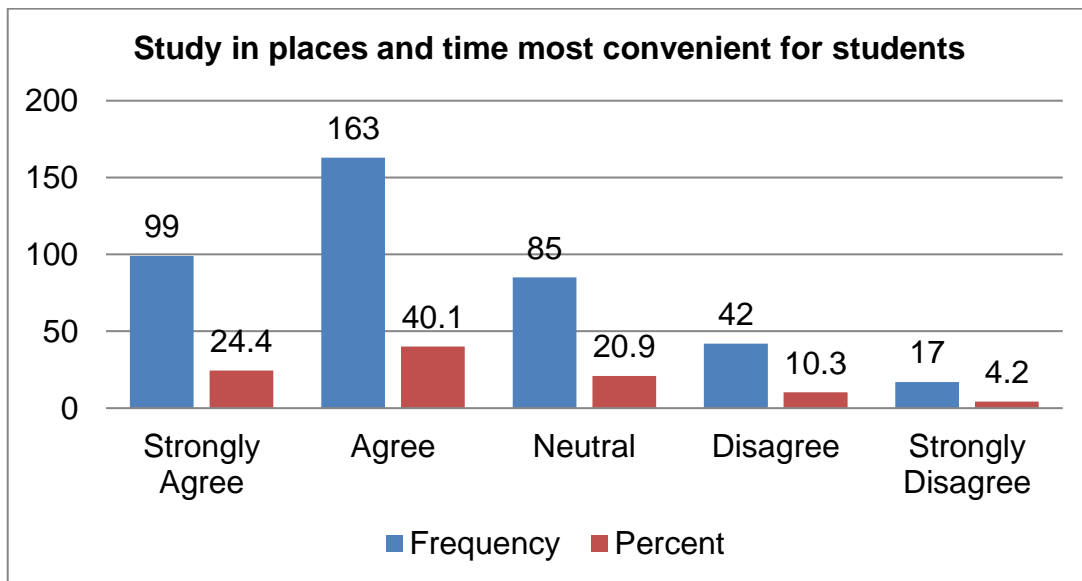


Figure 4.17 shows that 99 (24.4 percent) of the respondents strongly agreed that e-learning helps them study in places and time most convenient for them, 163 (40.1 percent) of the respondents agreed, 85 (20.9 percent) were neutral, 42 (10.3 percent) disagreed and 17 (4.2 percent) strongly disagreed. The findings show that most of the respondents feel that e-learning helps them study in places and times convenient for them. So they get to study anywhere anytime they want using e-learning.

**Figure 4.18 Do lecturers upload everything they lecture on in class on Think Learn Zone?**

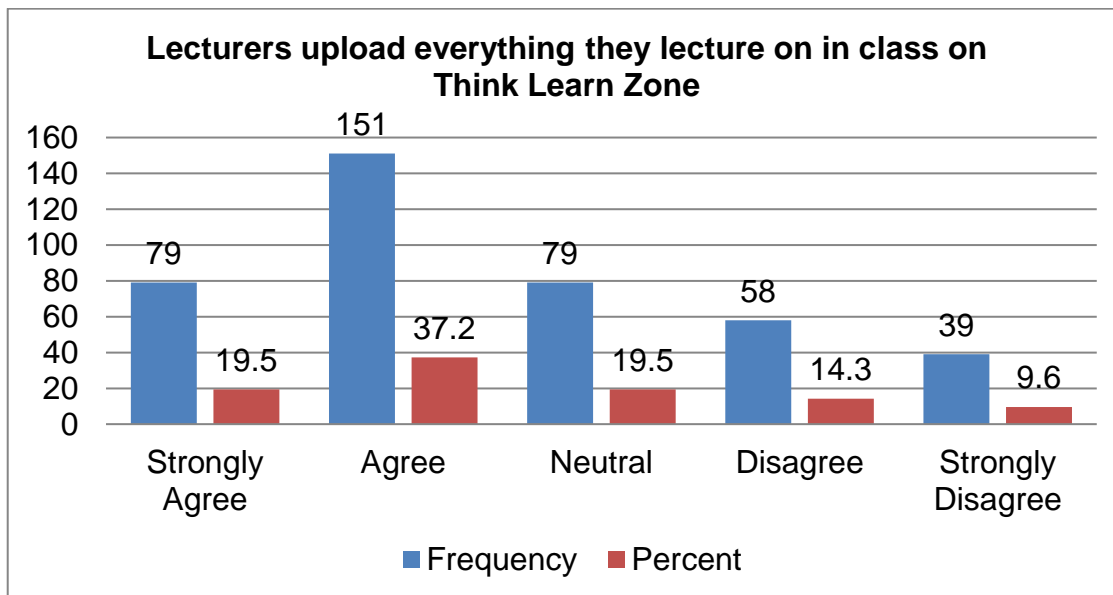


Figure 4.18 reveals that 79 (19.5 percent) of the respondents strongly agreed that lecturers upload everything they lecture on in class on Think Learn Zone, 151 (37.2 percent) of the respondents agreed, 79 (19.5 percent) were neutral, 58 (14.3 percent) disagreed and 39 (9.6 percent) strongly disagreed.

## **4.2 ACADEMICS STAFF – INTERVIEWS**

The researcher felt that it would be appropriate to conduct structured interviews with the lecturers from the Faculty of Accounting and Informatics in order to get their perception and influence towards making use of e-learning. The researcher hoped to interview lecturers from all departments from the faculty of Accounting and Informatics. However, in the event, only six lecturers agreed and were interviewed.

### **4.2.1 How often do you instruct students to log on to Think Learn Zone?**

Two of the respondents stated that they instruct students to use e-learning on a daily basis. Three of the respondents said that they only instruct students to use it once a week. One of the respondents stated that she only instructs them only when there is something that she feels is important that they need to learn and was not covered in class.

### **4.2.2 Do you upload everything you lecture on in class on Think Learn Zone and how useful is that to students?**

Five of the respondents stated that they do upload everything they lecture on in class on e-learning and one of the respondents said that she only uploads things that she thinks are important and useful to students. They stated that it helps students tremendously because they get to study at their own time and pace.

### **4.2.3 Are students able to communicate with you through e-learning after or before lectures or even on weekends and holidays?**

All of the respondents stated that they do communicate with students when they get a chance even during school holidays which is a great impression as this enhances students' performance.

#### **4.2.4 How do you use e-learning as a tool of teaching especially for students who do not understand in class or who do not attend lectures?**

One of the respondents stated that he always makes sure that he puts everything in its simplest form up on e-learning for students who have difficulties. Two of the respondents that they always talk to students and find out what they find hard to understand then make extra time to assist those students either through online conversations or putting up more notes on. Three of the respondents stated they try hardest to upload everything on Think Learn Zone and give off their time to explain everything during lecture times or on weekends.

#### **4.2.5 Which variety of resources do you upload on the e-learning platform that can be helpful to students?**

All respondents said that they upload most of everything they lecture on and breaks downs that make it easier for students to understand and learn. They further stated that this technique has been a useful one and improves students' performance.

#### **4.2.6 Do you post notes well in advance for students to read through and prepare for lectures?**

All respondents agreed to posting everything well in advance for students to study and prepare themselves well in time. They believe that doing so tremendously assist students and make them attend lectures knowing what they will learn on different days.



### **4.3 CONCLUSION**

The purpose of this chapter was to provide full presentation, analysis and the interpretation of the data that was gathered from the students and lecturers from the faculty of Accounting and Informatics of the university. The overall findings indicate that students do make use of e-learning at their most suitable times and places and academics are doing their outmost best to assist students in any possible. The findings show that they keep in touch with students even after hours and they post everything they think is important on the portal to assist all students. The findings do also show that some students do not bother themselves e-learning and making use of it. It is important to get everybody on the same page and doing the same thing to benefit themselves and finish their studies in due time.

The next chapter presents concluding remarks, suggestions and recommendations of the study.

## CHAPTER FIVE

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

Chapter four presented the findings of the data and gave a detailed analysis of the findings. This chapter covers the achievements of the objectives, draws conclusions and makes recommendations. It also outlines the contribution of the research to knowledge. Practical recommendations are added to address and better the use of e-learning. The limitations of the study are also discussed and implications considered. In addition, the chapter offers directions for future research.

#### 5.2 ACHIEVEMENT OF OBJECTIVES ON KEY FINDINGS

This section will present conclusions that have been reached as with regards to the objectives of the study.

##### 5.2.1 To investigate the determinants of satisfaction of e-learning as a tool of teaching and learning

The responses received established that a great majority of the students from the Faculty of Accounting and Informatics expressed their satisfaction towards e-learning as a tool of teaching and learning. Over 70% of the respondents' agreed to e-learning being a useful tool that enhancing learning. The literature also reviewed that if e-learning is used accordingly then it can greatly impact positively on students' academic records. Arkorful and Abaidoo (2014:401) state that e-learning is flexible when issues of places and times are considered. Meaning that students can study anywhere and at any time they wish. Studying does not have to be on campuses only. Algahtani (2011:101) also states that e-learning allows self-pacing. For instance, as the asynchronous way permits each student to study at his or her pace. It therefore increases satisfaction and decreases stress. Even though most students agreed that e-learning is a useful tool that enhances the learning and teaching process, some students still have no idea about this tool and do not make use of it at all. This is mostly students from poor educational background who find it very hard to use a computer and

believe that the only way of learning is by being in a physical classroom with an educator in front. This forms part of the many challenges that some students experience and until all those challenges are actioned then no students can fully say that they are satisfied with e-learning.

### **5.2.2 To investigate lecturer's strategies to promote e-learning**

The responses received show that a majority of students are instructed to use e-learning only once a week. From the literature reviewed Elkaseh, (2016:54) states that the impact of the internet on education at all levels captures both academics and students' attention in recent years. Academics have a major part to play in the process of making e-learning useful to students. In a study conducted by Smedley, (2010:44) in the UK and Africa, they identified two main reasons why academics use ICT in their classrooms. First, lecturers felt that their own use of computers benefitted their students and secondly, they felt that students benefited from computers themselves. It therefore important for students and academics to make use of e-learning and most important for academics to encourage students to use it as it has been proven how drastically it can impact on their academic performances.

Even though DUT has incorporated Think Learn Zone, the success of its implementation requires an extensive understanding of the end-user acceptance process because user acceptance and usage are important primary measures of system success.

### **5.2.3 To identify the level of use of e-learning by DUT students**

Only 14% of the respondents indicated that they are able to use a computer at their residential address with good internet access. While majority (41.9%) of the respondents stated that they have access to computers but with limited internet access. Think Learn Zone requires use of the internet, therefore in order to be able to log on to this tool one requires good internet access. Parsons and Taylor, (2011:17-36) emphasise that students learn best when they are fully engaged in the learning process, therefore engagement is an important factor in successful implementation and success of e-learning.

Taffs and Holts, (2013:501) argues that even though the use of e-learning in higher education to support student learning is expanding, student usage has been low and the value of e-

learning resources has been under investigation. The success of success can only be determined by how greatly it is used. With more first year students, online learning requires an appropriate orientation programmes to prepare them for the university environment because in most cases first year students are underprepared and the most vulnerable are non-traditional students who come from poor families and are generally first-generation students.

#### **5.2.4 To determine how e-learning impacts on students' academic progress**

The study reveals that majority of the students have agreed that e-learning has greatly impacted their academic performance with its flexibility of being accessed anywhere and at any time. Over 38 percent of the students agreed that e-learning helps them study and revise in places that are convenient to them and over 35 percent of the students stated that notes posted on e-learning helps them understand far better things that are taught in class. Even though majority of the students has revealed a positive feedback on how e-learning positively impacts on their academic progress, there are still students that battle with making use of this tool and that does not really impact much in their progress.

E-learning has become a pillar of success in higher education as it enhances the quality of teaching and learning (Bhuasiri, 2012:99), therefore a positive relationship exists between the use of learning technology and students' engagement and desired learning outcome (Chen, Lambert and Guidry, 2010:368). A study conducted by Paechter and Maier, (2010:205) found that students prefer face-to-face learning to acquire conceptual knowledge in the subject matter, while online learning is preferred in acquiring self-regulated learning skills.

## **5.3 RECOMMENDATIONS**

### **5.3.1 To investigate the determinants of satisfaction of e-learning as a tool of teaching and learning**

This study suggests that the faculty should consider conducting workshops that will educate students on the importance of e-learning and its power when used accordingly and continuously.

### **5.3.2 To investigate lecturer's strategies to promote e-learning**

This study therefore, recommends that every academic has to do their part in ensuring that Think Learn Zone is a success and impacts tremendously on students' academic progress. The study further recommends that students should be encouraged to at least make use of this tool every day so there could be an improvement in their academic progress. Notes and learning materials should be posted on a daily basis and that students can be encouraged to make use of e-learning.

### **5.3.3 To identify the level of use of e-learning by DUT students**

In order to maintain good usage of e-learning, this study recommends that all first year students should undergo a training or orientation phase where they are taught about the ins and outs of a computer and how to make use it. Practising this does not only assist the students but also impacts greatly on the usefulness of e-learning

### **5.3.4 To determine how e-learning impacts on students' academic progress**

This study recommends that all students are encouraged to participate and make use of e-learning as it has been proven that it definitely does contribute to students' performance. So if every student made use of this platform then they would all produce great results and there will be a lot of students graduating in recorded time.

## **5.4 SUGGESTIONS FOR FUTURE RESEARCH**

Lack use of e-learning and failing to understand the importance of e-learning seems to be a common challenge in developing countries. Future research could be extended to accommodate the other tertiary institutions in Africa as this study only focused on one University in KwaZulu Natal. Future research could focus on:

- How effective e-learning is and emphasise on how this tool productively impacts on students' progress if correctly and regularly made use of. This could provide a full insight of e-learning productiveness and make sure that proper use of this platform is made of.
- How e-learning students' acceptance of e-learning in higher education institutions
- The importance of computer literacy and that can impact on the success of e-learning
- E-learning challenges in higher education institutions

## **5.5 LIMITATIONS OF THE STUDY**

The limitations of all case studies involve the impossibility of generalising the findings beyond the selected institution, although it is probable that lessons could be learnt from this study which would apply to similar institutions in South Africa and Africa as a whole. The researcher also had difficulty in getting full cooperation of academics to participate in the study when interviews were conducted. She was required to personally administer the questionnaire while also undertaking in-service training. Most of the academics were unavailable to conduct interviews and this meant accepting a lower response rate than would be considered ideal.

## **5.6 CONCLUSION**

The recommendations made were based on the data provided by the respondents, on the literature reviewed and the researcher's personal knowledge as a student at the Durban University of Technology. It is hoped that the findings of this study will assist the students and academics of the university in enhancing the teaching and learning process. In conclusion, the objectives of the study were met.

## LIST OF REFERENCES

- Abaidoo, N. and Arkorful, V., 2014. Adoption and effective integration of ICT in teaching and learning in higher institutions in Ghana. *International Journal of Education and Research*, 2(12), pp.411-422.
- Abrami, P., Bernard, R., Wade, A., Schmid, R., Borokhovski, E., Tamin, R., Surkes, M., Lowerison, G., Zhang, D., Nicolaidou, I. and Newman, S., 2006. A review of e-learning in Canada: A rough sketch of the evidence, gaps and promising directions. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, 32(3).
- Abu-Shanab, E., 2014. Antecedents of trust in e-government services: an empirical test in Jordan. *Transforming Government: People, Process and Policy*, 8(4), pp.480-499.
- Agus, A., Salleh, M.J., Ambotang, A.S. and Mohamad, B., A Study of Creativity in the Teaching and Learning History towards Development of Active Students in Lahad Datu, Sabah.
- Ahmed, T.T., 2013. Toward Successful E-Learning Implementation in Developing Countries: A Proposed Model for Predicting and Enhancing Higher Education Instructors' Participation. *International Journal of Academic Research in Business and Social Sciences*, 3(1), p.422
- Ala-Mutka, K., Punie, Y. and Redecker, C., 2008. Digital competence for lifelong learning. Institute for Prospective Technological Studies (IPTS), European Commission, Joint Research Centre. Technical Note: JRC, 48708, pp.271-282.
- Alexander, S., 2001. E-learning developments and experiences. *Education+ Training*, 43(4/5), pp.240-248.
- Algahtani, A., 2011. Evaluating the effectiveness of the e-learning experience in some universities in Saudi Arabia from male students' perceptions (Doctoral dissertation, Durham University).

- Ali, G.E. and Magalhaes, R., 2008. Barriers to implementing e-learning: a Kuwaiti case study. *International journal of training and development*, 12(1), pp.36-53.
- Alsabawy, A.Y., Cater-Steel, A. and Soar, J., 2013. E-learning service delivery quality: A determinant of user satisfaction. In *Learning management systems and instructional design: Best practices in online education* (pp. 89-127). IGI Global.
- Arkorful, V. and Abaidoo, N., 2014. The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), pp.29-42.
- Aristovnik, A., Keržic, D., Tomaževic, N. and Umek, L., 2016. Determining Factors of Students' Perceived Usefulness of E-Learning in Higher Education. *International Association for Development of the Information Society*.
- Ashworth, F., Brennan, G., Egan, K., Hamilton, R. & Saenz, O. (2004). Learning theories and higher education. *Level 3*, 2. Retrieved from <http://level3.dit.ie/html/issue2/ashworth/ashworth1.html>
- Azizan, F.Z., 2010. Blended learning in higher education institution in Malaysia. In *Proceedings of regional conference on knowledge integration in ICT* (Vol. 2010, pp. 454-466).
- Bagarukayo, E. and Kalema, B., 2015. Evaluation of elearning usage in South African universities: A critical review. *International Journal of Education and Development using ICT*, 11(2).
- Bedrule-Grigoruță, M.V. and Rusu, M.L., 2014. Considerations about e-Learning tools for adult education. *Procedia-Social and Behavioral Sciences*, 142, pp.749-754.
- Bersin, J., 2004. *The blended learning book: Best practices, proven methodologies, and lessons learned*. John Wiley & Sons.
- Bezovski, Z. and Poorani, S., 2016, March. The Evolution of E-Learning and New Trends. In *Information and Knowledge Management* (Vol. 6, No. 3, pp. 50-57). IISTE.



Bezzina, F. and Saunders, M., 2014, June. The pervasiveness of statistical misconceptions: A study of academics with a special interest in business research methods. In ECRM2014- Proceedings of the 13th European Conference on Research Methodology for Business and Management Studies: ECRM 2014 (p. 55). Academic Conferences Limited.

Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J.J. and Ciganek, A.P., 2012. Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty. *Computers & Education*, 58(2), pp.843-855.

Borisova, A., De Bruyn, M., Budarin, V.L., Shuttleworth, P.S., Dodson, J.R., Segatto, M.L. and Clark, J.H., 2015. A sustainable freeze-drying route to porous polysaccharides with tailored hierarchical meso-and macroporosity. *Macromolecular rapid communications*, 36(8), pp.774-779.

Botha, L., Fourie, N. & Geysers, H. (2005). Teaching, learning and assessment in large classes – a reality of educational change? *Education as change*. 9:1, 60 -79. doi: 10.1080/16823200509487103

Brady, K.P., Holcomb, L.B. and Smith, B.V., 2010. The use of alternative social networking sites in higher educational settings: A case study of the e-learning benefits of Ning in education. *Journal of Interactive Online Learning*, 9(2).

Brophy, J., 2013. *Motivating students to learn*. Routledge.

Brown, K.G., Charlier, S.D. and Pierotti, A., 2012. E-learning at Work: Contributions of Past Research and Suggestions for the Future. *International review of industrial and organizational psychology*, 27, pp.89-114.

Brown, S., 2010. From VLEs to learning webs: the implications of Web 2.0 for learning and teaching. *Interactive Learning Environments*, 18(1), pp.1-10.

Cachia, R., Ferrari, A. and Punie, Y., 2011. The potential of ICT for creative learning and innovative teaching. *Proceedings of e-Society2011*, pp.3-10.

Burke, B., 2016. Gamify: How gamification motivates people to do extraordinary things. Routledge.

Canter, L.L.S., Voytecki, K.S. and Rodríguez, D., 2007. Increasing online interaction in rural special education teacher preparation programs. *Rural Special Education Quarterly*, 26(1), pp.23-27.

Creswell, J.W. 2006. Understanding mixed methods research. Sage publications

Creswell, J. W. 2009. Research design: Qualitative, quantitative, and mixed methods approaches. 3rd ed. Thousand Oaks: Sage Publications.

Creswell, J.W. 2013. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.

Constance, G., 2015. Evaluation of the effectiveness of open and distance learning degreed primary school head teachers in managerial leadership. The case of Chipinge district, Manicaland province (doctoral dissertation, Zimbabwe open university).

Davids, M.R., Chikte, U.M. and Halperin, M.L., 2011. Development and evaluation of a multimedia e-learning resource for electrolyte and acid-base disorders. *Advances in Physiology Education*, 35(3), pp.295-306.

Diwanji, P., Simon, B.P., Märki, M., Korkut, S. and Dornberger, R., 2014, November. Success factors of online learning videos. In *Interactive mobile communication technologies and learning (imcl)*, 2014 international conference on (pp. 125-132). IEEE.

Egenfeldt-Nielsen, S., 2011. Beyond edutainment: Exploring the educational potential of computer games. Lulu. com.

Elkaseh, A.M., Wong, K.W. and Fung, C.C., 2016. Perceived ease of use and perceived usefulness of social media for e-learning in Libyan higher education: A structural equation modeling analysis. *International Journal of Information and Education Technology*, 6(3), p.192.

El-Masri, M., Tarhini, A., Hassouna, M. and Elyas, T., 2015, May. A Design Science Approach To Gamify Education: From Games To Platforms. In ECIS.

Frank, M., Reich, N. and Humphreys, K., 2003. Respecting the human needs of students in the development of e-learning. *Computers & Education*, 40(1), pp.57-70.

Friesen, N. and Lowe, S., 2012. The questionable promise of social media for education: Connective learning and the commercial imperative. *Journal of Computer Assisted Learning*, 28(3), pp.183-194.

Foster, M.E., Anthony, J.L., Clements, D.H., Sarama, J. and Williams, J.M., 2016. Improving mathematics learning of kindergarten students through computer-assisted instruction. *Journal for Research in Mathematics Education*, 47(3), pp.206-232.

Garrison, D.R., 2011. *E-learning in the 21st century: A framework for research and practice*. Routledge.

Gibbs, G. (1995). Changing lecturers' conceptions of teaching and learning through action research. In A. Brew, (Ed.). *Directions in staff development*. Buckingham: Oxford University Press and Society for Research in Higher Education.

Given, L. M. 2008. *The Sage encyclopedia of qualitative research methods*. Los Angeles, Calif.: Sage Publications. ISBN1-4129-4163-6.

Golafshani, N. 2003. Understanding reliability and validity in qualitative research. *The qualitative report*, 8(4), pp.597-606. [Online]. Available at: <http://www.nova.edu/ssss/QR/QR8-4/golafshani.pdf> (Accessed 09 August 2014).

Govender, D.W., 2010. Attitudes of students towards the use of a Learning Management System (LMS) in a face-to-face learning mode of instruction. *Africa Education Review*, 7(2), pp.244-262.

Govindasamy, T., 2001. Successful implementation of e-learning: Pedagogical considerations. *The internet and higher education*, 4(3-4), pp.287-299.

Gulati, S., 2008. Technology-enhanced learning in developing nations: A review. *The International Review of Research in Open and Distributed Learning*, 9(1).

Grimm, P. 2010. Pretesting a questionnaire. [Online]. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/9781444316568.wiem02051/abstract> (accessed 29 July 2015).

Haddad, W.D. and Draxler, A., 2002. Technologies for education: Potential, parameters, and prospects.

Hamari, J., Koivisto, J. and Sarsa, H., 2014, January. Does gamification work?--a literature review of empirical studies on gamification. In 2014 47th Hawaii international conference on system sciences (HICSS) (pp. 3025-3034). IEEE.

Islam, N., Beer, M. and Slack, F., 2015. E-learning challenges faced by academics in higher education. *Journal of Education and Training Studies*, 3(5), pp.102-112.

Jackson, S. and Fearon, C., 2014. Exploring the role and influence of expectations in achieving VLE benefit success. *British Journal of Educational Technology*, 45(2), pp.245-259.

Kanuka, H., 2008. *Understanding E-Learning Technologies-IN-Practice. The theory and practice of online learning*, p.91.

Kigundu, S., 2014. Engaging e-learning in higher education: Issues and challenges. *International Journal of Educational Sciences*, 6(1), pp.125-132.

Kovaleski, J. and Prasse, D.P., 2004. Response to instruction in the identification of learning disabilities: A guide for school teams. *NASP Communiqué*, 32(5), pp.159-162.

Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.

Latchem, C. and Jung, I., 2012. Quality assurance and accreditation in distance education and e-Learning: Models, policies and research. Routledge.

Leadbeater, C., 2004. Personalisation through participation: a new script for public services. Demos.

Le Grange, L. (2004). E-learning: some critical thoughts. South African Journal of Higher Education, 18:1, 87 – 97. Retrieved from <http://www.ajol.info/index.php/sajhe/article/view/25430>

Liu, A., Hodgson, G. and Lord, W., 2010. Innovation in construction education: the role of culture in e-learning. Architectural Engineering and Design Management, 6(2), pp.91-102.

Looker, E.D. and Thiessen, V., 2003. The digital divide in Canadian schools: factors affecting student access to and use of information technology. Ottawa: Statistics Canada.

Mahdizadeh, H., Biemans, H. and Mulder, M., 2008. Determining factors of the use of e-learning environments by university teachers. Computers & Education, 51(1), pp.142-154.

Mahmoodi-Shahrebabaki, M., 2014. E-learning in Iran as a developing Country: Challenges Ahead and Possible Solutions.

Malmir, M., Zare, M., Sarikhani, R., Mansouri, V. and Salari, M., 2016. The impact of using E-Portfolio on nursing students' learning in physiology course. Future of medical education journal, 6(2), pp.9-12.

Malsch, B. and Salterio, S.E., 2015. "Doing good field research": Assessing the quality of audit field research. Auditing: A Journal of Practice & Theory, 35(1), pp.1-22.

McIntosh, D., 2014. Vendors of learning management and e-learning products. Learning Management Vendors, 2014, pp.88-96.

Meerza, A.H., 2014. The application of TAM for the investigation of students' attitudes towards ICT in KHEIs learning (Doctoral dissertation, Cardiff Metropolitan University).

Mlisa, F. (2006). Massification: preparing faculty for open learning systems. *Progressio*, 28:1-2, 82-96.

Mlitwa, N. and Van Belle, J.P., 2011, July. Mediators For Lecturer Perspectives On Learning Management Systems At Universities In The Western Cape, South Africa. In *PACIS* (p. 135).

Morley, D.A., 2012. Enhancing networking and proactive learning skills in the first year university experience through the use of wikis. *Nurse Education Today*, 32(3), pp.261-266.

Mukhopadhyay, S. and Gupta, R.K., 2014. Survey of qualitative research methodology in strategy research and implication for Indian researchers. *Vision*, 18(2), pp.109-123.

Mutula, S.M., 2002. E-learning initiative at the University of Botswana: Challenges and opportunities. *Campus-Wide Information Systems*, 19(3), pp.99-109.

Naffakh, M., Shuttleworth, P.S. and Ellis, G., 2015. Bio-based polymer nanocomposites based on nylon 11 and WS 2 inorganic nanotubes. *RSC Advances*, 5(23), pp.17879-17887.

Nagel, L. & Kotze, T.G. (2011). Choosing the best from blended and online elearning. *Progressio*, 33:2, 151 – 173. Retrieved from <http://hdl.handle.net/2263/18921>

Ng'ambi, D., 2006, November. ICT and economic development in Africa: the role of higher education institutions. In Commissioned as a background paper to the University Leaders' Forum by the Partnership for Higher Education in Africa.. UCT, Cape Town.

Nielsen, H.V., Thim, T. and Løfgren, B., 2011. E-learning in pediatric basic life support: a randomized controlled non-inferiority study. *Resuscitation*, 90, pp.7-12.

Nwoke, B.I., Emenyonu, A.O. and Ihekaire, U.R., 2017. EFFECT OF BLENDED E-LEARNING ON PRE-SERVICE TEACHERS'ACHIEVEMENT IN MATHEMATICS: A CASE FOR SUSTAINABLE TEACHER EDUCATION. *European Journal of Education Studies*.

Olutola, A.T. and Olatoye, O.O., 2015. Challenges of e-learning technologies in Nigerian University Education. *Journal of Educational and Social Research*, 5(1), p.301.

Paechter, M., Maier, B. and Macher, D., 2010. Students' expectations of, and experiences in e-learning: Their relation to learning achievements and course satisfaction. *Computers & education*, 54(1), pp.222-229.

Park, S.Y., 2009. An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. *Educational technology & society*, 12(3), pp.150-162.

Ramsden, P., 2008. The future of higher education teaching and the student experience. The Higher Education Academy. Retrieved March, 30, p.2010.

Reason, P. (2001). Learning and change through action research. In J. Hendry (ed.) *Creative management*. Sage: London. Retrieved from [http://www.peterreason.eu/Papers/Learning&Change\\_Through\\_Action\\_Research.pdf](http://www.peterreason.eu/Papers/Learning&Change_Through_Action_Research.pdf)

Rohleder, P., Bozalek, V., Carolissen, R., Leibowitz, B. and Swartz, L., 2008. Students' evaluations of the use of e-learning in a collaborative project between two South African universities. *Higher education*, 56(1), pp.95-107.

Rugg, G and Petre, M. 2007. A Gentle Guide to Research Methods. [Online]. Available at: <http://www.imd.inder.cu/adjuntos/article/334/A%20Gentle%20Guide%20to%20Research%20Methods.pdf> (Accessed 26 April 2013).

Saade, R., Nebebe, F. and Tan, W., 2007. Viability of the "technology acceptance model" in multimedia learning environments: a comparative study. *Interdisciplinary Journal of E-Learning and Learning Objects*, 3(1), pp.175-184.

Saleh, N., Kaminski, J., Bassendowski, S., Okunji, P. and Hill, M., 2014. The impact of eLearning on nurses' professional knowledge and practice in HMC. *Canadian Journal of Nursing (CJNI)*, 9(3).

Salmon, G., 2014. Learning innovation: A framework for transformation. *European Journal of Open, Distance and E-learning*, 17(2), pp.220-236.

Samsuri, N.N., Nadzri, F.A. and Rom, K.B.M., 2014. A Study on the Student's Perspective on the Effectiveness of Using e-learning. *Procedia-Social and Behavioral Sciences*, 123, pp.139-144.

Sanga, C., Magesa, M., Chingonikaya, E. and Kayunze, K., 2013. Can e-learning promote participation of female students in STEM disciplines in higher learning institutions of Tanzania?. *International Journal of Education and Development using ICT*, 9(3).

Sekaran, U. and Bougie, R. 2009. *Research methods for business: A skill building approach*. 5th ed. Chichester: John Wiley and Sons.

Sekaran, U. and Bougie, R. 2013. *Research methods for business: A skill building approach*. 6th ed. Chichester: John Wiley and Sons.

Sekaran, U. and Bougie, R. 2010. *Research methods for business: A skill building approach*. 5th ed. New Jersey: John Wiley and Sons.

Senol, L., Gecili, H. and Durdu, P.O., 2014, June. Usability evaluation of a moodle based learning management system. In *EdMedia: World Conference on Educational Media and Technology* (pp. 850-858). Association for the Advancement of Computing in Education (AACE).

Sharma, M., Holmes, M.P., Santamaría, J.C., Irani, A., Isbell Jr, C.L. and Ram, A., 2007, January. Transfer Learning in Real-Time Strategy Games Using Hybrid CBR/RL. In *IJCAI* (Vol. 7, pp. 1041-1046).

Sidhawara, A.P., Setyohadi, D.B., Dewi, L.T. and Sri, K., 2018. E-learning's usability measurement toward students with myopia visual impairment. In *E3S Web of Conferences* (Vol. 73, p. 12004). EDP Sciences.



Ssekakubo, G., Suleman, H. and Marsden, G., 2011, October. Issues of adoption: have e-learning management systems fulfilled their potential in developing countries?. In Proceedings of the South African Institute of Computer Scientists and Information Technologists conference on knowledge, innovation and leadership in a diverse, multidisciplinary environment (pp. 231-238). ACM.

Song, L., Singleton, E.S., Hill, J.R. and Koh, M.H., 2004. Improving online learning: Student perceptions of useful and challenging characteristics. *The internet and higher education*, 7(1), pp.59-70.

Song, S.M., 2010. E-learning: Investigating students' acceptance of online learning in hospitality programs.

Sywelem, M., Al-Harbi, Q., Fathema, N. and Witte, J.E., 2012. Learning Style Preferences of Student Teachers: A Cross-Cultural Perspective. *Online Submission*, 1, pp.10-24.

Taffs, K.H. and Holt, J.I., 2013. Investigating student use and value of e-learning resources to develop academic writing within the discipline of environmental science. *Journal of Geography in Higher Education*, 37(4), pp.500-514.

Taha, H.A., 2014. *Integer programming: theory, applications, and computations*. Academic Press.

Tarhini, A., Elyas, T., Akour, M.A. and Al-Salti, Z., 2016. Technology, Demographic Characteristics and E-Learning Acceptance: A Conceptual Model Based on Extended Technology Acceptance Model. *Higher Education Studies*, 6(3), pp.72-89.

Tiitinen, K., 2015. Mobile learning and content creation for location-based learning applications (Master's thesis).

Tucker, D. and Jones, L.D., 2010. Technology enhanced learning: Utilizing a virtual learning environment to facilitate blended learning. *Issues in Informing Science and Information Technology*, 7(unknown), pp.519-529.

Upadhyaya, K.T. and Mallik, D., 2013. E-learning as a socio-technical system: an insight into factors influencing its effectiveness. *Business Perspectives and Research*, 2(1), pp.1-12.

Urh, M., Vukovic, G. and Jereb, E., 2015. The model for introduction of gamification into e-learning in higher education. *Procedia-Social and Behavioral Sciences*, 197, pp.388-397.

Volery, T. and Lord, D., 2000. Critical success factors in online education. *International journal of educational management*, 14(5), pp.216-223.

WANI, H.A., 2013. The Relevance of e-Learning in Higher Education. *Jurnal Kajian Pendidikan*, 3(2), pp.181-194.

Welsh, E.T., Wanberg, C.R., Brown, K.G. and Simmering, M.J., 2003. E-learning: emerging uses, empirical results and future directions. *international Journal of Training and Development*, 7(4), pp.245-258.

Zaharias, P. and Koutsabasis, P., 2011. Heuristic evaluation of e-learning courses: a comparative analysis of two e-learning heuristic sets. *Campus-Wide Information Systems*, 29(1), pp.45-60.

Zhang, L., Afanasyev, A., Burke, J., Jacobson, V., Crowley, P., Papadopoulos, C., Wang, L. and Zhang, B., 2014. Named data networking. *ACM SIGCOMM Computer Communication Review*, 44(3), pp.66-73.



## LETTER OF INFORMATION

**Title of the Research Study:** Determining the usefulness of e-learning for higher education students: A case of the Durban University of Technology

**Principal Investigator/s/researcher:** Mbalenhle Khumalo: Master of Management Sciences in Administration and Information Management

**Co-Investigator/s/supervisor/s:** Dr. K S Ngwane

**Brief Introduction and Purpose of the Study:** The study investigates the usefulness of e-learning for higher education students at the Durban University of Technology. E-learning is the use of information and communication technology or example Internet, computer, and mobile phone, Learning Management Systems, Televisions and Radios to enhance teaching and learning activities. The study focuses on e-learning in the context of the Durban University of Technology. The intension of the study is to determine the usefulness of e-learning at DUT.

**Outline of the Procedures:** Self-administered questionnaire and semi-structured interviews will be used to collect data from the participants. A letter of consent will be given to participants outlining the purpose of the study and ensuring confidentiality. Data collected will be used for research purposes only. The target population of the study will students and lecturers of the Durban University of Technology (DUT).

**Risks or Discomforts to the Participant:** Participants will not be exposed to any risks since they will only be filling in the questionnaire and answering research interview questions. The study contributes to knowledge production and the finding will be published in accredited publications.

**Benefits:** There will be no monetary incentives and participation in study will be voluntary. Likewise, there will be no charge for participating in the study.

**Reason/s why the Participant May Be Withdrawn from the Study:** Participation is voluntary; respondents may withdraw at any time.

**Remuneration/ Costs of the Study:** No remuneration will be received by respondents for participating in this study.

**Confidentiality:** Confidentiality will be maintained and responses from participants will be kept in a closed access. Identities of participants will not be revealed.

**Research-related Injury:** Participants will not be exposed to any risks as they will not participate in any experiments.

**Persons to Contact in the Event of Any Problems or Queries:**

For more information, please contact the researcher on 066 224 4148, my supervisor (031) 373 5660, co-supervisor 082 512 6532 or the Institutional Research Ethics Administrator on 031 373 2900. Complaints can be reported to the Director: Research and Postgraduate Support, Prof Carin Napier on 031 373 2326 or [carinn@dut.ac.za](mailto:carinn@dut.ac.za)

## APPENDIX A - Permission to conduct study at DUT



*Directorate for Research and Postgraduate Support  
Durban University of Technology  
Tromso Annexe, Steve Biko Campus  
P.O. Box 1334, Durban 4000  
Tel.: 031-3732576/7  
Fax: 031-3732946*

30th May 2018

Ms Mbalenhle Khumalo  
c/o Department of Information and Corporate Management  
Faculty of Accounting and Informatics  
Durban University of Technology

Dear Ms Khumalo

### **PERMISSION TO CONDUCT RESEARCH AT THE DUT**

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted full permission for you to conduct your research "Determining the helpfulness of e-learning for higher education students: A case study of the Durban University of Technology" at the Durban University of Technology.

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

We would be grateful if a summary of your key research findings can be submitted to the IRIC on completion of your studies.

Kindest regards.  
Yours sincerely

---

PROF CARIN NAPIER  
DIRECTOR (ACTING): RESEARCH AND POSTGRADUATE SUPPORT DIRECORAT



**CONSENT**

**Statement of Agreement to Participate in the Research Study:**

I hereby confirm that I have been informed by the researcher, Miss Mbalenhle Khumalo about the nature, benefits and risks of this study – Research Ethics Clearance number: REC 103/16,

- 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 personal details regarding my sex, age, date of birth, initials and diagnosis 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 computerized 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 understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

|                         |       |           |
|-------------------------|-------|-----------|
| .....                   | ..... | .....     |
| Full name of researcher | Date  | Signature |

|                      |       |           |
|----------------------|-------|-----------|
| .....                | ..... | .....     |
| Full name of Witness | Date  | Signature |

|                       |       |           |
|-----------------------|-------|-----------|
| .....                 | ..... | .....     |
| Full name of Guardian | Date  | Signature |

## Appendix C – Students’ questionnaire

### SECTION A – BIOGRAPHICAL INFORMATION

Please mark with an X on the appropriate box:

|            |  |  |
|------------|--|--|
| <b>1.1</b> | <b>Gender</b>                              |  |
|            | • Male                                     |  |
|            | • Female                                   |  |
| <b>1.2</b> | <b>Race</b>                                |  |
|            | • Asian                                    |  |
|            | • Black                                    |  |
|            | • Coloured                                 |  |
|            | • White                                    |  |
| <b>1.3</b> | <b>Age</b>                                 |  |
|            | • 16 – 21 years                            |  |
|            | • 22 – 27 years                            |  |
|            | • 27 and above                             |  |
| <b>1.4</b> | <b>Please indicate your department</b>     |  |
|            | • Auditing and Taxation                    |  |
|            | • Finance and Information Management       |  |
|            | • Financial Accounting                     |  |
|            | • Information and Corporate Management     |  |
|            | • Information Technology                   |  |
|            | • Management Accounting                    |  |
| <b>1.5</b> | <b>Please indicate your level of study</b> |  |
|            | • First year                               |  |
|            | • Second year                              |  |
|            | • Third year                               |  |

## SECTION B – ANALYSIS

### The level of usage of e-learning

Please mark on the appropriate box

#### 2.1 Are you able to use a computer at your residential address at any time?

|                          |   |
|--------------------------|---|
| <input type="checkbox"/> | 1. No                                   |
| <input type="checkbox"/> | 2. Yes but without internet access      |
| <input type="checkbox"/> | 3. Yes but with limited internet access |
| <input type="checkbox"/> | 4. Yes but with slow internet access    |
| <input type="checkbox"/> | 5. Yes but with good internet access    |

#### 2.2 Where do you normally access the e-learning platform?

|                          |                                       |
|--------------------------|---------------------------------------|
| <input type="checkbox"/> | 1. Always off the university campuses |
| <input type="checkbox"/> | 2. Usually off the campus             |
| <input type="checkbox"/> | 3. Equally between on and off campus  |
| <input type="checkbox"/> | 4. Always from campus                 |

#### 2.3 How often do you access the e-learning platform?

|                          |                      |
|--------------------------|----------------------|
| <input type="checkbox"/> | 1. Everyday          |
| <input type="checkbox"/> | 2. Once a week       |
| <input type="checkbox"/> | 3. Once in a while   |
| <input type="checkbox"/> | 4. I don't access it |

#### 2.4 How often do lecturers instruct you to log on to the Think Learn Zone?

|                          |                    |
|--------------------------|--------------------|
| <input type="checkbox"/> | 1. Everyday        |
| <input type="checkbox"/> | 2. Once a week     |
| <input type="checkbox"/> | 3. Once in a while |
| <input type="checkbox"/> | 4. Never           |

**Determinants of satisfaction and impact of e-learning as a tool of teaching and learning;**

**Please indicate your level of agreement in the following statements:**

**Strongly Agree = SA   Agree = A   Neutral = N   Disagree = D   Strongly disagree = SD**

| <b>Statements</b>  | <b>SA</b> | <b>A</b> | <b>N</b> | <b>D</b> | <b>SD</b> |
|--|-----------|----------|----------|----------|-----------|
| 3.1 E-learning helps me catch up on the lectures that I have missed in class                         |           |          |          |          |           |
| 3.2 Lecture notes and slides available on e-learning help me revise after lectures.                  |           |          |          |          |           |
| 3.3 Lecture notes and slides available on e-learning help me complete the notes I took in class.     |           |          |          |          |           |
| 3.4 E-learning is a useful mean of communicating with staff members.                                 |           |          |          |          |           |
| 3.5 Notes and other materials on e-learning help me understand lectures and topics that I find hard. |           |          |          |          |           |
| 3.6 Notes on e-learning serve as backup for materials and handouts that were given in class.         |           |          |          |          |           |
| 3.7 E-learning enables me to ask questions that I normally find it hard to ask in class.             |           |          |          |          |           |
| 3.8 E-learning helps me revise in places and time that is convenient for me.                         |           |          |          |          |           |
| 3.9 E-learning helps me study in places and time that is convenient for me.                          |           |          |          |          |           |
| 3.10 Do lecturers upload everything they lecture on in class on Think Learn Zone?                    |           |          |          |          |           |

Your participation in this study is highly appreciated.



## **Appendix D – Academics Interviews schedule**

### **INTERVIEW QUESTIONS**

#### **Lecturers' strategy to promote e-learning**

**Kindly answer all the questions below.**

1. How often do you instruct students to log on to the Think Learn Zone?
2. Do you upload everything you lecture on in class on Think Learn Zone and how useful is that to students?
3. Are students able to communicate with you through e-learning after or before lectures or even on weekends and holidays?
4. How do you use e-learning as a tool of teaching especially for students who do not understand in class or who do not attend lectures?
5. Which variety of resources do you upload on the e-learning platform that can be helpful to students?
6. Do you post notes well in advance for students for students to read through and prepare for lectures?