

**AN EMPIRICAL INVESTIGATION INTO CONSTRAINTS TO E-
LEARNING IMPLEMENTATION AT TALETSO FET CAMPUS**

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Declaration

I hereby declare that this mini dissertation is my own work. It is submitted in partial fulfilment of the requirement of the Masters of Business Administration at North West University. It has not been submitted before for any degree in any other university.

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Signature

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Date

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Abstract

Institutions integrate e-learning in their teaching and learning process with the aim of improving quality of education. Unfortunately, not all the higher learning organisations have incorporated e-learning into their systems due to challenges they encounter in their efforts to implement it. The purpose of this study was to unearth the constraints to e-learning implementation. The study examined the challenges faced by teachers, challenges faced by the institution and how this could be used to ensure proper e-learning. Quantitative research methodology was used and the main targets of the study were lecturers and managers of Taletso FET Campus. Research findings showed that main challenges to e-learning implementation were cost; lack of financial support and management's perception that e-learning is too expensive. Based on the findings, it is recommended that management evaluate its' perception of e-learning; otherwise the quality of education will be compromised. Further, the management should look for resources from the government and nongovernmental organisations by sharing their desires and intentions concerning e-learning implementation. If this is not done, the institution will risk lagging behind in terms of the provision of quality education.

Keywords: e-learning; technology; adoption constraints; and education.

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List of abbreviations

E-Campus: Electronic Campus

E-learning: Electronic learning

E-teaching: Electronic teaching

FET: Further education and training

ICT: Information and communication technologies

IT: Information technology

CHAPTER ONE: INTRODUCTION

1.1 Introduction

Technology has enabled people to do things in an easier, faster, more effective and efficient manner. Properly used, technology helps to solve the problems of excellence, quality, time and flexibility; therefore it has been used as a tool for innovation in higher education (Assareh and Bidokht, 2011:791). Knowledge and information are key factors driving competitiveness and increased wealth and prosperity (Almonte, Andreu and Rejas, 2010:140).

The reason for this study is to identify constraints that hinder the implementation of e-learning in higher education, specifically at the Taletso FET Campus. This study examined the challenges faced by lecturers and the Taletso FET Mafikeng Campus institution that make them delay the adoption of e-learning and how this can be used to enable proper use of e-learning was also considered in this study.

This chapter sets the scene for the research by giving the study overview and introduction; describing the context of the study and the problem statement; research questions, objectives and the research design. The chapter also covers the layout of other chapters, the summary of the whole chapter and its importance.

1.2 Background of the study

This study seeks to determine the constraints that delay e-learning implementation in higher learning. Tertiary institutions offer education to students who have done grade twelve and passed the Matriculation Examination. These institutions empower students with knowledge and skills. The methods used in teaching and learning influence the standard of education.

E-learning is a form of technology that has been used to improve the quality of education. It gauges students' attention, increases their understanding and improves their skills and knowledge. The utilisation and application of technology and associated resources directly impacts the classroom (Ahmed, Daim and Nuri, 2007:470). Technology involves the tool with which we deliver content and implement practices in better ways (Summak, Samancioglu and Baglibel, 2010:1725).

The primary goal of higher education is to improve quality and increase competitiveness, and to design a higher education system that can successfully and promptly respond to the challenges of the modern world (Dukic and Andrijanic, 2010:229). However, some higher learning institutions have not incorporated e-learning in their teaching. A good number of organisations struggle with effective and efficient implementation of information technology (Ahmed *et al.*, 2007:471). As mentioned above, colleges need to give quality education hence the need to adopt e-learning.

1.3 Problem statement

One main focus of higher learning institutions is to provide quality standard of education. In order to do so, higher learning organisations need to provide a teaching method that is efficient and flexible. However some higher learning institutions still use face to face way of teaching which is not completely effective and is inflexible and time consuming. The traditional method compromises the quality of education. Therefore, continuing with the traditional method that results in a low standard of teaching and learning may render institutions that use this method less competitive and may lead students to opt for other higher education institutions that use modern ways of teaching method which is e-learning.

E-learning is important as it is a vital tool in enhancing effective standard of education. It can be flexible in the planning and delivery of curriculum content; it helps in keeping lessons fresh, consistent and up to date; lecturers can reach large number of students in a short time hence solves problem of time and place constraint; it

makes communication easier between lecturers and students and is convenient as well in terms of accessibility of lessons.

Regrettably some higher learning institutions struggle with effective implementation of e-learning which could be due to a lack of technology acceptance, lack of infrastructure, lack of training and skills, beliefs, attitude, lack of finance, lack of managerial support among others.

This research investigates reasons that some higher learning institutions delay or struggle with e-learning implementation even though e-learning has the potential to enhance the standard of education.

1.4 Research objectives

The primary objective of this research is to identify the constraints that impede e-learning implementation at Taletso FET Campus.

- To investigate the constraints faced by facilitators.
- To investigate the constraints faced by the institution.
- To investigate how this can be used to ensure proper e-learning.

1.5 Rationale of the study

The study will contribute to the usage of technology which will improve the quality of education and help raise the level of education to global standards. It will also increase competitiveness of higher education institutions situated in rural areas.

1.6 Research design

Research design is a research strategy that has whole range of methods within it. These include questionnaires, data analysis, sampling and data collection techniques (Denscombe, 2003:7).

1.6.1 Research method

In this study, the approach will be descriptive quantitative. Leedy and Ormrod (2010:182) define descriptive quantitative research as research that involves either identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more phenomena and the quantitative information summarised through statistical analysis. Quantitative research has been chosen because in this context the research scale was going to cover many participants and due to time constraints there was no room for in depth information.

1.6.2 Sampling technique

Purposive and non-probability sampling was used as it was appropriate for this research. Purposive sampling can be used if the population has a particular purpose or represent diverse perspective on an issue (Leedy and Ormrod, 2010:212). The method was suitable for this research as the population is homogenous in nature. The population consists of lecturers and managers. Lecturers and managers were chosen because they are the ones who experience e-learning constraints firsthand.

The population consists of forty five participants; forty three lecturers and two managers. For a smaller population survey the entire population (Leedy and Ormrod, 2010:213).The whole population participated in the study as the population size was not very big.

1.6.3 Data collection instrument

Self-administered questionnaires were used as a source of collecting data in this study. This type of data collection is appropriate for the study as it is quicker to administer. It can be used to determine opinions and attitudes of a large number of participants according to (Leedy and Ormrod, 2010:187). Leedy and Ormrod (2010:188) state that participants respond to questions with assurance that their response will remain anonymous as opposed to personal interviews which is another advantage.

1.6.4 Data analysis

Data was analysed using descriptive statistical analysis. Statistical analysis is characteristic of quantitative analysis (Leedy and Ormond, 2010:96). Statistical instruments such as bar charts, pie charts and frequency tables were used to find out the percentages of the variables. Another measure used was correlation coefficient to determine any relationship between the variables.

1.7 Chapter layout

This study consists of five chapters. The introductory chapter talks about the context of the research, the aim of the study and the research objectives. It also lays out the subsequent chapters and their contents.

Chapter 2: This section deals with the literature review. The objective of the literature review is to explore the constraints to effective implementation of e-learning, how constraints influence the enactment process, as well as definitions of concepts related to e-learning.

Chapter 3: This section deals with research methodology. The section will examine the nature of the research, the research design, the methods of data collections measuring instrument sample size and the method of data analysis.

Chapter 4: This section will present the research findings. The section will present the participants' feelings in summary form either in pie chart, graphs or tabulation.

Chapter 5: The section will interpret and analyse the research findings by linking the data analyses and the themes in literature review. The chapter also contains summary of the conclusions and recommendations.

1.8 Conclusion

E-learning is more efficient and flexible compared to the traditional way of teaching. It has the potential to improve the quality of education in higher education. Nevertheless, some higher learning institutions still wrestle with its adoption. Therefore, the basis for this study was to investigate constraints that hinder the implementation of e-learning in higher education.

It is hoped that this study will contribute to an improved quality of education by the usage of technology to facilitate a higher standard of information and skills passed to the students. It is equally hoped the findings will be useful in understanding ways of adopting e-learning and benefit the institution in terms of provision of quality education.

In the next chapter, the researcher will pursue information about what is known about the subject of the study and cross examine it in relation with the research objective. The literature review will be analysed and be used to guide the argument in the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

E-learning has transformed the way of teaching, learning and communication in higher learning. Institutions opt for e-learning because as stated by Khan, Maldonado, Moon and Rho (2011:67) e-learning has been identified as an enabler for people and organisations to keep up with changes in the global economy especially in the Internet era. Khan *et al.*, (2011:68) additionally state that e-learning as a tool has a profound effect on performance, academic achievements and students' satisfaction. Likewise Guha and Maji (2008:297) believe that e-learning has a positive effect on traditional teaching; bridging on campus and off campus realities; distance education; integrating computer with radio and television; virtual campuses and universities and wireless communication as a mode of teaching.

Adoption of e-learning is still low, especially in developing countries, (Eke, 2010:274 and Gikas and Grant, 2013:18). E-learning benefits higher learning (Poon, 2012:132); hence there is need for higher institutions to integrate e-learning in their teaching methods. Inopportunately, many higher learning institutions wrestle with effective implementation of e-learning while others are not eager to adopt e-learning as a technique of teaching (Goktas, Gedik and Baydas, 2013:211). Reluctance to implement e-learning in higher education sector is a hold up and could be due to a lack of technology acceptance, lack of training and skills, educators' beliefs and attitudes, lack of finance and lack of managerial support among others. E-learning has spread worldwide but the usage is still low as seen from the literature review.

The key words used to search for relevant literature include: e-learning strives for excellence, e-learning, definition of e-learning, forms of e-learning, advantages of e-learning, disadvantages of e-learning, e-learning adoption - attitude, educators' beliefs, managerial support and lack of skills, lack of finance - infrastructure and

training. The search engines include EbscoHost, Science direct, emerald, Google scholar and Scopus.

Inclusive of the introduction and problem statement, Chapter two has been arranged in six sections. The initial part talks about e-learning as a form of technology and its role in higher education. The second section shows how e-learning has been used to improve the face of teaching in higher education. The third part talks about the forms of e-learning. The fourth and fifth part concentrate on advantages and disadvantages of e-learning as a tool in the teaching process while the sixth section addresses the challenges of e-learning adoption. The subsequent part focuses on research questions and finally, the conclusion in Chapter two.

2.2 Definition of key words

E-learning: Al Senaidi, Lin, and Poirot (2009:575) describe e-learning as the usage of Information and Communication Technologies (ICT) such as computers to facilitate learning.

E-learning integration: Purposeful use of technology in the development and methodology of curriculum delivery, (Summack *et al.*, 2010:1726).

E-learning implementation: The process of assuring that the information system is operational and then allowing users to take over its operation for use and evaluation, (Ahmed, Daim and Basoglu, 2007:473).

E-learning acceptance: When employees, lecturers and students apply information technology daily in their learning as a mode of teaching, curriculum development and communication, (Ahmed *et al.*, 2007:473).

Technology: Refers to gadget/ tools used for delivery of learning products such as computer, Intranet, satellite (Assareh and Bidokht, 2011:791). The term technology

represents any technology that has the capacity to accumulate, retrieve, control, convey or accept information by electronic means (Bembridge, Jones and Jeong, 2010:18).

Skills: In this research skills stand for information and communication literacy skills which involve the basic competency and ability that an individual (lecturer) possesses to be able to define, access, manage and communicate information using Information Technology (Harris, Connolly and Feeney, 2009:158) and (Poon 2012:132).

Delivery: Katz and Yablon, (2011:114) refer to delivery systems as television broadcast, video conferencing and e-mail and present focuses on digital systems such as Internet and mobile learning platform.

2.3 E-learning strives for excellence

Technology has played a role in transforming and improving the education sector, specifically the teaching and learning process. Taylor, Goede and Steyn (2011:28) confirm that ICT for education is presently more important than before as it triggers change in the delivery means, due to its growing power and capabilities. Taylor *et al.*, (2011:28) believe that ICT has the potential to improve education methods and quality of teaching and learning process as ICT has been integrated as tool for teaching, curriculum development and staff development.

New approaches have been developed in education which offer people greater competency regarding teaching and the use of technology (Goktas, Gedik and Baydas, 2013:211). Male and Pattinson (2011:332) are of the opinion that ICT have made it possible for rich e-learning applications and content resources to be developed and delivered to learners. Whereas Ahmed, Daim and Nuri (2007:470) believe that technology permeates every part of colleges today and will be vital to success as we serve our students. They further argue that technology application and usage affect the classroom on a daily basis.

Guodong and Zhongjiao (2010:576) agree that technology will impact more and more on higher learning as innovations influence teaching methodologies. Guodong and Zhongjiao (2010:576) additionally assert that technology growth in higher education is part of promoting instructional reform, quality and efficiency. Summak, Samancioglu, and Baglibel (2010:1725) point out that the commonly used technologies in education are desktop, computers, handheld computers, software or Internet.

The above scholars concur that technology is a significant tool that has restructured and modernised teaching methods, way of communication and made learning accessible in higher education. Technology has also improved the quality and efficiency of teaching and learning. However, higher institutions that cannot afford to implement technology lag behind in terms of growth and competency. In particular institutions situated in rural areas may experience slow integration due to slow development in rural areas. Computers, laptop and phones are some forms of technology that have been used to improve the quality of teaching and learning process.

2.4 E-learning

E-learning uses ICT to facilitate teaching and learning process in higher education. E-learning incorporates ICT for teaching and learning purposes. For instance, Guodong and Zhongjiao (2010:576) explain that lecturers use computer-based activities like Microsoft PowerPoint presentations while teaching. AutoCAD is used in mechanical and architectural drawings. Microsoft Excel is used in tabulation and calculation of figures, Galileo is used for English language instruction. DVDs and CDS used to demonstrate practical lessons in the mechanical, electronic and carpentry workshop.

On one hand, students can receive notes, assignments, and updates from lecturers; similarly, they can use the Internet to source reading materials, send e-mails for

enquiries and assignments to lecturers (Owen and Price, 2010:130) and (Summak *et al.*, 2010:1725).

As stated by Guha and Maji (2008:298) e-learning aims at increasing knowledge, skills and productive capabilities in a global situation. At the same time, Owens and Price (2010:130) argue that e-learning is seen as a key enabler to knowledge transfer in the higher education sector and one of the indicators of the quality of an institution or faculty. Li, Chen and Wang (2009:83) argue that e-learning is a kind of innovative teaching method that uses emerging ICT to help students to learn. They further state that the purpose of e-learning is to facilitate and supplement traditional learning. Khan *et al.*, (2011:79) assert that e-learning promotes professional development of teachers and Owens and Price (2010:131) assert that information technology is used by some institutions as a competitive advantage in order to attract more students in an increasingly competitive higher education market.

E-learning improves traditional classroom based teaching and Wang, Zhu, Chen and Yan (2009:79) confirm that e-learning is an enabler for institutions to keep up with global changes but again it has its limitations. Owen and Price (2010:133) uphold that e-learning cannot always be used to its full potential due to organisational, logistical problems and technical difficulties associated with it. E-learning is a live reality which has left traditional teaching outmoded in many respect. In the same breath, Fleck (2012:398) argues that the role of technology in enabling the development of new innovation will usher in a breakthrough in education provision which may render obsolete the traditional ways; enable new organisations to dominate the educational arena and existing conventional providers will have to adopt the new methods in order to survive.

E-learning may be perceived as a disadvantage to institutions that cannot afford to incorporate it, as the institutions may be viewed as old fashioned and of poor quality. Further, one can argue that e-learning is used to measure the quality of education of an institution. This perception may affect institutions' admission rates especially

institution based ones in less developed areas. It may create an imbalance in the development of quality of education in higher learning.

2.5 Statements of e-learning

According to Guha and Maji (2008:299), Abdelaziz, Kamel, Karam and Abdelrahman (2011:50) and Asserah and Bidokht (2011:791) e-learning can be defined as instructional learning techniques delivered by electronic technology. Hsbollah and Idris (2009:55) identify e-learning as web based education system that utilises Information technology (IT) and Internet. Khan *et al.*, (2011:67) define e-learning as education and training delivered through ICT, especially designed to support individual learning or organisational performance goals. Benchicou, Aichouni and Nehari (2010:328) point out that e-learning is the acquisition of knowledge distributed and facilitated primarily by electronic means. Almonte, Andreu and Rejas (2010:141) state that e-learning refers to accessing their learning material through a web site. While Zhao, McConnell and Jiang (2009:91) express e-learning as exploration learning, engaged learning, experiential learning, excitement learning, empowerment learning, and effective learning as well.

Eke (2010:275) defines e-learning as the “rise of network technology to design, deliver, select, administer and extend learning”. In addition, she terms e-learning such as those that leverage various Internet and web technology to create, enable, and facilitate lifelong learning. Eke (2010:276) further claims that e-learning does not only apply to distance learning but also applies to traditional courses that have incorporated electronic elements in day to day teaching and learning processes. Eke (2010:276) acknowledges that e-learning is same as technology based learning. Mohammadi, Ghorbani and Hamidi (2011:465) affirm e-learning as international use of networked ICT in teaching and learning. Above mentioned definitions of e-learning associate it with technology to facilitate the teaching process and improve the standard of education in higher education.

2.6 Forms of e-learning

There are different types of e-learning in higher learning and Eke (2010:276) states that e-learning is learning enabled by electronic technology. Therefore, e-learning technique could be web based learning, computer based learning, or virtual classrooms and mobile technology.

In accordance with Gikas and Grant (2013:18) mobile learning combines individual learning with anytime and anywhere learning facilitated by mobile devices. Mobile learning as defined by Ozourcun and Tabak (2012:300) is the use of mobile technologies to develop the learning experience. Ozuorcun and Tabak (2012:300) further mention that mobile learning is derived from e-learning; is the art of using mobile technologies to develop the learning experience; is a kind of model that allows learners to obtain learning materials anywhere and anytime and it eliminates geographical boundaries.

Another form of e-learning, as stated by Eke (2010:277), is web based training. Eke defines web based training as the delivery of content to the end user without significant interaction with training professionals, peers or managers.

Supported online learning is a different form of e-learning. Eke (2010:277) describes supported online learning as learning where course content is delivered through lectures or through distance education textual material. Interaction with instructor, course outlines, searching of resource and supporting materials are conducted online.

As per Mkhize and Lubbe (2010:421) research study, learning management system is a form of e-learning, it is a software that plans, implements and assesses learning process, that is, launches and tracks courses, work both intra and inter-departmentally, reports results of everything and stratifies reporting by location, departmental or group and it enriches collaboration between instructors and learners.

Blended learning is an extra form of e-learning and Ocak (2011:690) and Fleck (2012:399) term it as any combination of online elements and conventional face to face instruction as Ocak (2011:690) illustrate blended learning as a system, mix of didactic methods and delivery methods using web based technology. Poon (2012:129) categorises blended learning as a combination of face to face learning experience and online experience which aim to complement each other to support and enhance students' learning. Poon (2012:131) further identifies blended learning as a mixture of various web based technologies, a mixture of pedagogical approaches, a combination of instructional technology with face to face teaching and a combination of instructional technology with on the job tasks.

An additional form of e-learning is e-teaching (Chen, Chen and Wang, 2009:83). In their study, e-teaching is regarded as a type of innovative teaching method that is added to the classroom and uses ICT to facilitate and supplement traditional teaching. Guodong and Zhongjiao (2010:576) refer to e-teaching as a physical teaching environment where teachers organise and implement instruction by using a variety of educational technologies to optimise instruction.

Choosing the form of e-learning to use depends on the institution's needs and affordability, but again, the most important thing is whether quality has been added to the teaching method. Above mentioned authors argue that some forms of e-learning have replaced the traditional method of teaching with an aim to attend to students who cannot make it to class and also to manage the large number of students while other forms are used together with the traditional method to enhance the teaching process.

2.7 Advantages of e-learning

Benefits of e-learning cannot be missed and Al Senaidi *et al.*, (2009:575) state that even though ICT has the potential to improve educational methods and the quality of teaching and learning the advantages of ICT are often under realised. Eke (2010:

278), Ocak (2011:689) and Poon (2012: 132) mention the gains of e-learning as an increase in accessibility and improvement of quality of education in Africa. In terms of accessibility they state that education can effectively reach learners regardless of place; just in time access and timely information, e-learning allows instructors to update lessons and materials across the network instantly; it helps in keeping lessons fresh, consistent with current data. In terms of quality of instruction e-learning has a greater flexibility in the design and delivery of curriculum content; it enhances the ability to adapt the program to suit specific work requirement. Likewise Schroeder, Minocha and Schneidert (2010:160) believe that e-learning allows the educational sector to meet an increasing demand for education and to overcome the time and place constraint.

A research performed by Poon (2012:132) indicates that e-learning has transformative potential, offering institutions the opportunity to embrace technology, encourage a community of inquiry and support active and meaningful learning. Nwezeh (2010:688) and Daneshdoust and Hagh (2012:607) report benefits of e-learning in education if properly used, for example, include fostering and enhancing teaching and learning. Assareh and Bidokht (2011:791) and Eugenia, Molina and Garcia (2008:164) confirm that most institutions are turning to e-learning education due to its effectiveness and that it helps student develop and improve their knowledge, skills and abilities. Though Veigh (2008:91) is of the opinion that students who are comfortable with technology may learn effectively and efficiently, this is attributed to effective self directed capability which will vary with individual students. Gikas and Grant (2013:18) affirm that computer aided instruction make communication swifter and easier. Al Senaidi *et al.*, (2009:575) agree that ICT has a potential of improving education methods and the quality of teaching and learning. E-learning is a fast and dynamic and reduces the amount of expenses for example travel time and costs, and it also increases learners' motivation (Mohammadi *et al.*, 2011:465) and Schroeder, Minocha and Schneidert 2010:159). In the same vein, Hsbollah and Idris (2009:55) claim that e-learning improves access to education and

training itself and marks the need for higher institution to maintain competitive advantage.

E-learning plays an important role in curriculum implementation (Aladejane, 2009:134). As Summak *et al.*, (2010:1725) claim that e-learning is creating new opportunities for teaching and learning and changing the institutions and operations. In their research Summack *et al.*, (2010:1725) further claim that technology not only accelerates, enriches and deepens basic skills, motivates and engages students in learning but also relates academia to practices of today's workforce, strengthens teaching, increases economic viability of tomorrow's workers

E-learning can serve to optimise resources in that one can have impact with very low investment, as lecturers can produce best possible educational benefits and combine the strengths of many methods (Aladejana, 2009:135). Likewise Poon (2012:132) reports that cost for the institutions are reduced as the development materials can be placed online and re-used for an extended period of time. Guha and Maji (2008:299) agree that e-learning is important not only for economic reasons but it has social benefits as well. For example, it could reduce economic disparity caused by denial of education to the economically deprived sector of the population.

E-learning ensures that the education sector is innovative and at par with the changing face of teaching methods; it is appropriate in this current world where technology encompasses every activity and gives room and freedom for both lecturers and students to choose the kind of teaching method that suits them.

2.8 Disadvantages of e-learning

E-learning has modified and modernised the way lecturers communicate and teach in terms of delivery and acquisition of information but it also has potential shortcomings. Ozourcun and Tabak (2012:301) agree that e-learning may decrease the relationship between student with other students and lack of face to face interaction with the

teachers for lecturers who opt for online learning. Another difficulty of e learning is that learners need to have access to a computer and the Internet (Abdellaziz, Kamel, Karam and Abdelrahman, 2011:51). Abdellaziz *et al.*, (2011:51) further believe that there are possibilities of misinterpretation in case there are no face to face meetings.

Due to the fact that e-learning requires the use of computers, availability of computers could be a problem and there is need of experience and acquaintance with technology as it is a different teaching process. Nwezeh (2010:688) states that lecturers will have to change their teaching styles and acquire Internet skills. Change in the way of teaching calls for change management by institutions, which is another process altogether.

Another e-learning defect is linguistic/cultural differences; teachers' inadequate skills regarding this kind of teaching and less experience on learners' part of Internet and computer. Veigh (2009:93) points out that increasing use of e-learning may lead to inequalities in education and the possibility of the development of a two tier system due to inaccessible Internet for some. Veigh further, states that rapid and frequent change in technology may impact on accessibility, the implication of which may be reflected in financial costs, time management, student frustration and demotivation.

Maintaining consistent quality of e-learning is a challenge (Suddaby and Milne, 2008:114). Eke (2010:284) and Aladejana (2009:134) assert that e-learning is sometimes associated with unreliable technology, limited band width; unstable supply of electricity and power outages that can pose a serious threat to e-learning. Sharma (2011:659) argues that technology alters swiftly and this makes it hard to estimate costs associated with it.

Authors referred to above believe that implementing e-learning and; maintaining the usage of e-learning in colleges, especially when there are power shortages, is expensive; keeping up with technology modification is costly and it promotes different level of learning among students and institutions. Even though Eke (2010:278) argues

that e-learning is generally cost effective, there will be a need for thorough preparation financially before the adoption of e-learning.

2.9 Adoption

In line with Al Senaidi, Lin and Poirot (2009:575) higher education institutions around the globe have increasingly adopted ICT as tools for teaching, curriculum development and staff development. In Africa, Nwezeh (2010:690) claims that traditional methods of lesson delivery and educational services can no longer meet the demand for education. He further states that the present age is an information driven age which is an era of sophisticated inter connectivity of information through the net.

Although, ICT has transformed its teaching and learning methods, Gikas and Grant (2013:18) believe that e-learning is technically in its infancy stage in higher education and Eke (2010:274) confirms that even though e-learning is becoming popular it is still in its early phase in Africa because infrastructure like availability of electricity, computers and Internet are not yet fully in place to facilitate e-learning. For example Aladejane (2009:133) asserts that Nigeria is a developing country with low technological development. Even though schools in developing countries incorporate a variety of technologies, their use in the school still falls short of answering 21st century learning needs. Hence, there is need for guidance regarding technology integration (Karaca and Yildirim, 2013:353).

Despite the fact that many organisations are turning to e-learning, Goktas, *et al.*, (2013:211) believe that effective integration of e-learning in education is frequently difficult and problematic. This is despite new approaches that have been developed in education to offer lecturers greater competency regarding teaching and using technology. On the same note Al Senaidi *et al.*, (2009:575) assert that adoption of e-learning is often poorly implemented and is based on unfounded optimism and they believe that a large number of faculty members are still hesitant to adopt technology

for teaching tasks. Aladejana (2009:134) claims that there have been little efforts in the integration of ICT in higher education.

A study by Summak *et al.*, (2010:1726) and Aladejana (2009:134) define e-learning integration as purposeful use of instructional technology in the development and methodology of curriculum delivery. Shieh (2012:207) describes e-learning integration as the practice of containing technology in teaching. Summak *et al.*, (2010:1726) define technology adoption in terms of teachers using technology to develop students thinking skills. Another definition by Summak *et al.*, (2010:1726) is that technology adoption is the incorporation of technology and technology-based practices into daily routines, work and management of institution. The reason for e-learning integration is to make education delivery more flexible and efficient than the traditional delivery. Unfortunately, Kopcha (2012:1109) implies that technology is used more frequently for administrative tasks and non instructional tasks.

According to Al Senaidi *et al.*, (2009:575) there are no universal solution to the technology integration as ICT adoption is not merely a technical issue, instead the rate of adoption is affected by factors such as innovation characteristics, economic, sociological, organisational and psychological variables. While Assareh and Bidokht (2011:791) and Kimery and Amirkhalkhali (2011:41) state the challenges to e-learning acceptance as lack of motivation, inadequate skills, perception, attitude and beliefs.

2.9.1 Attitudes and perceptions

Perception has played a role in e-learning acceptance, as Eke (2010:285) and Ertmer, Leftwich, Sadik, Sendurur and Sendurur (2012:423) state lecturers' incorrect perception of e-learning may hinder its execution. Some lecturers see e-learning as a method that adds no value to the teaching process. Additionally, Tselios, Daskalakis and Papadopoulou (2011:224) claim that lecturers' perceptions, whether, e-learning is useful or easy to use determines its recognition. Roca and Gagne (2008:1586) claim

that the most important determinant of the user's behavioral intention and actual usage is attitude, which in turn is a combination of perceived usefulness and perceived ease of use. Roca and Gagne further claim that perceived usefulness is a motivational factor. Perceived usefulness, as stated above, can motivate and influence lecturers' attitudes towards e-learning.

2.9.2 Lack of skills

A barrier to e-learning implementation is lecturers' inadequate skills and lack of knowledge on e-learning environment and difficulty of assessment of progress; quality, resources, teaching process and evaluation (Assareh and Bidokht, 2011:791). Taylor, Goede and Steyn (2011:28) believe that there is need for computer skills literacy especially in a developing country. Ocak (2011:691) states that e-learning requires educators to have some technological expertise hence the need for suitable training for technology based courses. Similarly Shieh (2012:207) claims that teachers are nowadays expected to use their knowledge of subject matter, teaching and learning and technology to facilitate student learning. Teo (2010: 127) emphasises the importance of training as in many occasions course tutors are key personnel in the curriculum planning, implementation, delivery and assessment of e-learning.

There is need for educators' training to give them skills and confidence as they use e-learning to bring change in the delivery method of teaching. It is equally important for the lecturers to be competent in curriculum development for them to achieve required and successful results.

2.9.3 Educators' beliefs

One of the factors affecting integration of e-learning is educators' beliefs in technology as confirmed by Karaca, Can and Yildirim (2013:353) and Goktas *et al.*, (2013:211). Kim, Kim, Lee Spector and Meester (2013:77) claim that teachers'

beliefs are important in e-learning adoption because they influence behaviour. Research conducted by Shieh (2012: 207) state that lecturers' beliefs such as presumptions, commitments and ideologies influence their perception on innovation adoption. He further states that integration of e-learning can be accelerated if the lecturers modify their beliefs. Change can be achieved through lecturers' professional development and support by the administrative leadership.

Aforementioned literature confirms that e-learning is a different practice, therefore institutions' managers have an important role to convince the lecturers about the significance and benefits of e-learning, in order to improve the acceptance rate among lecturers.

2.9.4 Managerial support

A study conducted by Ocak (2011:690) states that managerial support is a challenge to e-learning implementation because without it, lecturers struggle with technical details of e-learning. Managerial support is paramount as it plays roles as lecturers' motivation, financing of the e-learning integration, coordinating training of lecturers and generally ensuring that all that entails e-learning is in order and functioning. Lin and Ha (2009:572) confirm that administrative efforts can contribute to the achievement of universal access for an interactive medium by supporting its employees in using technology. In addition, managerial, technological and professional support posed as obstacles to achieving technology integration (Ertmer *et al.*, 2012:423).

Management perception on e-learning plays a role in its execution as a tool to support learning. The issue is, whether the management sees the usefulness of e-learning, as it is certain that it is the management that makes decision. The management opinion influences its adoption (Sebolai and Ogutu, 2012:8).

As stated by Assareh and Bidokht (2011:791), an organisation needs to work on cooperation of interconnected areas like curriculum developers, teachers, parents

students, social authorities, technological specialist in order to overcome the above mentioned barriers. Collaboration as an institution is paramount for the achievement of e-learning implementation.

2.10 Lack of finance

Teaching and learning is extremely resource exhaustive; innovation and collaboration require money, resources and time (Sharma, 2011:659). On the same note Harris, Connolly and Feeney (2009:159) state that e-learning implementation requires resource assessment at a human, financial and technical level, which is vital within the design process. Eke (2010:286) pin points the threat to institutions that have vision and goal to execute the big dream as lack of resources. She additionally states that lack of finance to partner the committed institution is one of the barriers to e-learning execution in South African higher education. She further implies that poverty is one of the most important barriers to e-learning in South African higher education.

The key constraints in seeking to implement and develop e-learning strategies and practices include lack of infrastructure, appropriate training and capacity development, lack of relevant digital content and the cost of implementation (Eke, 2010:277). Sharma (2011:658) states that technology changes rapidly and views differ about how to estimate e-learning implementation costs, and she further states that recognising the cost is not a solution, but a representation of a direction for decision making.

2.10.1 Infrastructure

A study done by Male and Pattison (2011:335) reveals that delivery of e-learning solutions depends on the accessibility of appropriate and adequate infrastructure and technology; adequate infrastructure ensures e-learning system deployment and accessibility devices. Infrastructure is costly and Eke (2010:277) asserts that barriers in seeking to accept e-learning include lack of infrastructure especially connectivity in

rural areas. She further states that availability of electricity, computers and Internet are not yet fully in place to facilitate e-learning projects. Eke (2010:286) acknowledges that for e-learning to succeed in the developing world, it needs to build an important pillar, the existence of infrastructure. Provision of infrastructure in higher learning requires funds which is currently inadequate or non-existent.

2.10.2 Training

Acquiring computer skills is more important today than ever before and added that stakeholders' computer skills have to adapt to new technology (Taylor *et al.*, 2011:28). Assareh and Bidokht (2011:791) state that obstacles to e-learning are inadequate skills and lack of experience as far as lecturers are concerned. Assareh and Bidokht (2011:791) further state that designing and developing e-learning entails courses, seminars, workshops, curriculum development technical and pedagogical knowledge which are vital resources. Harris, Connolly and Feeney (2009:158) agree that new set of skills may be required by staff, from basic information technology learning, skills to learning new ways of interacting. They further state that e-learning requires Information technology literacy for lecturers to be able to prepare course work.

Training of the lecturers would ensure that they are prepared and set for change, change in way of communicating and teaching. Training is essential and it cannot be overlooked but it comes with expenses, hence the need for appropriate resource acquisition and allocation.

Sharma (2011:658) argues that e-learning is an innovative area and its features are relatively strange to many organisations. He believes it may be necessary for an organisation to use professional advice to define the e-learning strategy. There are additional costs in employing IT experts or consultants who will be dealing with the installation, queries, supervision and problems related to ICT.

There is need for an organisation's management to create awareness to the staff members, students, (potential students and staff) and the stakeholders about the change in the teaching method. This too is an additional cost that has to be taken care of (Sharma, 2011:658). The above mentioned literature reveals that e-learning adoption requires a lot of capital/resources which may not be available. Lack of funds could be a problem facing the institutions that aspire to implement e-learning.

2.11 Research question

The literature reviewed shows discussion on the possible hindrances to e-learning implementation. Nonetheless, the following research question seeks to know the real situation at Taletso FET Campus.

The main research question is as follows: *What are the constraints hindering implementation of e-learning?* This has been divided into the following sub-questions:

- i. What are the constraints faced by the facilitators?
- ii. What are the constraints faced by the institutions?
- iii. How this can be used to ensure proper e-learning?

2.12 Conclusion

Research from previous studies show that there are different forms of e-learning used in teaching practices to facilitate learning. E-learning is advantageous because of its flexibility, timeliness, accessibility, quality education and efficiency. Even though e-learning has the potential to improve the standard of education, teaching delivery and communication, it has shortcomings that include unreliable technology, limited bandwidth, unstable supply of electricity and power outages, inequalities in education and decreases the relationship between lecturers and students.

Obstacles to e-learning implementation include lack of finance, lecturers' perceptions, lack of infrastructure, attitude and beliefs, inadequate skills and lack of managerial support.

This chapter has helped in identification of possible constraints to e-learning implementation and probable ways to go about e-learning adoption. It is anticipated that the chapter will also help in decision making at managerial level as lack of e-learning is a stumbling block in the provision of quality education in higher institutions.

The next chapter covers the research methodology applied to determine barriers to e-learning implementation. The section will talk about the research methodology for data and collection and data analysis and how the approach was chosen. It will also discuss the limitations, validity and ethical consideration of the research methodology chosen.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter shows research methodology used in this study to provide answers to research questions in Chapter two. Research methodology refers to theories of how, and how far, a research design enables researchers to draw sound inferences to conclusions that offer answers to the research questions (Bellamy, 2012: 305). Methodology is a detailed description of all aspects of the design and procedures of the study (Bloomberg and Volpe, 2012:8). Creswell and Clark (2007:4) define research methodology as philosophical framework and the fundamental assumptions that relate to the entire process of research.

The proposed research question that needs to be answered is: What are the constraints to e-learning implementation? The main research question has sub questions which are: i) What are the constraints faced by lecturers? ii) What constraints are faced by the institution? iii) How this can be used to ensure proper e-learning.

The aim of the study was to establish the constraints that both lecturers and management face that hinder e-learning implementation in higher learning, given that e-learning is used as a tool to enhance learning; nevertheless, it has not been incorporated in the teaching process. To get answers to the research question, it is essential to gather information from an appropriate population employing appropriate research methodology. As Leedy and Ormrod (2010:94) affirm, data dictate the research methodology.

In brief, this chapter shows the research methodology used, the data collection method selected, targeted population, sampling technique applied, questionnaire and data analysis, limitations, validity and procedure. The chapter concludes with conformity with research ethics.

3.2 Research method used in this study

Quantitative method has been chosen because the researcher wants to quantify attitudes, perceptions and beliefs that lead to specific challenges facing e-learning implementation in higher education from a group of lecturers and managers as they are the ones facing the difficulties firsthand. Given that the group to be studied is large, quantitative research was found to be the better option; qualitative research requires detailed information from a smaller group.

Through the literature review, the researcher detailed possible constraints in e-learning implementation and made a standardised comparison which is appropriate to a quantitative methodology. Qualitative research would require a weak literature base and detailed information through self explanation from participants (Leedy and Ormrod, 2010:108).

Due to time constraints detailed information could not be obtained. Therefore, quantitative research was more appropriate, given that it can be conducted within a short period of time. This conclusion is confirmed by Leedy and Ormrod (2010:108).

The researcher is conversant with statistical analysis and also intended to analyse the data in numeric form as the data was large. The researcher wanted to see any correlation between the variables hence quantitative methodology was chosen. This is in line with Edmonds and Kennedy (2013:20) that state research in quantitative method essentially refers to the application of the systematic steps of the scientific method, while utilising numerical systems to research the relationships between specific variables.

In quantitative research, objectivity is an important concern in obtaining data and findings that are independent of the researcher (Schreier, 2012:23), it is guided by assumptions inherent in the positivist paradigm; measures and quantifies a problem

(Hennink, Hutter and Bailey 2012:16). Quantitative research deals with data in the form of numbers and uses mathematical operations to investigate their properties. (Walliman, 2011:112)

3.3 Research design

Research design is a research strategy that has whole range of methods within it. These include data analysis, sampling, data collection technique (Denscombe, 2003:7) and research approach is directly tied to the study's research question (Bloomberg and Volpe, 2012:27).

3.3.1 Data

In this study primary data was used, as the researcher wished to investigate the certainty concerning constraints to e-learning implementation. Primary data is the most valid and most illuminating, as it reveals information closer to the truth (Leedy and Ormrod, 2010:89). Secondary data was not used as the researcher wanted to get opinions and feelings directly from the concerned parties, the lecturers and the managers.

Data may be divided to into types:- primary and secondary data (Leedy and Ormrod, 2010:89). Primary data refers to sources from which researchers can gain information by direct, detached observation or measurement of phenomena in the real world, undisturbed by any intermediary interpreter, (Walliman, 2011:175). Additionally, Walliman, (2011:177) states that secondary data is source of information that has been subject to interpretation by others.

3.3.2 Method of data collection

A survey was chosen because the participants were a group of forty five participants. This method was appropriate for collecting data from many participants within a short duration. A survey was also suitable for getting to know the groups' (lecturers and managers) opinions about e-learning implementation and relate to the literature reviewed for any similarities or differences and to draw conclusions.

As claimed by Leedy and Ormrod (2010:187) a survey can be used when acquiring information about one or more groups of people in relation to their characteristics, opinions, attitudes or experience, by asking them questions and tabulating their answers. Groves, Fowler, Couper, Lepkowski, Singer and Tourangeau (2009:2) state that survey is a systematic method for gathering information from a sample of entities for the purpose of constructing quantitative descriptors of the attributes of the larger population of which the entities are members.

3.3.3 Measuring instrument

Self-administered questionnaires were used as a source of collecting data in this study. This type of data collection is appropriate for the study as it is quicker to administer and it can be used to determine opinions and attitudes of large group of participants. Leedy and Ormrod (2010:188) state that participants respond more truthfully to questions with assurance that their response will remain anonymous as opposed to personal interview.

The questionnaire consists of twenty six questions and has five parts. The first part asks permission to use responses for academic research, the second part asks for general personal particulars such as age and gender, the third part asks about constraints faced by the facilitators, the fourth part asks about constraints faced by

the institutions and the fifth part asks about how this can be used to ensure proper e-learning.

A rating scale was used to measure lecturers' and managers' perceptions, attitudes and beliefs on e-learning implementation. The Ordinal was employed to measure discrete figures, while the Nominal was used to measure dichotomous data. The Likert Scale was used to measure continuum data.

The questionnaire was developed following Leedy and Ormrod (2010:194) guidelines, that is: keep the questionnaire short, keep the respondents' task simple; provide clear instructions; use simple, clear, unambiguous language; give a rationale for any items whose purpose may be unclear; check for unwarranted assumptions implicit in a question, word questions in ways that do not give clues about preferred or more desirable responses; sequence questions correctly with more sensitive questions, towards the end; the researcher will determine in advance how to code response; check for consistency; scrutinise the almost final product one more time to make sure it addresses the needs; make the questionnaires attractive and professional looking.

3.3.4 Population

Population refers to a large collection of people or objects that is the main focus of the study. In this study, the population consists of lecturers and managers who lecture at Taletso FET Mafikeng Campus. The population consists of forty three lecturers and two managers. The population is aged from thirty years to sixty years.

3.3.5 Sampling technique

Purposive and non-probability sampling was used as it was appropriate for this research. Purposive sampling can be used if the population has a particular purpose or represent diverse perspectives on an issue (Leedy and Ormrod, 2010:212). The

method was suitable for this research as the population is homogenous in nature. The population consists of lecturers and managers. Lecturers and managers were chosen because they are the ones who experience e-learning constraints firsthand.

The population consists of forty five participants; forty three lecturers and two managers. For a smaller population survey the entire population (Leedy and Ormrod, 2010:213). The whole population participated in the study as the population size was not very big.

3.3.6 Procedure

The researcher introduced herself to the participants, explained what was to be done, explained that the filling in of the questionnaire was voluntary, that respondents would remain anonymous and then provided the participants with the questionnaires. The researcher thanked the participants and the management for agreeing to participate in the data collection process.

3.4 Data analysis

Data was analysed using descriptive statistical analysis; bar charts, pie charts and frequency tables, to find out the percentages of the variables. Another measure used was the correlation coefficient to determine any relationship between the variables. Leedy and Ormrod (2010:96) confirm that statistical analysis is characteristic of quantitative analysis.

3.5 Ethics

According to Denscombe (2003:134) ethics means that in the collection of data, in the process of analysing the data and in the dissemination of findings, researchers are

expected to respect the rights and dignity of those who are participating in the research project, avoid any harm to the participants arising from their involvement in the research and operate with honesty and integrity.

Forms were completed for ethical approval from the University Ethical Committee and a letter from the University confirming that the researcher is a student at the University was provided. A copy of the letter was given to management of Taletso FET Campus. The researcher ensured participation was voluntary, that informed consent from the participants had been obtained, confidentiality of participants was maintained by not mentioning their names in the report, and that information in the questionnaires was within the framework of the research topic

The researcher has tried to uphold honesty and avoid plagiarism, and any ideas, sources or concepts that are not the researcher's work has been acknowledged through citation and referencing.

3.6 Validity

According to Denscombe (2003:300) validity means that the data and the methods used are accurate, honest and on target. Leedy and Ormrod (2010:97) assert that validity is the extent to which research design and the data it yields allow the researcher to draw conclusions about the cause and effect and other relationships within the data.

Internal validity refers to the relationship between the data collected and the conclusion drawn from the data, whether it is acceptable and true. External validity is the extent to which the research results apply to the situation beyond the study itself. Leedy and Ormrod (2010:99). It concerns the relationship of the drawn conclusion to other contexts.

Given that the research question was the purpose of the research study, the researcher ensured that validity is maintained by making certain that the research methodology chosen matched the research question. The research question was predictive in nature; it sought to discover the attitudes and opinions of lecturers and managers. It required the use of quantitative method, which is appropriate for confirmatory and predictive questions.

There was no selection bias as the whole population had a chance to participate. The study concerned the lecturers and the management, therefore the sample/population was representative and appropriate for the study. Results from the sample were representative of the population because the whole population participated. Denscombe (2010:46) states that in non-probability sampling items should not be fewer than 30 in order to produce accurate statistical analysis. The items used for statistical analysis were 38 out of 45; the sample is enough to be used in other contexts or beyond this study.

3.7 Reliability

According to Denscombe (2003:300) reliability means that the research instrument produces the same data time after time on each occasion that it is used, and that any variation in the results obtained through using the instrument is due entirely to variation in the thing being measured. Reliability was maintained by ensuring that questionnaires given to respondents were standard. Secondly the questionnaires were given to lecturers and managers alike in order to avoid any inconsistency in response.

3.8 Limitations

- Due to standardised type of questionnaires, the researcher could not get the real feelings from the respondents; as they could be having different opinions and attitude concerning difficulty in e-learning implementation.

- Due to time constraints the researcher could not get in depth information from the participants.

3.9 Conclusion

Quantitative research methodology was used in this study; survey method was applied and questionnaire as a measuring instrument used to collect data as the researcher opted for primary data. The population consisted of lecturers and managers and the entire population was used as sample. Questionnaires were standard hence independent opinions and attitude from the respondents were not captured. It is anticipated that potential researchers will go qualitative or the mixed methodology route.

This chapter was concerned with data collection. The data represents the feelings, opinions and attitudes of the lectures and managers, which help in a ascertaining the truth in theories and concept in the literature review in Chapter two and the research questions.

The next chapter presents the findings. The findings were used in answering the previously raised research questions, drawing of conclusions and in making recommendations.

CHAPTER FOUR: STATEMENT OF RESULTS

4.1 Introduction

This chapter presents the research data and findings obtained from the fieldwork through the use of questionnaires. The results are specific to the data collected from the lecturers and managers at Taletso FET Mafikeng Campus with an aim to answer the research problem and research questions outlined in Chapter two.

The study was conducted to uncover the constraints that delay the implementation of e-learning in higher education; the difficulties that the institution faces and the challenges that the lecturers face in their efforts to implement e-learning. The survey was also conducted to see how this could be used to ensure proper e-learning. Descriptive statistical analysis was used to examine the data: that is, bar charts, pie charts and frequency tables to find out the percentages of the variables. Correlation coefficient was used to determine any association between the variables.

This chapter covers the introduction and all findings from the questionnaire. The findings are in four sections: demographic findings, constraints faced by facilitators' findings, constraints faced by the institutions' findings and how this can be used to ensure proper e-learning findings. The chapter ends with a conclusion.

4.2 Response rate

Out of forty five questionnaires distributed, thirty eight questionnaires were correctly completed and returned. Purposive, non-probability sampling was used in data collection process. Denscombe (2010:46) states that in non-probability sampling items should not be fewer than 30. Thirty eight questionnaires were sufficient sample size hence can be used beyond this study.

4.3 Demographics (part 1)

Demographics is inclusive of gender, age, working experience and designation of respondents.

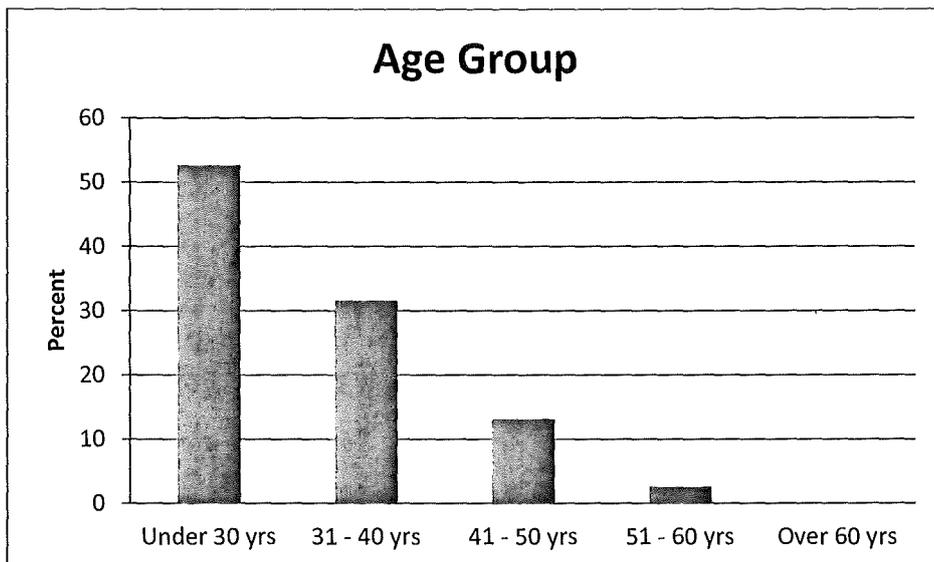


Figure 1 Age

Figure 1 shows that the majority of the participants were aged below thirty years with (52.63%), followed by age group 31-40 years (31.58%), then age group 41-50 years (13.16%) and 2.63% for age group 51-60 years. The graph further shows that the majority of the respondents were below the age of forty.

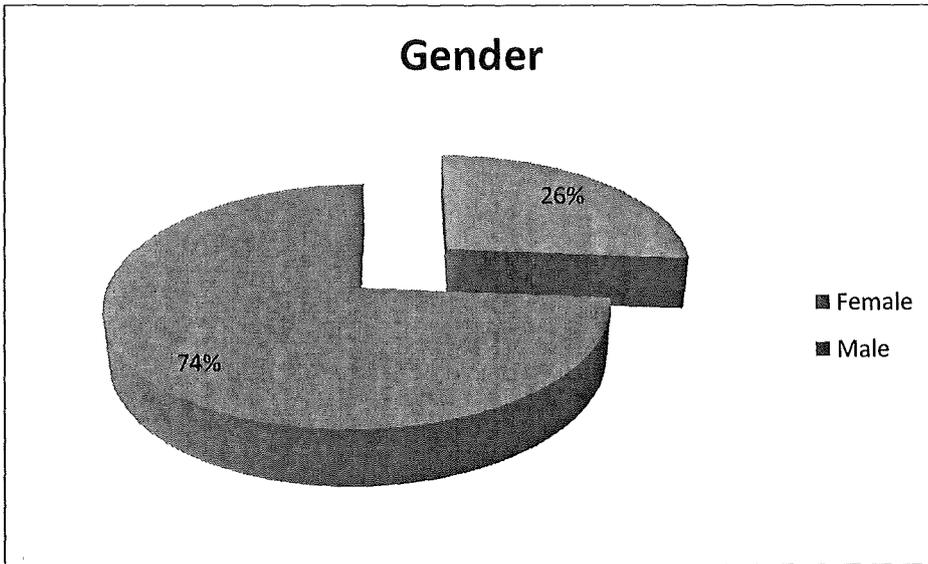


Figure 2 Gender

Figure 2 indicates that 74% of the respondents were male while 26 % were female. Given that Taletso Campus is in a rural area, women remain at home and men go to work

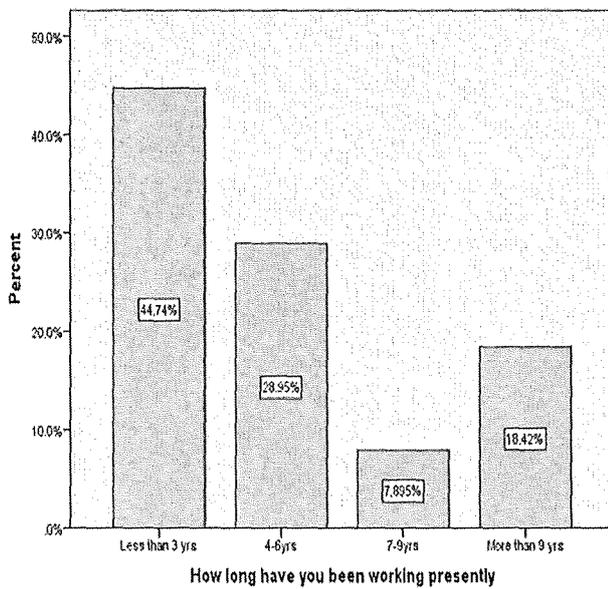


Figure 3: Length of employment

Figure 3 shows that majority of the participants have worked for less than three years (44.74%), followed by 4-6years (28.95%), then more than 9 years (18.42%) and minority 7-9years (7.89%). It also shows that the majority of the participants have worked for six years and less.

		Length of years working				Total
		Less than 3 yrs	4-6yrs	7-9yrs	More than 9 yrs	
AGE	Under 30 yrs	11	6	2	1	20
	31-40 yrs	6	4	0	2	12
	41-50 yrs	0	1	1	3	5
	51-60yrs	0	0	0	1	1
Total		17	11	3	7	38

Table 1: Cross Tabulation

In table 1 age and length of years working cross tabulation shows that majority of the participants that have worked longest are below the age of forty years.

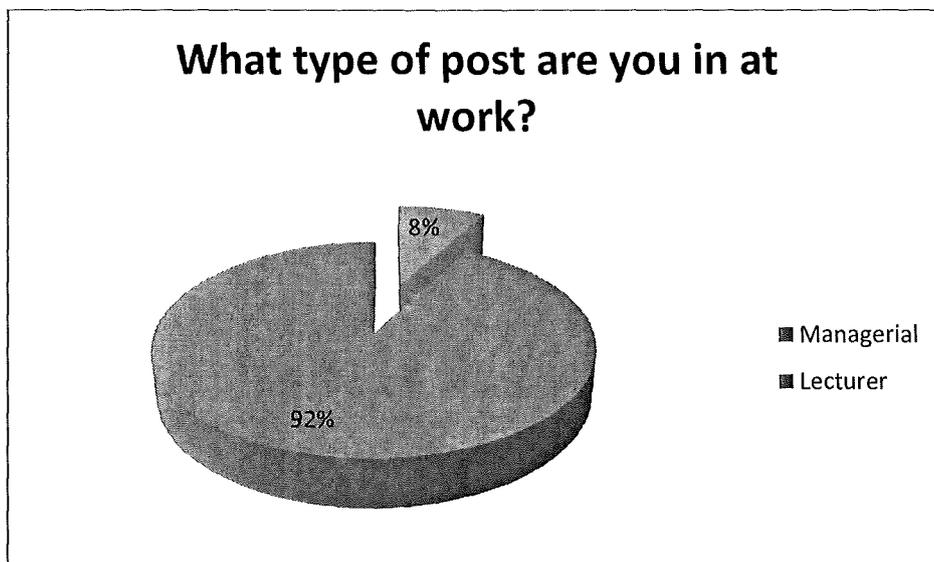


Table 2: Post

Table 2 shows that majority of the participants were lecturers (92%) and managers were 8%. The lecturers outnumber the managers.

4.4 Constraints faced by facilitators (part 2)

The research question on constraints faced by facilitators has nine sets of questions.

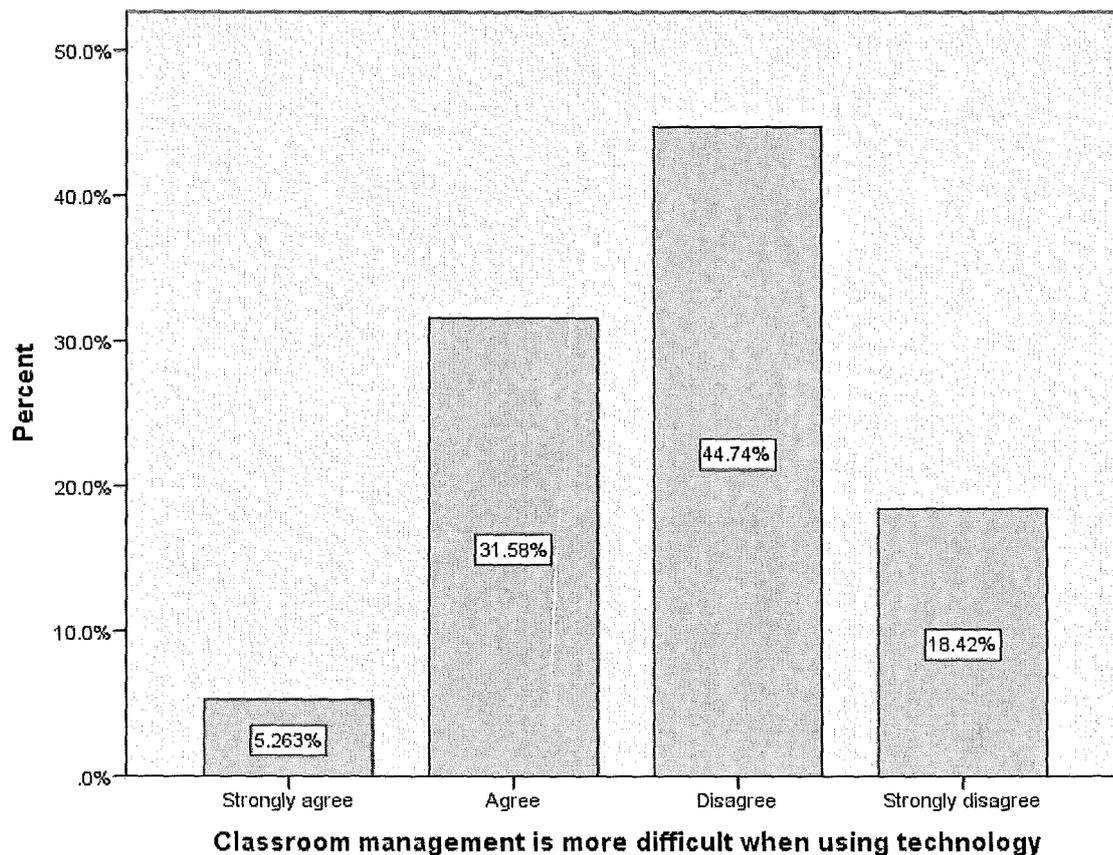


Figure 4: Constraints

Figure 4 shows that 63.1% of the participants disagree that classroom management is more difficult when using technology while minority 36.9% agree. Even though literature review in chapter two suggests that lecturers' mistaken perceptions on e-learning may hinder its execution (Ertmer, Leftwich, Sadik, Sendurur and Sendurur, 2012:423), in this study, the participants reveal a positive attitude concerning technology use in the classroom. Technology involves the tool with which we deliver content and implement practices in better ways (Summak *et al.*, 2010:1725).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	1	2.6	2.6	2.6
	Agree	8	21.1	21.1	23.7
	Disagree	18	47.4	47.4	71.1
	Strongly disagree	11	28.9	28.9	100.0
	Total	38	100.0	100.0	

Table 3: Technology

Table 3 shows that majority 76.3% of the respondents disagree that teaching using technology is time consuming, while 23.7% agree. Perception on teaching using technology is effective according to respondents. Lecturers' perceptions on learning are of the essence as they determine its acceptance and integration (Tselios Daskalakis and Papadopoulou, 2011:224).

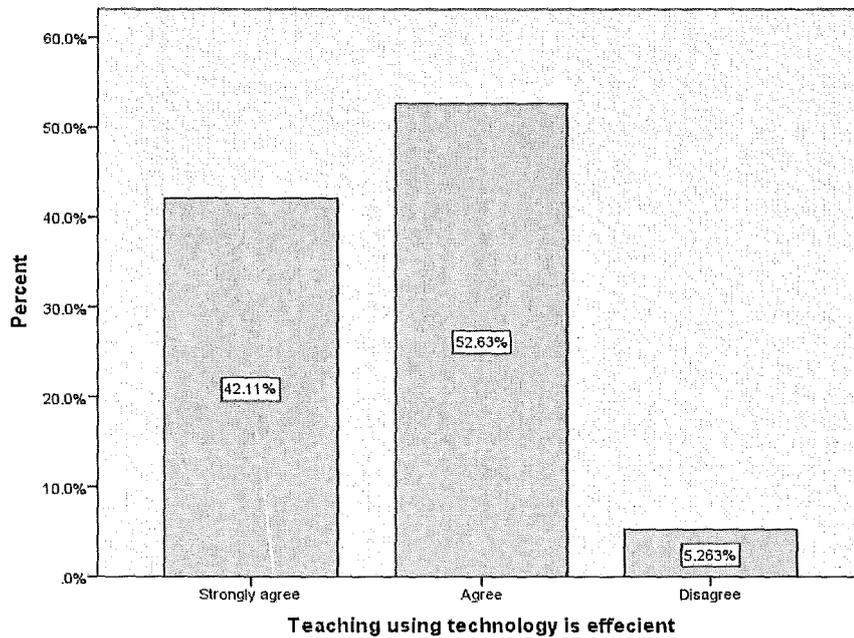


Figure 5: Efficiency

Figure 5 shows that 94.7% of the participants agree that teaching using technology is efficient while 5.3% disagree. Respondents perceive technology to be efficient and the most important determinant of the user's behavioural intention and actual usage is attitude (Roca and Gagne, 2008:1586). Tselios, Daskalakis and Papadopoulou (2011:224) observed that computer self-efficacy acts as a strong predictor of perceived ease of use both before and after actual system use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	4	10.5	10.5	10.5
	Disagree	28	73.7	73.7	84.2
	Strongly disagree	6	15.8	15.8	100.0
	Total	38	100.0	100.0	

Table 4: Ease of use

The Table 4 shows that 89.5% of the participants disagree that they feel nervous and anxious when dealing with computer while 10.5% agree. Lecturers feel confident when they handle the computers; additionally, Tselios, Daskalakis and Papadopoulou (2011:224) confirm that lecturers' perceptions of computer ease of use determine its recognition.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	6	15.8	15.8	15.8
	Agree	8	21.1	21.1	36.8
	Disagree	16	42.1	42.1	78.9
	Strongly disagree	8	21.1	21.1	100.0
	Total	38	100.0	100.0	

Table 5: Reliability

The Table 5 shows that 63.2% of the respondents disagree that technology is unreliable while 36.9% agree. Respondents recognise that technology is reliable

which means they have confidence in it. Khan, Maldonado, Moon and Rho (2011:70) affirm that social influence has been examined as an important factor in predicting technology use behaviour and intentions to use it for teaching process.

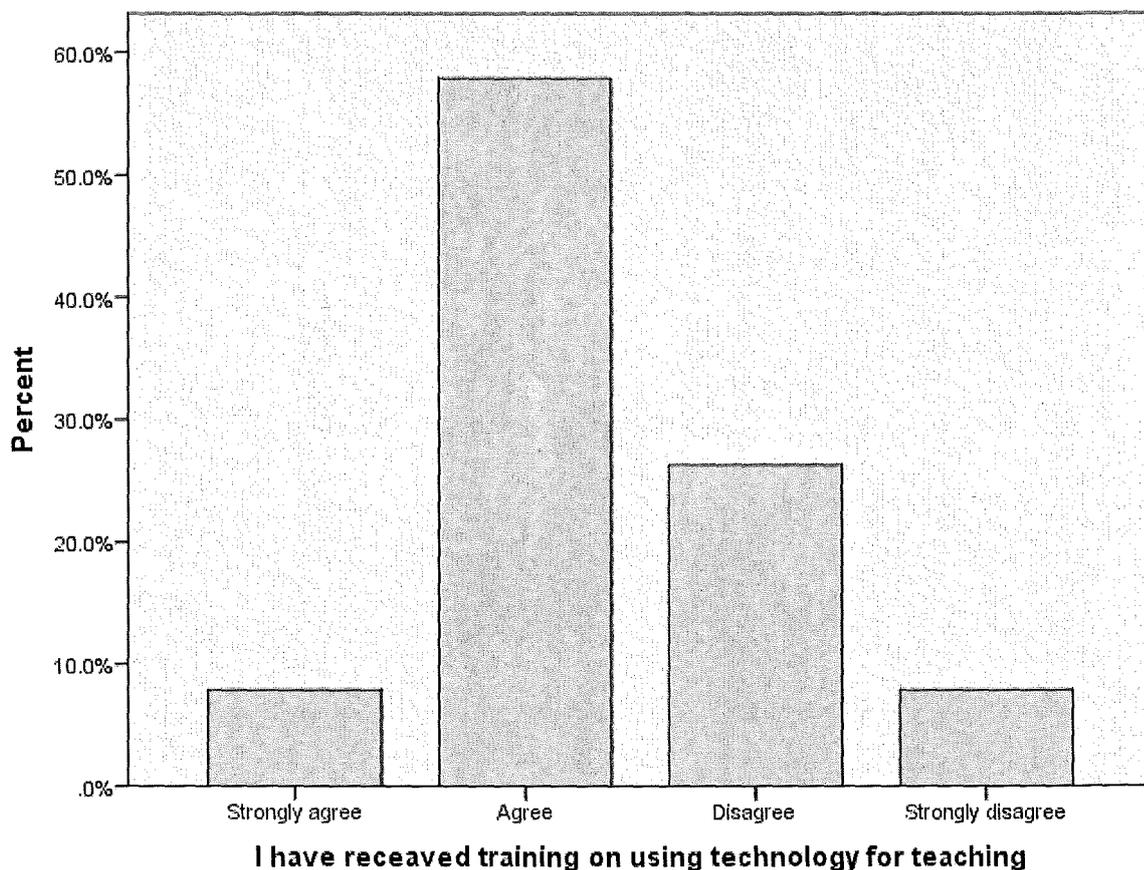


Figure 6: Training

Figure 6 shows that 65.9% of the respondents agree that they have received training on using technology for teaching while 34.2% disagree. Most of the respondents are trained on using technology for teaching even though Assareh and Bidokht (2011:791) argue that the barrier to e-learning implementation is inadequate skills and lack of knowledge in the e-learning environment and the difficulty of assessing progress in different domain; quality, resources, teaching process and evaluation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	5	13.2	13.2	13.2
	Agree	19	50.0	50.0	63.2
	Disagree	13	34.2	34.2	97.4
	Strongly disagree	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

Table 6: Adequacy of training

The Table 6 shows that 63.2% of the respondents agree that they have received adequate training on the skills needed to use technology while 36.8% disagree. Adequate skills and training are paramount as Teo (2010:127) acknowledges that in many cases, course tutors are key personnel in the curriculum planning, implementation, delivery and assessment of e-learning.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	20	52.6	52.6	52.6
	Agree	18	47.4	47.4	100.0
	Total	38	100.0	100.0	

Table 7: Effectiveness

The Table 7 shows that respondents (100%) believe that using computers with students increase their learning. Personal beliefs towards web based education constitute a critical factor to the successful incorporation and adoption of such systems in the learning practices of an institution (Tselios *et al.*, 2011:224).

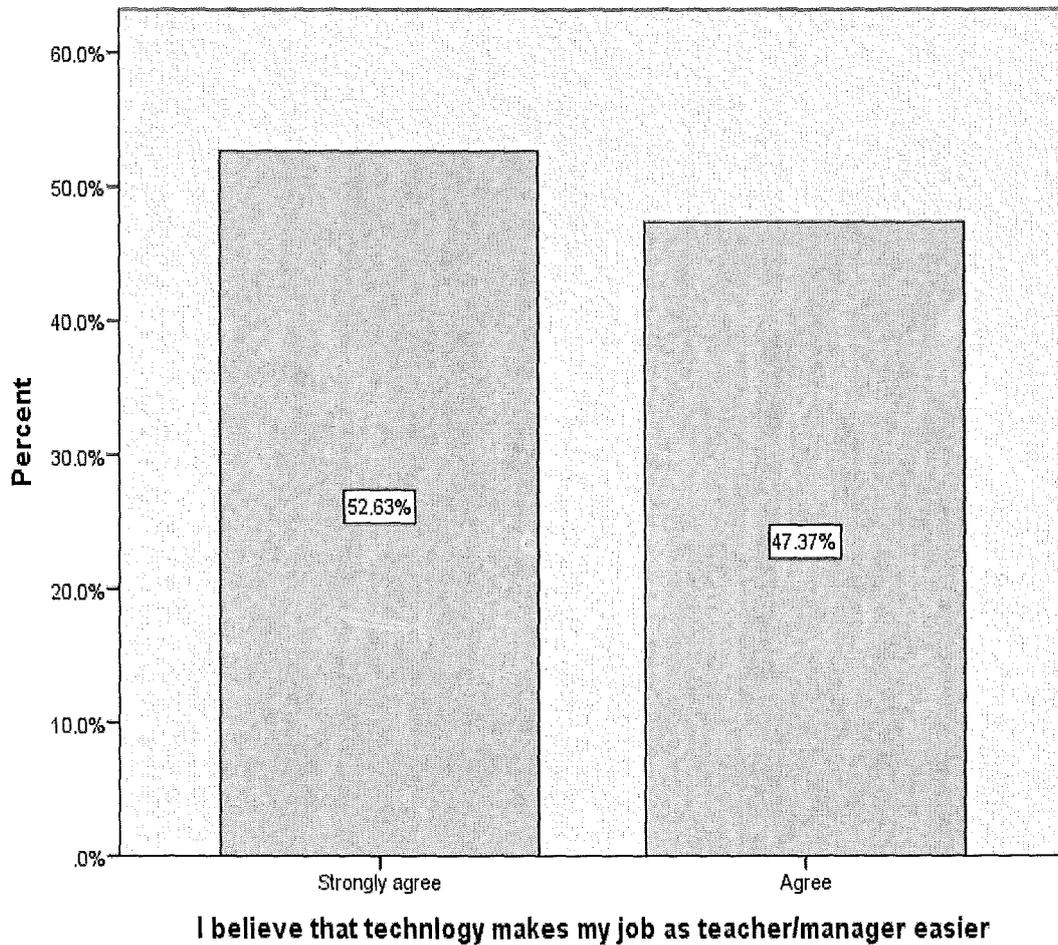


Figure 7: Impact

Figure 7 shows that of the respondents 100% believe that technology makes their job easier. Differences in cultural beliefs or orientations can impact the way individuals perceive various characteristics of ICTS and how these perceptions influence intentions and abilities to adopt and adapt such technologies (Kimery and Amirkhalkhali, 2011:41).

4.5 Constraints faced by the institution (part 3)

The research question on constraints faced by an institution has eight sets of questions.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	8	21.1	21.1	21.1
	Agree	25	65.8	65.8	86.8
	Disagree	4	10.5	10.5	97.4
	Strongly disagree	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

Table 8: Financial Support

The Table 8 shows that 86.9% of the respondents agree that there is inadequate financial support to develop technology based activities while 13.1% disagree. Eke (2010:286) indicate that limitation of resources poses a threat to institutions that have a vision and goal to execute the big dream and is one of the barriers to e-learning implementation.



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	8	21.1	21.1	21.1
	Agree	23	60.5	60.5	81.6
	Disagree	4	10.5	10.5	92.1
	Strongly disagree	3	7.9	7.9	100.0
	Total	38	100.0	100.0	

Table 9: Cost

The Table 9 shows that 81.6% of the respondents agree that essential hardware is expensive while 18.4% disagree. Barriers in the quest for acceptance of e-learning include lack of infrastructure especially connectivity in rural areas, given that infrastructure is costly (Eke, 2010:277).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	4	10.5	10.5	10.5
	Agree	26	68.4	68.4	78.9
	Disagree	8	21.1	21.1	100.0
Total		38	100.0	100.0	

Table 10: Maintenance

The Table 10 shows that 78.9% of the respondents agree that maintaining e-learning is costly while 21.1% disagree. Suddaby and Milne (2008:114) affirm that maintaining consistent quality in e-learning is a challenge. Sharma (2011:659) argues that technology alters quickly and this makes it hard to estimate the costs associated with it.

It was found that nearly eighty two percent of the participants agree that there is strong administrative backing for using technology while 18.4 disagree. An organisation's efforts can contribute to the achievement of universal access for an interactive medium by supporting its employees' to use technology (Lin and Ha, 2009:572). If not present managerial, technological and professional support posed significant obstacles to achieving technology integration (Ertmer *et al.*, 2012:423).

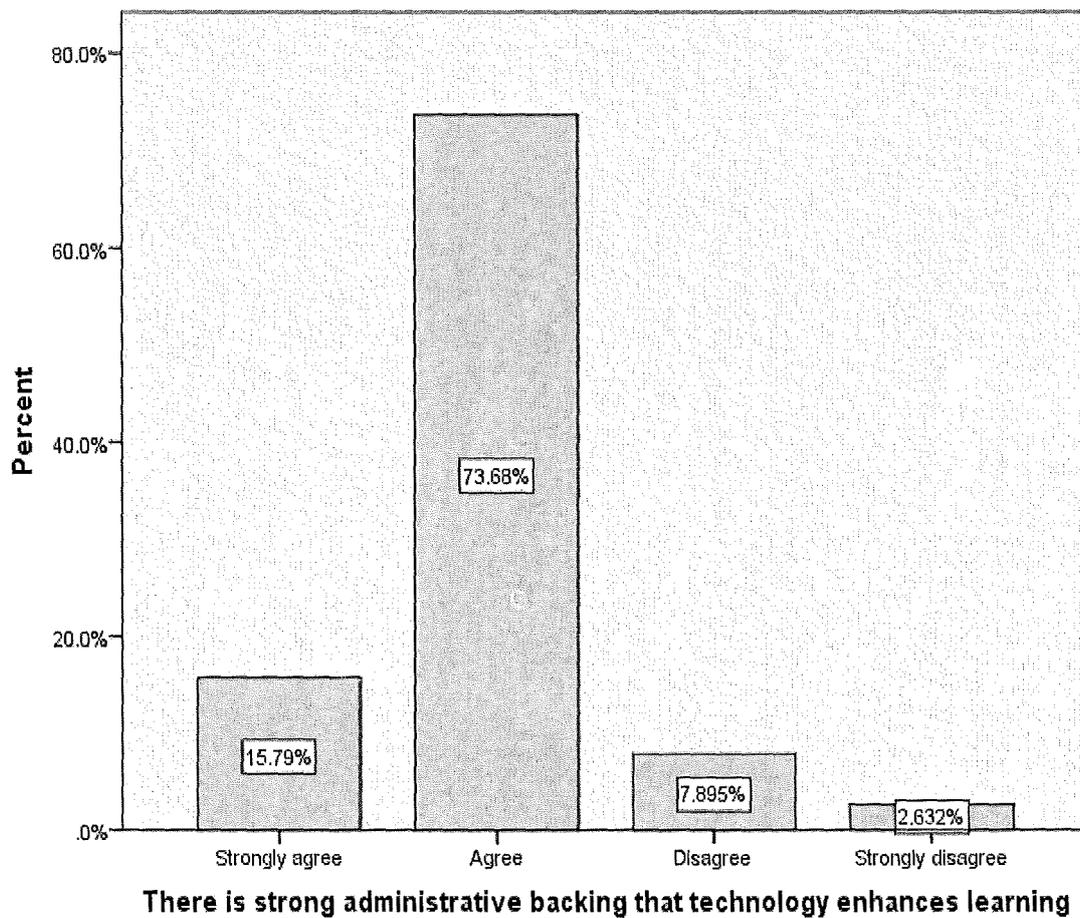


Figure 9: Administrative support

Figure 9 shows that 89.5% of the participants agree that there is administrative backing that technology enhances teaching and learning while 10.5% disagree. Ocak (2011:690) states that managerial support is a challenge to e-learning implementation because without managerial support, lecturers struggle with technical details of e-learning.

We also found that nearly eighty two percent of the participants agree that there is technical support for technology based activities while 18.4% disagree. E-learning is an innovative area and its features are relatively strange to many organisations. Sharma (2011:658) believes that it may be necessary for an organisation to use professional advice to define its strategy.

Similarly, we also found that nearly ninety seven percent of the respondents agree that computer training empowers lecturers while 2.6% disagree. New sets of skills may be required by staff from basic information technology learning, skills to learn new ways of interacting (Harris, Connolly and Feeney, 2009:158); an organisation can provide training sessions for their employees to encourage their use of technology (Lin and Ha, 2009:572).

4.6 How this can be used to ensure proper e-learning?

The research question asks how this can be used to ensure proper e-learning; it has five sets of questions.

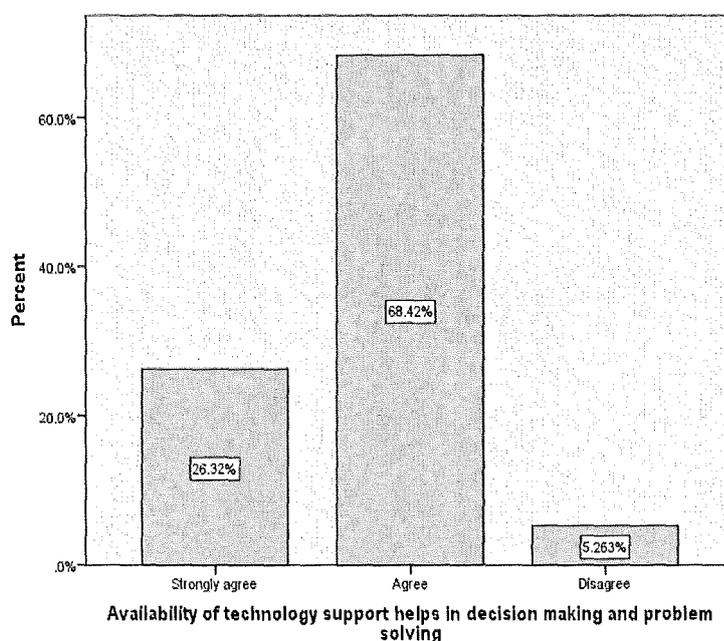


Figure 10: Availability

The Figure 10 shows that 94.7% agree that availability of technology support helps in decision making and problem solving while 5.3% disagree. Technology provides students with social and cognitive stimulation and adds to the interaction between students and educators; and electronic media channels allow the educational sector to meet an increasing demand for education and to overcome the time and place constraints of traditional classroom-based course delivery (Schroeder, Minocha and Schneidert, 2010: 159).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	9	23.7	23.7	23.7
	Agree	28	73.7	73.7	97.4
	Strongly disagree	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

Table 11: Resources

Similarly, we also found that nearly ninety seven percent of the respondents agree that management support of e-learning improves integration while 2.6% disagree. Managerial support is a challenge to e-learning implementation because without managerial support, lecturers struggle with technical details of e-learning (Ocak, 2011:690). Management plays an important role in e-learning integration and Al Senaidi, Lin and Porot (2009: 575) assert that organisational variables could be an integration barrier. Additionally, Lin and Ha (2009:572) state that organisational efforts can contribute to the achievement of universal access for an interactive medium.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	15	39.5	39.5	39.5
	Agree	22	57.9	57.9	97.4
	Disagree	1	2.6	2.6	100.0
	Total	38	100.0	100.0	

The table 4.6.3 shows that 97.4% of the respondents agree that continuous use of computers increases the ease of use while 2.6% disagree. Perceived ease is the degree to which a person believes that using a particular system would be free of physical and mental effort and when individuals participate in an event or task it is interesting and enjoyable; they show more engagement in the activity (Tselios *et al.*, 2011:225).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	12	31.6	31.6	31.6
Agree	25	65.8	65.8	97.4
Disagree	1	2.6	2.6	100.0
Total	38	100.0	100.0	

Table 12: Development

The Table 12 shows that 97.4% of the respondents agree that adequate resources support development of technology based activities. Teaching and learning is extremely resource exhaustive; innovation and collaboration require money, resource and time (Sharma, 2011:659). E-learning implementation requires resource assessment at human, financial and technical level which is vital within the design process (Harris, Connolly and Feeney, 2009:159). Limitation of resources poses a threat to institutions that have visions and goals to execute the big dream (Eke, 2010:286).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agree	13	34.2	34.2	34.2
Agree	21	55.3	55.3	89.5
Disagree	3	7.9	7.9	97.4
Strongly disagree	1	2.6	2.6	100.0
Total	38	100.0	100.0	

Table 13: Professional development

The Table 13 shows that 89.5% of the respondents agree that financial support enhances professional development and 10.5% disagree. E-learning implementation requires resource assessment at human and technical level, which is vital within the design process (Harris *et al.*, 2009:159). Teo (2010:127) found that various types of support (e.g. skills training, information or materials available and administrative support, finances) were very important factors which influenced the use of instructional technologies in teaching.

4.7 Relationship between different variables

Correlation is a statistical investigation of the relationship between two or more variables; it examines the extent to which differences in one characteristic are related to differences in one or more characteristics (Leedy and Ormrod, 2010:108)

		AGE	Length of years working
AGE	Pearson Correlation	1	.524**
	Sig. (2-tailed)		.001
	N	38	38
Length of years working	Pearson Correlation	.524**	1
	Sig. (2-tailed)	.001	
	N	38	38

** . Correlation is significant at the 0.01 level (2-tailed).

Table 14: Correlations- 1

Table 14 shows that most of the participants have worked for six years and below and the majority of participants are below the age of forty years. There is a strong positive correlation (.524) between the variables. Age determines the length of service.

	Classroom management is more difficult when using technology	Teaching using technology is time consuming
Classroom management is more difficult when using technology	Pearson Correlation Sig. (2-tailed) N	1 .345* 38
Teaching using technology is time consuming	Pearson Correlation Sig. (2-tailed) N	.345* 1 38

*. Correlation is significant at the 0.05 level (2-tailed).

Table 15: Correlations - 2

Table 15 shows that there is a weak positive correlation (.345) between the variables. This means that time consumption on e-learning is independent of classroom management. E-learning is not time consuming and classroom management does not determine its effectiveness. The advantage of e-learning is that it is free of time constraints according to Mohammadi *et al.*, (2011:465).

	Teaching using technology is efficient	Feel nervous and anxiety when dealing with computer
Teaching using technology is efficient	Pearson Correlation Sig. (2-tailed) N	1 -.378* 38
Feel nervous and anxiety when dealing with computer	Pearson Correlation Sig. (2-tailed) N	-.378* 1 38

*. Correlation is significant at the 0.05 level (2-tailed).

Table 16: Correlations - 3

The Table 16 shows that there is weak negative correlation (-.378) between the variables. Technology efficiency can weakly predict lecturers' anxiety hence independent of each other. This implies that technology efficiency does not depend on lecturers' feelings. ICT has the potential of improving the quality of teaching (Al Senaidi *et al.*, 2009:575)

		Technology is unreliable	I have received training on using technology for teaching
Technology is unreliable	Pearson Correlation	1	.041
	Sig. (2-tailed)		.809
	N	38	38
I have received training on using technology for teaching	Pearson Correlation	.041	1
	Sig. (2-tailed)	.809	
	N	38	38

Table 17: Correlations - 4

The Table 17 shows that there is no relationship between the two variables as the correlation is very weak (.041). This means that lecturers' perceptions of e-learning are independent of their training. Training has no effect on lecturers' perceptions. The finding is important as perception has played a role in e-learning acceptance (Eke, 2010:285)

		I feel adequately trained on the skills needed to use technology	I believe using computers with students increase their learning
I feel adequately trained on the skills needed to use technology	Pearson Correlation	1	.093
	Sig. (2-tailed)		.578
	N	38	38
I believe using computers with students increase their learning	Pearson Correlation	.093	1
	Sig. (2-tailed)	.578	
	N	38	38

Table 18: Correlations - 5

Table 18 shows that correlation between the two variables is very weak (.093) which implies that they are not dependant on each other. Lecturers' attitudes that computer enhances students' learning do not depend on the lecturers' training on e-learning. Lecturers' attitudes on e-learning are important as they determine the user's behavioral intention and actual usage (Roca and Gagne, 2008:1586).

	I believe that technology makes my job as teacher/manager easier	There is inadequate financial support to develop technology based activities
I believe that technology makes my job as teacher/manager easier	Pearson Correlation Sig. (2-tailed) N	1 .322 38
There is inadequate financial support to develop technology based activities	Pearson Correlation Sig. (2-tailed) N	.322 1 38

*. Correlation is significant at the 0.05 level (2-tailed).

Table 19: Correlations - 6

Table 19 shows that there is a weak positive correlation (.322) between the variables which means inadequate financial support to develop technology based activities can weakly predict whether technology will make the lecturers' jobs easier. Lecturers' beliefs on e-learning are not influenced by financial support for e-learning. One of the factors affecting integration of e-learning is educators' beliefs in technology as confirmed by (Karaca, Can and Yildirim, 2013:353)

	Essential hardware is expensive	Technology training is expensive
Essential hardware is expensive	Pearson Correlation Sig. (2-tailed) N	1 .149 38
Technology training is expensive	Pearson Correlation Sig. (2-tailed) N	.149 1 38

Table 20: Correlations - 7

Table 20 shows that correlation is very weak (.149) which means that the variables are not related. Essential hardware expense is independent of technology training

expense. Essential hardware is expensive despite expensive technology training. Barriers in seeking to accept e-learning include lack of infrastructure especially connectivity in rural areas (Eke, 2010:277).

		There is strong administrative backing for using technology
Maintaining e-learning is costly	Maintaining e-learning is costly	
Pearson Correlation	1	.252
Sig. (2-tailed)		.127
N	38	38
There is strong administrative backing for using technology	There is strong administrative backing for using technology	
Pearson Correlation	.252	1
Sig. (2-tailed)	.127	
N	38	38

Table 21: Correlations - 8

Table 21 shows that there is a weak positive correlation (.252) which means that the variables are not associated. This implies that maintaining e-learning is perceived as costly despite management support for it. Teaching and learning is extremely resource exhaustive; innovation and collaboration require money, resources and time (Sharma, 2011:659).

It can be seen that the correlation is very weak (.168) which means the two variables are not linked. Management support on e-learning is independent of presence of technical support. Management support of e-learning facilitates its integration. Administrative efforts can contribute to the achievement of the universal access for an interactive medium by supporting its employees to use technology (Lin and Ha, 2009:572).

		Availability of technology support helps in decision making and problem solving
Computer training empowers lecturers	Pearson Correlation Sig. (2-tailed) N	1 .223 .178 38
Availability of technology support helps in decision making and problem solving	Pearson Correlation Sig. (2-tailed) N	.223 .178 38

Table 22: Correlations - 8

Table 22 shows that there is weak positive correlation (.223) which means the two variables do not influence one another. Computer training empowers lecturers whether or not there is availability of technology support. Designing and developing e-learning entails courses, seminars, workshops, curriculum development technical and pedagogical knowledge which are vital resources (Assareh and Bidokht, 2011:791).

		Management support of e-learning improves its integration	Continuous use of computers increases the ease of use
Management support of e-learning improves its integration	Pearson Correlation Sig. (2-tailed) N	1 .126 .451 38	.126 .451 38
Continuous use of computers increases the ease of use	Pearson Correlation Sig. (2-tailed) N	.126 .451 38	1 38

Table 23: Correlations - 9

Table 23 shows that correlation is very weak (.126) which means that the two variables are independent of each other. Continuous use of computers increases the

ease of use whether management support e-learning integration or not. Perceived ease of use (Roca and Gagne, 2008:1586) determines e-learning recognition.

	Adequate resources support development of technology based activities	Adequate financial support enhances professional development
Adequate resources support development of technology based activities	Pearson Correlation Sig. (2-tailed) N	.424** .008 38
Adequate financial support enhances professional development	Pearson Correlation Sig. (2-tailed) N	.424** .008 38

** . Correlation is significant at the 0.01 level (2-tailed).

Table 24: Correlations - 10

Table 142 shows that Correlation is (.424) which means that the two variables are positively associated and influence each other. Resources play a role in professional development and technology based activities. E-learning implementation requires resource assessment at human, financial and technical level which is vital within the design process (Harris, Connolly and Feeney, 2009:159).

4.8 Conclusion

The data was analysed using descriptive statistical analysis to get percentages and correlation coefficient to get any association between the variables. The findings are in four sections; demographic findings, constraints faced by facilitators findings, constraints faced by the institution findings and how this can be used to ensure proper e-learning findings. The results were compared to literature review for any similarities or differences.

This chapter has helped in the analysis and identification of findings that corroborate, are in agreement and contradict the literature review. The findings helped in answering the research questions in Chapter two; was also used in writing conclusion and recommendations in Chapter five as well.

The next chapter will highlight the main findings of the research and use the findings to draw closing conclusion. The chapter will make recommendations for future researchers, Taletso FET Campus and other higher learning institutions as well as any other interested institutions.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter will review and summarise the main results of the study from Chapter four; identify, highlight and discuss important areas, the meaning of the results and their implication in the study. The findings will be used to draw final conclusions and make recommendations.

The main objective of the study was to find out the constraints that hold back e-learning execution in higher education (Taletso FET Campus). Identification of limitations faced by institutions; challenges faced by the lecturers and how this can be used to ensure proper e-learning were the central focus of the study.

This chapter consists of introduction, summary of the study, summary of the main findings for each research question from Chapter four, final conclusion drawn from the study findings and recommendations for future researchers and the institution (Taletso FET Campus).

5.2 Summary of the study

E-learning adds value to the teaching process in higher education. Despite the knowledge of e-learning's value, institutions have not incorporated it in their teaching due to challenges that face them. The challenges are the main focus of this study.

5.3 Summary of the main findings

The summary will be in three sections.

5.3.1 Response to the research question

The research question constitutes three sections.

5.3.1.1 Challenges faced by the facilitators

Facilitators face constraints to e-learning implementation. These include perceptions, attitudes, beliefs and lack of skills (Kimery and Amirkhalkhali, 2011:41). The findings in section 4.4 show that majority of respondents 63.1% agree that classroom management is not difficult when using technology. 76.3% of the participants agree that teaching using technology is not time consuming. 94.1% of the participants agree that they do not feel nervous and anxious when dealing with computers. Findings show that 63.2% of the respondents agree that technology is reliable and 65.9% of the participants agree that they have received training on using technology for teaching. 63.2% of the participants agree that they feel adequately trained on the skills needed to use technology. 100% of the respondents believe that using computers with students increases their learning and 100% of the participants believe that technology makes their work easier. In short, majority of the participants agree with the statements in all areas of this section.

The results in section 4.4 show that the participants have good attitudes to and good perceptions of e-learning. It further shows that participants' beliefs regarding e-learning are positive and that they have received adequate training on e-learning. Literature reveals that e-learning implementation challenges faced by facilitators are negative attitudes and perceptions, mistaken beliefs and lack of skills (Assareh and Bidokht, 2011:791). In this study the results show that the above mentioned variables are not among the challenges faced by lecturers. Even though the results show that the participants have received adequate training on e-learning; one can conclude that participants are not completely skilled because the participants have not had a chance to practice it.

5.3.1.2 Challenges faced by the institution

Constraints faced by institutions in seeking to implement and develop e-learning strategies and practices include lack of finance, cost of infrastructure, training expense and institution's beliefs (Eke, 2010:277).

Results in section 4.5 show that the majority (86.9%) of the respondents agree that there is inadequate financial support to develop technology based activities. Additionally, it shows that 81.6% of the participants agree that essential hardware is expensive. It further shows that 86.3% of respondents agree that technology training is expensive. In addition 78.9% of the respondents agree that maintaining e-learning is costly. 81.6% of the participants agree that there is strong administrative backing for using technology. 89.5% of the participants agree that there is strong administrative backing that technology enhances learning. 81.6% of the respondents agree that there is technical support for technology based activities and 97.4% agree that computer training empowers lecturers. The majority of the participants concur with the statements in all areas of this section.

Findings in section 4.5 reveal that there is inadequate financial support to develop technology based activities. It also shows that essential hardware is expensive; technology training is expensive and maintaining e-learning is costly. The results further show that the administration backs the use of technology. Additionally, the findings show that the management also supports that technology enhances learning; there is technical support for technological based activities and computer training empowers lecturers.

The results in section 4.5 imply that there is inadequate financial support to develop technology based activities. This confirms agreement among researchers. The results also confirm scholars agreement in literature review that infrastructure is costly, maintaining e-learning is pricey as well as training of lecturers. Cost of infrastructure, maintaining e-learning and training of lectures are barriers to e-learning implementation in this study. Management supports the use of technology and it

supports that technology enhances learning. It also believes that computer training empowers lecturers. Managerial support on e-learning is not a barrier to e-learning implementation in this study.

5.3.1.3 How this can be used to ensure proper e- learning

There are practices that can facilitate and ensure proper e-learning for instance continuous use of computers to enhance ease of use; support of e-learning by the administration improves its incorporation. Availability of financial and technical support facilitates professional development (Lin and Ha, 2009:572), (Tselios *et al.*, 2011:225) and (Teo, 2010:127).

Results in section 4.6 shows that 94.7% of the respondents agree that availability of technological support helps in decision making and problem solving. It also shows that 97.4% of the participants agree that management support of e-learning improves its integration. Additionally, it shows that 97.4% of the participants agree that continuous use of computers increases the ease of use. Further, the results show that 97.4% of the respondents agree that adequate resources support development of technology based activities. Results show as well that 89.5% of the respondents agree that financial support enhance professional development.

Section 4.6 shows findings which corroborate previous work in this field that technical support facilitates professional development. The results show as well that management support of e-learning enhances its integration which supports previous research. The results also confirm the literature that resources support development of technology based activities. Further, the findings show that continuous use of computers increases the ease of use which supports the literature, once again.

5.3.1. 4 Relationship between variables (correlation)

The relationship in variables helps in identification of variables that are an advantage or disadvantage to e-learning implementation. Findings in section 4.7 shows (correlation .524) age determines the length of service and this is important as most of the lecturers have stayed in one work place for longer period are below the age of forty.

The results also show (correlation.345) time consumption on e-learning is independent of classroom management. E-learning is not time consuming and classroom management does not determine its efficiency. It is an advantage of e-learning; it is free of time constraint.

Further, the results show (correlation -.378) technology efficiency can weakly predict lecturers' anxiety, hence the variables are independent of each other. This implies that technology efficiency does not depend on lecturers' feelings. ICT has the potential of improving quality of teaching.

Additionally, the findings show (correlation .041) that lecturers' perception on e-learning is independent of their training. The finding is important as perception has played a role in e-learning acceptance.

The results further show, (correlation.093) lecturers' attitudes that computer enhances teaching and learning does not depend on the lecturers' training on e-learning. Lecturers' attitudes to e-learning are important as they determine whether they will accept it or not.

The results show as well (correlation .322) that inadequate financial support to develop technology based activities can weakly predict whether technology will make the lecturers' job easier. Lecturers' beliefs regarding e-learning is not influenced by financial support for e-learning. Educators' beliefs play a role in e-learning integration.

The results also show (correlation.149) that essential hardware expense is independent of technology training expense. Essential hardware is expensive despite expensive technology training. Cost of infrastructure is disadvantage to e-learning implementation as it is a barrier.

The findings further show (correlation .252) that maintaining e-learning is costly is independent of management support for e-learning. Maintaining e-learning is costly despite management support for e-learning. Cost of e-learning is a disadvantage.

Additionally, the results show (correlation.168) that management support of e-learning is independent of presence of technical support. This is important as management support of e-learning facilitates its integration.

Further, the findings show (correlation .223) that computer training empowering lecturers is not influenced by availability of technology support. Empowerment of lectures through training enhances e-learning incorporation.

In addition, the results show (correlation.126) that continuous use of computers increases the ease of use is not dependant on management support e-learning integration. Continuous use of computers increases the ease of use whether the management's support e-learning integration or not. Perceived ease of use increases e-learning implementation.

The finding also show (correlation is .424) that resources play a role in professional development and technology based activities. E-learning implementation requires resource assessment at human, financial and technical level.

5.4 Recommendations

Attention needs to be paid on how to implement e-learning in order to improve the standard of education consistent with that of competitors.

- To fight the challenge, Taletso FET Campus management needs to evaluate its perception that e-learning is costly otherwise it will compromise the quality of education and hence risk lagging behind in terms of provision of quality education.
- The management of Taletso FET Campus should attend conferences and seminars on how to deal with challenges to e-learning implementation.
- The management of Taletso FET Campus should read books as well on solutions to e-learning implementation challenges. Educational development will help management to tackle the constraint and also assist them change their perception on e-learning.
- Further, based on the findings above, lack of finance was another challenge realised. Consequently in an effort to fight the challenge, Taletso FET Campus management needs to look for funds from the government by discussing their desires and intentions concerning e-learning implementation.
- Taletso FET management could form partnership with non-governmental organisations or private sectors in order to obtain funds.
- The government should discuss policies on how to fund institutions that cannot afford to implement e-learning due to lack of resources especially in rural areas.
- The management should seek advice from consultants on e-learning to help them implement e-learning on a small budget.
- The management could also seek help from higher learning institutions who have already integrated e-learning as it will assist them avoid unnecessary expenses.
- The management should create awareness, involve and seek opinion from parents, lecturers, students and the community and discuss on a way forward concerning e-

learning implementation challenges. Support from stakeholders is necessary as they need to be part and parcel of solving the challenge.

5.5 Limitations

Due to standardised type of questionnaires, the researcher could not get the real feelings from the respondents; as they could be having different opinions and attitude concerning difficulty in e-learning implementation. It is hoped that future researchers will take the qualitative research approach or mixed method because these methods could help to gather detailed information on constraints to e-learning implementation.

This study focused on one institution and only represents e-learning implementation challenges of the institution. Therefore data or findings of the study cannot be used to generalise or show the broader picture of e-learning constraints in higher learning as it is not necessarily representative of other higher learning institutions.

5.6 Conclusions

The purpose of this study was to investigate the challenges to e-learning implementation at Taletso FET Campus. The study findings are in line with previous researchers that cost, lack of finance and managers' beliefs are the challenges faced by the institution. Facilitators' attitudes, lecturers' perceptions, lack of training and educators' beliefs are not challenges faced by the facilitators. Technical support, managerial support and availability of resources ensure use of e-learning.

Taletso FET Campus is at risk of being less competitive and lagging behind in terms of quality education. To solve the issue of quality education at Taletso FET Campus, there is a need for e-learning implementation. To overcome e-learning challenges, the management needs to evaluate its perception on e-learning.

In addition, through the involvement of the government, private sectors and stakeholders, the management could receive help and hence implement e-learning successfully.

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Appendix A: Matrix used

References	Concept per source	E-learning strives for excellence	E-Learning	Definitions of e learning	Forms of e-learning	Advantages of e-learning	Disadvantages of e-learning	Adoption	Attitude and perception	Lack of skills	beliefs	Managerial support	Lack of finance	infrastructu
Reference per concept														
Lin, chen and Wang 2009	1		p.83											
Owen, and Price 2010	2		p.130 p.133											
Gaodong, zhongjiao 2010	3	p.576			p.576									
Harries, Connolly, Feeney 2009	4												p.159	
Eke 2010	5			p.275,p.276	p.277	p.278	p.284,p.278	p.274	p.285				p.277 p.286	p.277 p.286
Mkhize and Lubbe2010	6				P.421									
Nwezeh 2010	7					p.688	p.688	p.690						
Taylor, Goede and Steyne 2011	8	p.28												
Goktas, Gedik and Baydas 2013	9	p.211						p.211			p.211			
Male and Pattison 2011	10	p.332												p.335
Daim and Nuri 2007	11	p.470												
Summak, Samancioglu and	12	p. 1725				p.1725		p.1726						

Baglibel 2010								
Guha and Maji 2008	13	p.298 p.297	p.67	p.297,p.299				
Khan, Moon and Rho 2010	14	p.79						
Wang, Zhu, Chen and Yan 2009	15	p.79, p.67	p.299					
Abdelaziz, Kmal, Karam and Abdelrahman 2011	16		p.50					
Asserah and Bidokht 2011	17		p.791	p.791	p.791	p.791		
Hsbollah and Idris 2009	18		p.55	p.55				
Soraya, Aichouni and Nehani 2010	19		p.328					
Almonte, Andreu and Rejas 2010	20		p.141					
Zhao, Mcornell and Jiang 2009	21		p.91					
Mohammadi, Ghorbani and Hamidi 2011	22		p.465	p.465				
Ozourcaun and Tebak 2012	23			p.300	p.301			
Ocak 2010	24			p.690	p.689	p.691	p.690	
Fleck 2012	25			p.399				

Poon 2012	26	p.129	p.132					
Schroeder, Minocha and Scheidert 2010	27		p.160					
Doneshdoust and Gagh 2012	28		p.607					
Eugine, Molia and Garcia 2008	29		p.164					
Gikas and Grant 2013	30		p.18	p.18				
Senaidi, Lin and Poirot 2009	31		p.575	p.575				
Aladejane 2009	32		p.134	p.134	P.133			
					p.134			
Veigh 2009	33			p.93				
Suddably and Milne 2008	34			p.114				
Sharma 2010	35			p.659				p.659
Kopcha 2012	36				p.1109			
Etmer, Leftwich, Sadik, Sendurur, and Sandurur	37				p.423		p.423	
Tselios,DaskaliksPapadopoulou 2011	38				p.224			
Roca and Gagne 2008	39				p.1586			
Teo 2010	40					p.127		
Karaca, Can and Yildrin 2013	41						p.353	

Sheih 2012	42		p.207	p.207			
Lin and Ha 2009	43				p.572		
Sebolai and Ogutu 2011	44				p.8		
Taylor, Goeda and Steyne 2011	45						
Kimery, and Amirkhalkhali 2011	46	p.41					

Appendix B: Questionnaire development matrix

Questionnaire section	Type of research question	Question Nr.	Survey question	Response option	Data type	Appropriate data measure	Appropriate Statistical Test and Graphs
Section 1	demographic questions	1.1	Please tick your age in the appropriate block	Under 30, 31-40, 41-50, 51-60, over 60	Discrete	Ordinal	Bar chart
		1.2	What is your gender	Male, Female	Dichotomous	Nominal	Pie chart
		1.3	How long have you been working at Taletso	Less than 3, 4-6, 7-9, more than 9 years	Discrete	Ordinal	Bar chart
		1.4	What type of post are you in at work?	Managerial, lecturer	Dichotomous	Nominal	Pie chart

Section 2	constraints faced by the facilitators Questions	2.1	Classroom management is more difficult when using technology	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.2	Teaching using technology is time consuming	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.3	Teaching using technology is efficient	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.4	Feel nervous and anxiety when dealing with computer	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.5	Technology is unreliable	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.6	I have received training on using technology for teaching	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.7	I feel adequately trained on the skills needed to	Strongly agree, Agree, Disagree, Strongly	Continuum	Scalar (Likert scale)	Bar chart

use technology disagree

Section 3	constraints faced by the institutions	2.8	I believe using computers with students increase their learning	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		2.9	I believe that technology makes my job as a teacher easier	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.1	There is inadequate financial support to develop technology based activities	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.2	Essential hardware is expensive	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.3	Technology training is expensive	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
	Questions						

		3.4	Maintaining e- learning is costly	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.5	There is strong administrative backing for using technology	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.6	There is strong administrative backing that technology enhances learning	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
		3.7	There is technical support for technology Based activities	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
Section 4	How can this be used to ensure proper e - learning Questions	4.1	computer training empowers lecturers	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart

4.2	Availability of technical support helps in decision making and problem solving	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
4.3	Management support of e-learning improves its integration	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
4.4	Continuous use of computers increases the ease of use.	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
4.5	Adequate resources supports development of technology based activities	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart
4.6	Adequate financial support enhance professional development	Strongly agree, Agree, Disagree, Strongly disagree	Continuum	Scalar (Likert scale)	Bar chart

PART3:Constraints faced by the facilitators Please mark only ONE option per question below	.	PART4:Constraints faced by the institutions Please mark only ONE option per question below
Classroom management is more difficultwhenusing technology <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree	14	There is inadequate financial support to develop technology based activities <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
Teaching using technology is time consuming <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree	15.	Essential hardware is expensive <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
Teaching using technology is efficient <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree	16	Technology training is expensive <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree
Feel nervous and anxious when dealing with computer <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree	17.	Maintaining e-learning is costly <input type="checkbox"/> Strongly agree <input type="checkbox"/> Agree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly disagree

