BARRIERS TO E-LEARNING AMONGST POSTGRADUATE BLACK STUDENTS IN HIGHER EDUCATION IN SOUTH AFRICA

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Thesis presented in partial fulfilment of the requirements for the
degree of Master of Philosophy
(Information and Knowledge Management)

STELLENBOSCH UNIVERSITY

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FEBRUARY 2008

DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature: ....   Date: ....

ABSTRACT

Computer literacy plays a major role in today's education system. The South African Department of Education has included computer literacy to be one of the subjects from primary school education. The purpose of this study is to identify barriers of e-learning amongst postgraduate black students in higher education in South Africa. Most of the higher education institutions in South Africa have introduced the e-learning method as one of the mediums of instruction in offering courses at their institutions.

For some higher education institutions, e-learning has proven to be a good teaching and learning method and for some it has been a problem from the implementation phase. There are some factors that have not been identified as barriers for e-learning to take place successfully. By identifying those factors it will bring more benefit to those higher education institutions that are finding e-learning a delight to work with. The institutions that are battling with e-learning may find solutions on how to successfully implement and get benefits from e-learning.

This study will identify the challenges that learners, instructors and course developers experience on the e-learning path. Solutions to the challenges experienced in the South African higher education system may serve in promoting e-learning to higher education institutions and corporate organisations in the country. Traditional learners may also be motivated and encouraged to give e-learning a try. As a country, South Africa is exposed to challenges like poverty and increased unemployment rate; education may serve as a tool in addressing the challenges. The country shows success in distance education, many working people have managed to develop their skills and qualification through distance education. It is a challenge for government and higher education institutions to make e-learning work in the South African education system. Identifying and eliminating barriers to e-learning may give the South African education system a chance to embrace e-learning in the same way it did to traditional learning, or even more.

OPSOMMING

In die hedendaagse opvoedkundige bestel speel rekenaar-geletterheid 'n leidende rol. Die Suid-Afrikaanse Department van Onderwys het rekenaar-geletterheid ingesluit as een van die vakke wat vanaf laerskoolvlak aangebied moet word. Die doel van hierdie studie is om die struikelblokke van e-leer onder na-graadse swart studente in hoër onderrig in Suid--Afrika te identifiseer. Die meeste Suid-Afrikaanse inrigtings vir hoër onderwys het die e-leer metode as een van die mediums van onderrig vir hulle kursusse geïimplementeer.

Vir sommige hoër onderwys–inrigtings is e-leer as 'n goeie onderrig en leermetode bewys, terwyl ander sedert die implementeringsfase probleme daarmee ondervind. Daar is sommige faktore wat nog nie as struikelblokke tot die sukses van e-leer geïidentisiffiseer is nie, maar sou sodanige faktore wel identifiseer word, sal dit meer voordele inhou vir daardie hoër onderwysinrigtings wat e-leer as werksmetode as 'n vreugde ervaar. Die inrigtings wat met e-leer sukkel mag oplossings vind hoe om e-leer suksesvol te implimenteer en waarde daaruit te kry.

Die studie sal daardie uitdagings wat leerders, instrukteurs en kursus-ontwerpers op die e-leer roete ondervind, identifiseer. Oplossings vir die uitdagings wat in die Suid-Afrikaanse hoër onderwys-bestel ondervind word, kan die gebruik van e-leer binne hoër onderwys—inrigtings en korporatiewe organisasies binne die land aan—moedig. Tradisionele leerders mag ook gemotiveer en aangemoedig word om e-leer te probeer. Met meer Suid-Afrikaanse leerders en organisasies wat inby e-leer betrokke raak, sal dit help om oplossings te vind vir die struikelblokke wat ervaar word met e-opleiding in die land se hoër onderwys-bestel.

DEDICATION

This work is dedicated to

My loving parents

Sara and Richard Takalani

You have been an inspiration and always made me believe in myself and that; "no mountain is too big to conquer".

ACKNOWLEDGEMENTS

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Chapter 1

Introduction and Overview

1.1   Introduction

In this chapter, the research problem will be discussed and relevant illustrations will be given. The research will look at the challenges that have been brought due to technology advancement and how that fits in our education system and learning activities for postgraduate black students in higher education... The aim of the study is stated and the research methodology that will be adopted in the study has also been highlighted. A general outline of the chapters in the study has been indicated.

1.2   Research problem

The Department of Education has emphasised in the on e-Education Bill that Information and Communication Technology (ICT) is creating new ways of learning and it has the potential to enhance the management and improve the level of education in South Africa[1]. The potential of ICTs to drive the education system cannot be over emphasized. The global use of ICTs has promoted the need for the integration of ICTs into all spheres of life, be it at work, at home, in schools or in the field of entertainment[2].

There are an increased number of black learners who have enrolled with different universities, technikons and colleges for distance education and learning is offered through e-learning. E-learning is becoming one of the most common means of using ICT to provide education to learners both on and off campus[3]. It is the researcher's argument that some of the previously disadvantaged higher education institutions in South Africa are not well resourced; they are confronted with lack of computers and other resources to support e-learning. E-learning in fact requires more than technologies to take place, there

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[1] Department of Education, 2004
[2] Herselman, M.E. 2003. ICTs in Rural Areas in South Africa p 256.
[3] Mutula, S. 2003. Assessment of Africa's Telematics, Policy and Regulatory Infrastructure: Potential for E-learning p 1.

is a need for academic professionals that are well trained in ICT, who are capable of using e-learning systems and develop learning materials that address the needs of South African learners. Local based technicians are also needed to maintain equipment and e-learning systems and tools.

The focus of this study is to identify factors that act as barriers to the success of e-learning amongst postgraduate black students at higher education in South Africa. The study will also take into account the fact that in spite of the drawbacks faced by most higher education institutions, some higher education institutions have managed to introduce e-learning into their curriculum successfully. The successful integration of e-learning in higher education can only be realised if the appropriate technologies which can prevent some of the barriers hindering the introduction and success of e-learning are provided, that can give previously disadvantaged South African higher education institutions an equal footing to compete with other countries on e-learning offerings. E-learning should be given the same attention that is directed to traditional learning to make a success of it in South Africa especially in previously disadvantaged institutions.

1.3 Aim of the study

The aim of this study is to investigate the barriers to e-learning that are faced by black postgraduate students at higher education institutions in South Africa. The study will reflect on training, learning strategies, learning tools and techniques that are used and perceived as appropriate for higher education training and how they can overcome the barriers and challenges. It is hoped that the findings of this study, will provide an important insight into the future integration of online learning strategies by South African higher education institutions.

1.4 Research methodology

The research methodology in this study is of qualitative nature. A group of learners were studied over a period of time to identify the barriers that are experienced by black postgraduate students in South African higher education institutions. Interviews, observation method and literature review will be conducted to gather information. A huge

part of data collection in this study came from the literature study. Research methodology will be discussed in detail in chapter 2

1.5   Terminology or keywords used in the study

For the purpose of this study, e-learning is defined as an instructional tool that covers a wide set of applications and processes as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It also includes the delivery of instructional content via the Internet, intranet/extranet, audio and videotape, satellite and CD-ROM[4].

E-learning is often used as a generic term and synonym for online education[5]. The term distance learning is sometimes used synonymously with online learning in the sense of technology-assisted distance learning[6].

Web Based Learning (WBL) can be defined as the use of learning that is delivered in a Web browser and can include materials that are packaged on CD-ROM or other media. Web-based learning is a major subcomponent of the broader term e-learning. With the support of the above-mentioned arguments, in this study, the term "e-learning" will be used interchangeably with "online learning, web based learning, and distance learning"[7].

Asynchronous learning is the web-based version of computer-based training (CBT), which is typically offered on a CD-ROM or across an organisation's local area network (LAN)[8].

Distance learning or education is a form of education characterised by the quasi-permanent separation of teacher and learner throughout the length of the learning process[9].

E-learning is the use of internet technologies in learning, which vendors claimed represented an entirely new paradigm[10].

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[4] Klein, D, Ware, M. 2003. New opportunities in continuing professional development p 34.
[5] Van Greunen, D, Wesson, J.L. 2004. Exploring Issues p 73.
[6] Welch, T. 2005. Designing and Designing p 186.
[7] Van Greunen, D, Wesson, J.L. 2004. Exploring Issues p 73.
[8] Cantoni, L, McLoughlin, C. 2004. Educational Multimedia p 867.
[9] Rekkedal, T. 2002. Internet based e-learning, online.
[10] Paton, R, Peters, G, Storey, J, Taylor, S. 2005. Handbook of corporate.

Face-to-face learning can be described as the traditional classroom environment where the teacher is in charge of teaching and learning[11].

Intranet is a LAN or WAN which is owned by a company and is only accessible to employees[12].

Synchronous learning is any learning event delivered in real--time to remote learners which include immediate two way communication among the participants[13].

Traditional learning classrooms (traditional face-to-face classrooms) are learning centers with instructors who have control over class content and learning process[14].

1.6   Outline of the chapters

Chapter 1 provides an introduction, background of the study, aim for the study, research question, research design (the research approach, participants in the research sampling, data collection techniques and analysis), research programme.

Chapter 2 focuses on the research design and the research methodology used in this study. The chapter entails details of the research approach, procedures in research, data sampling collection methods and analysis techniques.

Chapter 3 focuses on literature by different authors, what their views are on higher education, issues and challenges facing higher education in South Africa, literature on e-learning in different learning environments, benefits and challenges of e-learning.

Chapter 4 describes the data gathering process, interviews and observations conducted to determine the challenges of e-learning that are experienced by learners, course instructors and course developers.

Chapter 5 focuses on the findings of the study, recommendations on how to improve e-learning on further or future research on related topic.

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[11] McCormack, C, Jones, D. 1998. Building a web-based p 290.
[12] Morrison, D. 2003. E-learning strategies p 381.
[13] Zhang, D., Zhao, J.L., Zhou, L, Nunamaker J.F. 2004 Can e-learning replace classroom learning p 77.
[14] Zhang, D., Zhao, J.L., Zhou, L, Nunamaker J.F 2004 Can e-learning replace classroom learning p 78.

1.7 Conclusion

In this chapter, the focus of the study was introduced, the research problem and the aim of the study was identified. The aim of the study as indicated is to identify barriers of e-learning amongst postgraduate black students in higher education in South African institutions. To avoid ambiguity, the researcher has defined keywords that will be used throughout the study.

The next chapter presents the research methodology; the type of research that will be conducted, types of methods that will be used to gather data and analyse data.

Chapter 2

Research Methodology

2.1　　Introduction

In this chapter a detailed description of the research methodology will be outlined. This will include the description of the research methodology and data collection methods and qualitative data analysis. Qualitative data analysis applied in this study will be described. The trustworthiness of the study and the ethical aspects relating to research of this nature will be discussed. This study was conducted between April 2006 and June 2007.

2.2　　The research design

A research design is a set of guidelines and instructions to be followed in addressing the research problem[15]. It enables the researcher to anticipate what the appropriate research decisions should be as to maximise the validity of the eventual results. A research design can also be described as an entire process of research from conceptualising a problem to writing the narrative[16]. It can be utilized on how to proceed in determining the nature of the relationship between variables. This study has been set to identify the barriers of e-learning amongst postgraduate black students at a South African university.

2.2.1　　Overview of the research

A research design can be compared to a route planner for a traveller and should be considered like a blueprint of the research project that actually precedes the research process[17]. As a blueprint of the research, the researcher will use the research design as a step-by-step process to outline what needs to be done in the study. The research design process will be followed in order to maximize the validity of the research findings. The steps taken will be indicated throughout this chapter.

2.2.2　　Qualitative research design of the study

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[15] Mouton, J. 1996. Understanding Social Research p 107.
[16] Creswell, J. 1998. Qualitative Inquiry p 2.
[17] Mouton, J. 1996. Understanding Social Research p 107.

Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem[18]. It allows the researcher to build a complex, holistic picture, analyze words, report detailed views of informants and conclude the study in a natural setting. For a study to qualify as being qualitative; there are certain characteristics that it needs to adhere to; here are some of the characteristics that have been applied in this study[19]:

- It focuses on the meaning that people have constructed.

- The researcher is the primary instrument of data collection and analysis.

- It usually involves fieldwork.

This study is composed of twenty (20) e-learners and two lecturers who play the roles of programme facilitators and content developers. The multiple sources of information included interviews, observations and literature review. The researcher was the primary instrument for data collection and analysis. The researcher interacted with the learners during the study and observed their behaviour in their natural setting, at the center where they are based. This study served the purpose to gain knowledge and a better understanding of the barriers experienced by postgraduate black students in e-learning in higher education in South Africa.

2.3   Participants in the research and sampling

Sampling is a means whereby the researcher decides on analytic grounds what data to collect and where to find them[20]. The participants in the study are twenty black learners registered for postgraduate degree through a highly recognised university in South Africa that is the sample that will be will be investigated. A sample is a subset of the whole population which is actually investigated by a researcher and whose characteristics will be generalized to the whole population[21].

Purposive or judgmental sampling was used in this study; the participants were selected on the basis of accessibility. This kind of sampling is based on the researcher's judgment;

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[18] Creswell, J. 1998. Qualitative Inquiry p 14
[19] Merriam, S. 1998. Qualitative Research p 10.
[20] Strauss, A. 1997. Qualitative Analysis p 38.
[21] Creswell, J. 1998. Qualitative Inquiry p 18.

the researcher has to choose the units that are judged to be representative of the population that is being investigated[22]. It is stated that purposeful or theoretical sampling is commonly done to obtain qualitative material[23].

In this study, the selected sample is a group of learners based in Pretoria in Gauteng Province, the researcher is also based in Pretoria and that made accessibility convenient as less costs were involved to interact. The learners are studying towards an honours degree. Learners that participated in this study were composed of both males and females, their age group ranges from 22 to 28 years. The name of the higher education institution and names of the participants were not identified to protect their identity.

The learners are based in one of the research councils in Gauteng so that they can have access to computers and other facilities needed to make their studies or studying possible. The learners are studying through e-learning method and there is no physical contact between the learners and the facilitators.

It is argued that sampling takes place following the establishment of the circumstances of the study clearly and directively[24] and the researcher has taken that into consideration before selecting the sample in this study. Sampling in qualitative research is described as relatively limited, based on saturation not representative, the size not statistically determined, involving low cost and not being time consuming[25]. Nonprobability sampling was used. It is argued that in nonprobability sampling, the researcher has no way of forecasting, estimating, or guaranteeing that each element in the population will be represented[26]. Convenience or accidental sampling and quota sampling have been identified as the two types of nonprobability sampling. Convenience or accidental sampling makes no pretense of being representative of a population; it takes the units as they arrive on the scene or as they are presented to the researcher by mere happenstance[27]. The sampling in this study constitutes a convenience sampling, as the researcher happens to work in the same institution where the learners are based.

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[22] Bless, C, Higson-Smith, C. 1995. Fundamentals of Social Research p 95
[23] Malterud, K. 2001. Qualitative Research p 3.
[24] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L 2002. Research at grass roots p 334.
[25] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L. 2002. Research at grass roots p 334.
[26] Bless, C, Higson-Smith, C. 1995. Fundamentals of Social Research p 95
[27] Leedy, P.D. 1997. Practical Research p 204

2.4 Data collection methods

Data collection is a series of interrelated activities aimed at gathering good information to answer emerging research questions[28]. In this study a qualitative approach was applied, with observation, interviews conducted and literature review. A huge part of data collection in this study came from the literature study and the findings from the literature study will be used to validate the findings of the research. The reason for using qualitative approach was that the participants (lecturers or facilitators and e-learners) were deliberately chosen because of the contribution that they could make to the study.

To collect the data there are various methods that the researcher can use or choose from. The following data collection methods have been identified: participant observation, interviewing, unobtrusive measurement, systematic observation, producing videotapes and taping proceedings of meetings[29]. The following methods were used in this study: simple or non-participant observation, interviewing and document analysis. The data collection methods used in the study will be discussed in detail in the following sections.

2.4.1 Interviews in the study

An interview is a data collection encounter in which one person (an interviewer) asks questions and the other person (a respondent) responds[30]. It may be conducted face-to-face or by telephone. The main purpose of the interview is to obtain a special kind of information[31]. Interviews can give a researcher an understanding of the people that he or she is interviewing; it is an attempt to understand the world from the participant's point of view, to unfold the meaning of people's experiences and to uncover their lived world prior to scientific explanations[32].

Interviews were suitable for this type of study; it enabled the researcher an opportunity to interact with the participants in the study. The researcher was able to gather information from the e-learners and the programme facilitators.

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[28] Creswell, J.E. 1998. Qualitative Inquiry p 110.
[29] Mouton, J. 1996. Understanding social research p 36 & Strauss, A. 1997. Qualitative analysis p 27
[30] Babbie, E. 1999. Basics of Social Research p 234
[31] Merriam, S. 1998. Qualitative Research p 71.
[32] Kvale, S. 1989. Issues of validity in research p 20

At the beginning of all interviews, the researcher explained the purpose of the research to the participants. The researcher asked the participants for a verbal consent to participate in the study. The participants were assured that the interviews will be short and will not take up too much of their time. The participants were also assured they will remain anonymous, their names will not be reflected anywhere in the study.

Semi structured interviews were used in this study. Semi structured interviews are interviews that are organized around areas of particular interest that expand closed-form questions with probes designed to obtain additional, clarifying information[33]. The researcher had a list of prepared questions that the participants were asked (see appendix A) and the participants were allowed to do most of the talking in a conversational manner. The participants were encouraged to speak freely and to express their perceptions and opinions.

The same set of questions was asked to all the learners and there was a different set of questions for course facilitators and content developers (see appendix B). The researcher wanted to find out the barriers to online learning from the facilitators, course developers and learner's perspective. Interviews were conducted in October 2006. The average length of an interview was about 15 -20 minutes per learner.

The researcher recorded responses of the participants while talking to the participant so that the researcher could refer to the data at a later stage. The advantages of using semi-structured interviews is that they allow for the discovery of new aspects of the problem by investigating in detail some explanations given by the respondents[34].

2.4.2   Observation in the study

Observation is a special skill that requires management of issues such as the potential deception of the people being interviewed, impression management and the potential marginality of the researcher in a strange setting[35]. Observation method was also applied in this study. Learners were observed while they were busy working on the computer, busy with assignments, tutorials and searching for information. Observation method was

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[33] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L 2002. Research at grassroots p 298
[34] Bless, C, Higson-Smith, C. 1995. Fundamentals of Social research p110.
[35] Creswell, J. 1998. Qualitative inquiry and research design p 125.

applied in this study in order to collect rich data that could have been missed out during interviews. Observational data represents a firsthand encounter with the phenomenon of interest rather than a secondhand account of the world obtained in an interview[36].

There are four roles that a researcher can assume while collecting information as an observer. The roles are identified as follows[37]:

- Complete participant – in this role, the researcher becomes a member of the group being studied and conceals his or her observer role from the group so as not to disrupt the natural activity of the group.

- Participant as observer- in this role, the group knows the researcher's observer activities and the group is subordinate to the researcher's role as a participant.

- Observer as participant – in this role, the group knows the researcher's observer activities and participation in the group is definitely secondary to the role of information gatherer.

- Complete observer – the researcher in this role is either hidden from the group or in a completely public setting such as an airport or library.

In this study, the researcher assumed the role of observer as participant. It is indicated that the focus of the observer should be on the everyday and natural experiences of the respondents and that the researcher should gain feelings, impressions and experiences of the real world the participants do, by living, sharing and interpreting their activities[38]. Observation enabled the researcher to identify certain behaviours that participants tried to conceal during interviews. The observation method allowed the researcher to note some expressions e.g. facial expressions that the participant were not aware of or could not put in words during interviews.

In qualitative research, it is imperative for researchers to separate the evidence from secondhand sources and hearsay from the evidence derived from direct observation of behaviour in place[39]. It is also important to ensure that the observer has had enough time

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[36] Merriam, S. 1998. Qualitative research p 95
[37] Merriam, S. 1998. Qualitative research p 100
[38] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L. 2002. Research at grass roots p 280.
[39] Mays, N, Pope, C. 1995. Qualitative Research p 110.

to become thoroughly familiar with the environment under investigation and that the participants have had the time to become accustomed to having the researcher around.

The disadvantage of this method is that people who feel that they are being observed may change their behaviour, become uneasy or stop activities altogether[40]. In this study, the researcher observed the participants while they were busy with their assignments, tutorials or while busy searching for information and that enabled the researcher to identify some of the barriers to e-learning that were not mentioned during interviews and were not found in the literatures that have been read as part of data collection in this study.

2.5　　Qualitative data analysis

Data analysis is the process of making sense out of the data and to make sense out of data, the researcher has to consolidate, reduce and interpret what the people have said[41]. Data analysis can also be described as a process of bringing order, structure and meaning to the mass of collected data and that data analysis in a qualitative study involves a twofold approach[42]. The identified approaches involve data analysis at the research site during data collection and the other one involves data analysis away from the site following a period of data collection. The two data analysis approaches identified has been applied in this study to identify the barriers to e-learning in higher education.

For a study to qualify as qualitative it usually has to rely on inductive reasoning processes to interpret and structure the meanings that can be derived from data[43], in this study factors that were identified as cause and effects of barriers to e-learning were considered for inductive reasoning purposes. Qualitative data analysis is described as a continuous iterative enterprise of selecting, focusing, simplifying, abstracting and integrating the data[44]. Data analysis occurs as an explicit step in practically interpreting the data set as a whole using specific analytic strategies to transform the raw data into a new and sound description of the thing being studied.

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[40] Bless, C, Higson-Smith, 1995. Fundamentals of social research p 105.
[41] Merriam, S.1998. Qualitative research p 178.
[42] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L.2002. Research at grass roots p 339
[43] Thorne, S. 2000. Data Analysis p 69.
[44] Miles, M.B., Huberman, A.M. 1994. Qualitative data analysis p 119

Data processing entails bringing order, structure and meaning to the mass of the data collected[45]. It is further argued that data processing involves a continual process of looking for meaning by sorting reiteratively through the data[46]; it enables researchers to be able to draw conclusions or verifications before, during and after data gathering in parallel form. Qualitative data processing should comply with the following criteria[47]:

- Important issues, variables or themes should be identified.

- Discoveries ought to be made about how these variables, issues or theme patterns interrelate in the bounded system.

- Explanations need to be given about how these interrelations influence the phenomena under study.

- Fresh new insights need to be advanced.

Data processing in this study complied with the above-mentioned criteria. There are seven operations that that can be used in data manipulation[48]. They are as follows: categorisation, abstraction, comparison, dimensionalisation, integration, iteration and refutation. There could be other operations that are used in data manipulation, those identified are what has been applied in this study. It is argued that qualitative data represent large amounts of information and analysis implies abstraction and some degree of generalisation and analysis involves decontextualisation and recontextualisation[49]. It is further indicated that during analysis researchers should have a thorough knowledge of the study material so that they are aware of the content of the data and what they mean and so they are able to ascertain what in the material is relevant when trying to answer the research question.

Data processing could occur before data is collected, as the researcher decides which conceptual framework, which cases, which research questions and which data collection methods to use[50]. Once this has been done, the large amount of data from the various

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[45]Marshall, C., Rossman, G.B. 1998. Designing qualitative research p 112.
[46] Johnson, S.D, Aragon, S.R, Shaik, N, Palma-Rivas,N. 2000. Comparative analysis of learner p 20.
[47] Johnson, S.D, Aragon, S.R, Shaik, N, Palma-Rivas. 2000. Comparative analysis of learner p 90
[48] Spiggle, S. 1994. Analysis and interpretation of qualitative data, online
[49] Malterud, K. 2001. Qualitative research p 4, online
[50] Merriam, S. 1998. Qualitative research and case study p 198.

gathering techniques will have to be consolidated. For this study the researcher systematically worked through the data that had been collected, identified and summarized the factors or issues that were identified as the barriers to e-learning in higher education. The general findings of the inquiry will be discussed in chapter 4.

2.6   The trustworthiness of the study

For the researcher to ensure validity and reliability in a study, it involves conducting the investigation in an ethical manner[51]. Validity is concerned with the soundness, the effectiveness, of the measuring instrument[52]. Two parts of validity that one has to focus on has been identified, the instrument has to measure the concept in question and the concept has to be measured correctly[53]. One can conclude that the concept in question cannot be measured accurately if a wrong instrument is used to measure it.

Reliability is defined as the consistency with which a measuring instrument performs[54]. Reliability in research is primarily concerned with how well the concept is being measured and not with what is being measured[55] and the more reliable the instruments and observations, the more consistent and dependable the results. The following paragraphs show the steps that were undertaken to ensure the trustworthiness of this study.

2.6.1   Internal validity

Internal validity is the degree to which the findings correctly map the phenomenon in question[56]. The following strategies discussed below were used to enhance the internal validity of this study.

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[51] Merriam, S. 1998. Qualitative research and case study p 198
[52] Leedy, P. 1997. Practical research planning and design p32
[53] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L.2002. Research at grass roots p 166.
[54] Leedy, P. 1997. Practical research planning and design p35
[55] De Vos, A.S, Strydom, H, Fouche, C.B., Delport, C.S.L. 2002. Research at grass roots p 168
[56] Silverman, D. 2000. Doing qualitative research p 90

- Triangulation

Triangulation is an approach that involves using diverse sources of data so that one seeks out instances of a phenomenon in several different settings, at different points in time or space[57]. The aim of triangulation is to increase the understanding of complex phenomena, not criterion validation in which agreement among different sources confirms validity[58]. In this study data was collected through observation, semi structured individual interviews and document analysis. Multiple sources can be used to validate a study and that was applied in this study[59]. In this study, e-learners and facilitators or lecturers of the programme were involved to share their experiences and perceptions on e-learning.

- Long -term observation

To increase the validity of the findings, data gathering took place over a period of time. The learners were observed for a period of months while they were busy with their studies.

- Members checks

Participants in this study were involved throughout the report writing by checking the data and the results with them.

- Researcher bias

The researcher is a part time learner who is studying through online learning, the researcher wants to find out more about the challenges that learners experience through e-learning. To minimise researcher bias in the presentation of the results, it is important that the presentation of the research allows the reader to distinguish the data, the analytic framework used and the interpretation and in this study the researcher has adhered to that principle[60].

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[57] May, N., Pope, C. 1995. Qualitative research p 109 & Seale, C. 1999. The quality of qualitative research p 54.
[58] Malterud, K. 2001. Qualitative research p 5
[59] Merriam, S. 1998. Qualitative research and case study in education p 201.
[60] May, N., Pope, C. 1995. Qualitative research p 109.

2.6.2   External validity

External validity is the degree to which findings can be generalised to other settings similar to the one in which the study occurred[61]. There are factors that the researcher must consider in order to achieve high external validity. The two factors identified are as follows[62] and those are the factors that have been applied in this study.

- The sample must be representative of the population in question. The sample that has been chosen for this study are learners that are studying through online learning and the results of this study can be applied in other e-learning situations.

- To make sure that the study replicates the real world as closely as possible; the researcher conducted the study while the learners were busy with their normal study processes e.g. when they were busy working on their assignments or busy with a test.

2.6.3   Ethics

Ethical dilemmas are likely to occur in qualitative studies with regards to the collection of data and in the dissemination of findings[63]. Research participants have certain ethical rights; these are rights to privacy, voluntary participation, anonymity and confidentiality[64]. To prevent any ethical dilemmas to emerge in this study, the researcher explained to the participants what the study was all about and its purpose. The participants gave a verbal consent before the study was conducted. The participants were assured that their names or the institution that they are studying through will not appear anywhere in the report.

During interviews participants were told to notify the researcher if they were not comfortable to disclose certain issues or information and not to answer any questions that compromised them in any way. The interviews were conducted with utmost respect and the participants' needs and interests were taken into consideration.

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[61] Silverman, D. 2000. Doing qualitative research p 90.
[62] Bless, C., Higson-Smith, C. 1995. Fundamentals of social research methods p 82.
[63] Merriam, S. 1998. Qualitative research p 213.
[64] Bless, C., Higson-Smith, C. 1995. Fundamentals of social research methods p 102.

2.7   Limitations of the study

During the research process, the researcher could not avoid having data contaminated by bias of one sort or another and failing to acknowledge the possibility of such limitations is unethical and unprofessional[65].

The following limitations of this study should be noted:

- The research only involved learners from one higher education institution.

- The researcher will not generalise the results of the study but would rather contextualise the study.

- More e-learning instructors and developers could have been involved in the study, in this study the lecturers who have been interviewed serve as instructors and developers of the course materials.

- There are limited South African literatures that address barriers to e-learning in higher education, the researcher referred to international literature for some arguments in the study.

2.8   Conclusion

In this chapter, the concepts of the research that was introduced in chapter 1 have been discussed in detail. This chapter has aimed to clarify the systematic process of data collection followed, from its initial gathering, through its analysis and to the consolidation of the final findings. That was done because it is reported that understanding the various components of research and their interrelated nature is essential in conducting a valid research and deducting the findings from the study.

The next chapter will focus on the literature study relating to higher education, distance education, status of e-learning in South African higher education institutions and challenges of e-learning in higher education. The researcher had to study different literatures to examine issues or factors that have been identified as barriers to e-learning; one has to ascertain for sure if the same applies to the South African situation or context.

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[65] Leedy, P. 1997. Practical research planning and design p 220.

Chapter 3

Literature study of higher education

3.1   Introduction

This chapter addresses issues such as the use of online learning in higher education institutions and corporate environment, benefits and barriers of online learning in higher education institutions. The researcher focused on South African higher education, the e-Education Bill and the role that the South African education department plays in regulating learning activities and the use of ICTs in higher education institutions. The findings from the literature study will serve an essential role in supporting or opposing the findings from this study.

3.2   Higher education

As the study focuses on the barriers to e-learning in the context of higher education, one has to be able to understand the state of higher education in South Africa; the challenges that are being faced and the role the government plays in the education system. With this background, it will give the researcher an opportunity to broaden the understanding of what is entailed in the higher education system in South Africa.

The South African Department of Education has categorized formal education according to three levels, General Education and Training (GET), Further Education and Training (FET) and Higher Education and Training (HET)[66]. In this study, higher education will refer to education beyond the secondary level, especially education at the college or university level. According to Davies[67] education has become a commodity in which people seek to invest for their own personal gain, to ensure quality of opportunity and as a route to a better life. It is further indicated that the demand for higher education is expanding exponentially throughout the world and by 2025 as many as 150 million people will be seeking higher education.

The increased demand to higher education can be attributed to the knowledge driven society. It is argued that society requires higher levels of skills and qualifications to fill

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[66] Department of Education,2004 online
[67] O'Neill,K. Singh,G., O'Donoghue, J. 2004. Implementing e-learning programmes. P48

the same worthwhile jobs[68]. Knowledge has been identified as a critical asset for organisations wishing to survive in the global market place and that learning is crucial for new economic conditions as it lays the foundation for knowledge construction[69]. One tends to agree with the idea that higher education plays an important role in our country; the minimum requirement for one to be employed in a skilled position is a diploma or degree that is related to one's field. It is in such roles that e-learning can contribute in producing skilled people that the country needs; people can study further to increase the skilled work pool while occupying full-time positions without leaving their work places or homes to attend classes.

Distance learning, once a poor and often unwelcome stepchild within the academic community, is becoming increasingly more visible as a part of higher education[70]. As the study unfolds, it will be clear what role e-learning plays in the higher education system. Putting together and applying the principles and effect of e-learning in higher education, one will be able to identify the challenges that are being experienced in higher education institutions.

Considering the above stated views of different authors and applying it to the South African context, the whole country with the influence of the president of the country and his cabinet have implemented Joint Initiative on Priority Skills Acquisition (JIPSA) programme to address the problem of scarce skills. The acquisition of those identified as scarce skills is driven through training in higher education institutions. Already, that shows how important it is for South Africa to succeed and maintain high standards in higher education and to make it happen with limited obstacles or barriers. Information and Communication Technology falls under the identified scarce skills that need to be developed in the country[71].

To make sure that skills are developed, the Department of Education is one of the forerunners in the country to fight poverty through education. The Department of Education is set on developing, maintaining and supporting a South African education

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[68] O'Neill,K. Singh,G., O'Donoghue, J. 2004. Implementing e-learning programmes p 56
[69] Wesley, D. 2002. A critical analysis on the evolution of e-learning p 42
[70] Merisotis, J.P., Phipps, R.A. 1999. What is the difference p 16.
[71] Department of Education. 2004. online

and training system for the 21st century. In the fight against lack of scarce skills, the Department of Education has passed the E-education white paper bill in 2003 to address the use of ICT in schools.

3.3   E-Education - White Paper 2003

The Department of Education indicates that ICT has improved the quality of education and training as in other spheres of social and economic development and it is for these reasons that the government has seized on the importance and practical benefits of ICT as a key for teaching and learning in the twenty-first century[72]. President Thabo Mbeki has emphasised the importance of ICT for social and economic development at numerous South African and international forums: We have to use the technology to overcome the problems that our continent faces[73]. That should serve as motivation to the country to use technology in communities, the private sector and education institutions.

In response to all the challenges related to technology that South Africans have been facing, the government introduced e-Education Bill to address some of those challenges. According to the Department of Education, the concept of electronic education revolves around the use of ICT to accelerate the achievement of national education goals. It is about connecting learners to other learners, teachers to professional support services and providing platforms for learning. The idea is for e-learning to connect learners and teachers to better information through the use of effective instructional methods and technology.

The e-Education policy goal is that every South African learner in the general and further education will be ICT capable (that is, use ICT confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013. The introduction of e-learning (learning through the use of ICT) in education represents an important part of government's strategy to improve the quality of learning and teaching across the education and training system. The e-Education Bill portrays South Africa as a nation or country that has recognised the value of the use of ICT in the education system. In this study a background of ICT in education

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[72] Department of Education, online
[73] Mbeki,T. 2001 Imbizo for African Youth.. online

is needed to understand the roles that the government plays in the education system, particularly with the use of e-learning. An overview of the role of higher education in the South African education system will be presented.

3.4 Role of higher education in South Africa

Higher education plays three major roles in the South African education system. The three roles are explained as follows[74]:

- **Human resources development**

To mobilise human talent and its potential through lifelong learning to contribute to the social, economic, cultural and intellectual life of the fast ever changing society.

- **High-level skills training**

People should be provided with training to provide them with skills to strengthen the country's enterprises, infrastructure and services. Professionals should be developed with skills that will enable them to perform or compete globally.

- **Producing, acquiring and applying new knowledge**

National growth and competitiveness depend on technological improvement and innovation driven by a research and development system which combines the research and training capacity of higher education.

These are the guidelines that higher education system should follow to achieve the outcomes that are expected by South African citizens and the government regardless of the learning method used whether traditional or e-learning.

3.5 Growth of Information and Communication Technology in higher education

Information and Communication Technology (ICT) is the technologies which together support people's ability to manage and to communicate information electronically. Examples of such technologies are, computers, digital cameras, video recorders, televisions and radios. In this study ICT will be used to refer the set of activities and tools

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[74] Department of Education. 2004. online

that facilitate the capture, storage, processing, transmission and display of information by electronic means to enhance teaching and learning.

It is argued that there are many aspects of the socio-economic and technological environment that still need attention in developing countries[75]. These aspects include adequate telecommunications infrastructure, reliable power supply, a need to provide basic educational facilities and reducing the learner-teacher ratio to acceptable levels for effective learning. As is the case in many African developing countries, South Africa seems to be addressing most of the challenges it is experiencing in the education sector. It shows that as a country, South Africa has realised how far back it still is in ICT, especially in the education sector and is working hard to address the problem.

Since year 2000 there has been an increase in interest in technology in many higher education institutions in South Africa and more institutions are spending more of their budgets on ICT infrastructure[76]. South Africa wants to match or compete with the standards of other countries' higher education institutions. The move is towards a knowledge society and Information and Communication Technology is considered to be a prerequisite of the knowledge society. For people working at the interface of technology, teaching and learning, it is accepted that technology is a prerequisite for the enhancement of teaching and learning, research, communication and access to information. In the knowledge society one cannot access information without technology[77].

It is argued that technologically based education (e-learning) can be seen as a way to address the increased demand for higher education in the world[78]. The idea is further illustrated by stating that the use of technology for teaching at universities can serve the public more cost-effectively and can in particular prepare learners better for a technologically based society. A study was conducted to identify some of the universities

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[75] Uys, P.M., Nleya, P., Molelu, G.B 2004. Technological innovation and management strategies p 68
[76] Czernierwicz, L., Ravjee, N., Mlitwa, N.2006. Higher education monitor information and communication technologies p 7
[77] Czernierwicz, L., Ravjee, N., Mlitwa, N.2006. Higher education monitors information and communication technologies p 7.
[78] Uys, P.M., Nleya, P., Molelu, G.B 2004. Technological innovation and management strategies p 69

in South African higher education that are playing a role in the growth of ICT through online learning[79], the identified universities are discussed in the next paragraphs.

One of the missions of the University of South Africa (UNISA) is to address the needs of a diverse learner profile by offering relevant learner support that is facilitated by suitable information and communications technology[80]. To offer sufficient learner support, UNISA categorized its online environment into two areas; a non-secure web environment that is used mainly to provide general information, and a secure environment that is divided into three sections: Lecturers Online, Learners Online and Staff online for support staff. The university's online areas will not be discussed in detail; it is just to highlight the role the institution is playing in promoting ICTs in higher education.

Another higher education institution that is showing growth in the use of ICTs is the University of Pretoria. The University of Pretoria's educational approach is based on a telematic education paradigm which uses different ICT including interactive multimedia, computer based assessment, interactive television, video-conferencing and Learning Management Systems (LMS). The other university indicated was the University of Johannesburg. The university is using for its online education approach the system called WebCT Vista.

Learners used to go to the above mentioned universities from far to attend classes. A typical example will be the University of Johannesburg where part time learners used to attend classes in the evening and on Saturdays. Even though they are still doing that, learners have a choice of that or studying through e-learning. There could be other universities and colleges that are involved in e-learning; the three indicated universities were only used as examples in this study.

3.6   Concerns in South African distance education

The following have been identified as some of the concerns in South African distance education; staffing, programme development and materials review[81]. There may be other

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[79] Kinuthia, W., Dagada, R. 2006. Assessment of ICT in higher education in South Africa p 1
[80] Kinuthia, W., Dagada, R. 2006. Assessment of ICT in higher education in South Africa p 4
[81] Welch, T., Reed, Y. 2005. Designing and delivering distance education p 45.

issues of concern, but for this study, the focus will be on the above mentioned issues. These will be discussed in detail in the following paragraphs.

- **Staffing**

Previous studies showed that the workload for academics/course coordinators is often underestimated. They are responsible for assessment design, tutor training, monitoring and support, quality management of assessment and response to learner queries. At some distance education institutions, academic staff is responsible for the coordination of between three and five courses. This means that their time is spent almost entirely on writing tutorial letters and they do not have time to engage tutors, train, and support them and ensure that their work is up to standard. Therefore lack of administrative staff to support academic/course coordinators is proposed to be a barrier to e-learning in higher education.

- **Programme development**

It is argued that the analysis of the needs of the target audience, collection maintenance and use of learner information is critical in distance education. Learners are not often met face-to-face; extra efforts need to be made to understand the varying contexts and needs of learners to avoid unnecessary dropout of learners. The learning materials should be designed in such a way that they substitute the teacher. The learner should be able to use them with fewer hassles. Learning materials and programmes that are complicated and difficult for learners to follow pose as a barrier to e-learning.

- **Materials review**

On the issue of course materials, it is indicated that distance education course materials are used for too long without being updated. References made in the material may be 15-20 years out of date. One would find that courses do not even reflect changes in the world; it becomes difficult for the learner to identify with the learning material and in such cases learning can be a bit complicated.

3.7   Comparisons between traditional learning and
e-Learning

In this study, the term traditional learning will be used interchangeably with classroom learning or face-to-face learning. Some comparison between traditional and e-learning will be made from time to time because society is more accustomed to traditional learning. So in this study some literature were consulted to gain a basic understanding of what traditional learning is all about, where it can be offered, its shortcomings together with its limitations.

The traditional learning environment is described as teaching and learning in a face-to-face situation where the teacher imparts knowledge and learners are the recipients of this knowledge[82]. In this environment learners are taught the same content at the same time and then assessed on how much was learned.

The e-learning environment generally consists of the following components: virtual events taking place in virtual classrooms or lecture halls; self-paced education delivered over the Internet; collaboration in the form of learning groups, chat rooms, or discussion groups, competency road maps supplying a custom learning plan based on personal goals and the profession of the learner[83]. Traditional learning instruction requires an instructor, one or more learners and a shared space and time[84]. The difference with e-learning is, what is primarily needed is one or more learners who can take the instruction over the same or different time and or space. In e-learning learners do not have to be necessarily in the same room for the interaction to take place; learning can still take place while the learners are on different sides of the world.

Traditional or face-face instructional environments have been criticized because they encourage passive learning, ignore individual differences, needs of the learners, and do not pay attention to problem solving, critical thinking, or other higher order thinking

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[82] Lynch, K., Markham, S. 2003. The winds of change: learners' comfort level in different learning environments p 40.
[83] Zabunov, S., Ivanov, K. 2003. Methods and forms of teaching information systems p 141.
[84] Erkunt, H. 2004. Developing systematic quality e-learning p 50.

skills[85]. It is further argued that instead of being passive, learners should actively construct knowledge for themselves by selecting relevant material, reflecting and interpreting the chosen material, the constructed knowledge and finally be able to understand and comprehend the result of the active search. One can also add that traditional learning encourages passive behaviour in that the learner has to sit still and listen to the teacher and unnecessary disruptions to the class are not welcomed whereas with e-learning the learner has freedom to move around and can learn and do other things at the same time.

The need for the learner to be physically present in the classroom for learning to take place in traditional learning might be one of the reasons why learners are being attracted to e-learning, where there is no need for physical presence in the classroom for learning to take place. It can be argued that for those learners who prefer physical presence for learning to take, they would be so lost in e-learning, so lack of physical presence can be a barrier to e-learning. The focus of this study is not to investigate which learning method is better than the other, the idea was just to have an understanding on the basics of traditional learning; e-learning is still the main focus area of this study.

3.8   E-Learning

3.8.1   Categories of e-Learning

E-learning can be classified into two broad categories, synchronous and asynchronous[86]. Synchronous learning uses a learning model that imitates a classroom course, lecture or meeting using internet technologies. The interaction is live in synchronous learning; it requires all the participants to be available at the same time. Asynchronous learning is described as a web based version of computer based training (CBT), which is typically offered on a CD-ROM or across an organisation's local area network (LAN). The learner can access the course at any time at his or her own pace. The focus of this study is more on asynchronous learning. Different types of e-learning will be illustrated in the following chapters.

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[85] Johnson, S.D, Aragon, S.R, Shaik, N, Palma-Rivas. 2000. Comparative analysis of learner satisfaction and learning outcomes p 29
[86] Cantoni, L., McLoughlin, C. 2002. Web based learning p 867.

3.8.2 Types of e-Learning

The following types of e-learning will be discussed in this study; web-based training, supported online learning and informal e-learning[87].

- **Web-based training**

In corporate training, technology is used primarily through web based learning to deliver content to the end user without significant interaction with (or support from) training professionals, peers or managers. A significant industry has grown up around this web based training e-learning, content authoring, content asset management, instructional design and learning management.

- **Supported online learning**

This type of e-learning is used mostly in higher education. It is because the majority of the content of the course may be delivered through lectures or through distance-education textual material. The course is categorised as e-learning because the interaction with the instructor, the dialogue with other learners, the searching for resource materials, the conduct of collaborative activities, the access to course outlines and supporting material are all conducted online.

- **Informal e-learning**

There are growing opportunities for technology to support informal learning in the workplace. Many knowledge intensive organisations link technology with knowledge management.

The focus in this study will be on supported online and web-based learning which as described can be more applicable in higher education. Different approaches that are applied in universities and in corporate environment training will be discussed in the following paragraphs but before that, a brief explanation on how e-learning evolved as a learning tool will be discussed.

3.8.3 Evolution of e-Learning as a learning tool

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[87] Sloman, M. 2004. The e-learning revolution from proposition to action p 40.

The early forms of e-learning were generally the result of existing training materials being transformed into an electronic medium[88]. The term e-learning first emerged in late 1999. Suppliers of computer-based training were full of optimism and were considering the implications of delivery through the web[89]. During that time e-learning was placed on a pedestal promising to revolutinise education in the workplace due to its flexibility, self-pacing capabilities and huge cost savings in comparison to traditional instructor lead training courses[90]. Criticism emerged as e-learning began down the path of maturity; some issues were pointed out by critics such as isolation and the importance of social interaction in the context of learning. These issues will be discussed in detail in the next paragraphs. Even with the downside and criticism, many higher education institutions in South Africa have embraced e-learning as a learning tool e.g. the three universities discussed in the previous paragraphs. In the next paragraphs, the focus of e-learning in universities and in the corporate environment will be discussed.

3.8.4   Focus of e-Learning in universities

Characteristics of e-learning in universities[91]:

- Focus on learner needs and requirements.

- Involve an integrated learning environment.

- Make use of numerous and varied learning activities.

- Require a significant amount of time from the learner.

- Hold a high expectation for higher order learning.

- Not be the sole source of content, supplementing print based and face-to-face (F2F) delivery.

3.8.5 Focus of e-Learning in corporate environment training

Characteristics of e-learning in corporate environment training[92]:

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[88] Wesley, D. 2002. A critical analysis on the evolution of e-learning p 41.
[89] Sloman, M. 2004. The e-learning revolution from proposition to action p 15
[90] Wesley, D. 2002. A critical analysis on the evolution of e-learning p 41
[91] Wilson, D., Mundell, R. 2004. E-learning development using reusable learning objects p 957.

- Focus on the organization's needs and requirements.

- Involve stand-alone courses.

- Make use of limited types of learning activities.

- Require that training time be reduced to a minimum.

- Hold a high expectation for improvement in performance.

- Be the sole source of content.

From the two indicated e-learning environments, one can conclude that there are different expectations for e-learners in the corporate environment and universities. In the corporate world, it is mostly about skills development whereas in universities it is about getting higher order learning thinking skills. Referring to the outlined differences, learners will have different expectations and experiences. From the different experiences and expectations, the learning process still has to take place. Taking into consideration the different expectations and experiences, it is argued that with e-learning people tend to focus on the "e", which stands for electronic and forget about the learning[93]. It is not only about the electronic, learning, it is more about the needs of the learner.

Developers of course content need to identify who the target audience is, what their needs are and what will be more suitable to the learners[94]. That can be derived from the different needs that may be identified for e-learning in universities and corporate training. The common factor for the two different environments is a high cost that is involved in creating custom development and high demand on the developing staff or department[95]. Let us find out how the learning process takes place through e-learning activities.

3.8.6 Learning in e-Learning

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[92] Wilson, D., Mundell, R. 2004. E-learning development using reusable learning objects p 957
[93] Masie, E. 2002. Blended learning p 16.
[94] Sloman, M. 2004. The e-learning revolution from proposition to action p 86
[95] Wilson, D., Mundell, R. 2004. E-learning development using reusable learning objects p 958.

Learning is the process by which people acquire new skills or knowledge for the purpose of enhancing their performance and it is a continuous life-long process[96]. Learning can also be regarded as a gradual process that happens through a series of shaping activities that are not always instructor initiated and that can also be referred to as tacit learning[97]. It is argued that most people have a crude mental model of learning. They assume that learning is about transmitting knowledge from teacher to learner rather than learners constructing knowledge themselves[98]. To discourage that way of thinking, it is argued that people who can ever learn, convert information into knowledge and those are active learners not teachers or technology are responsible for the transfer of that knowledge. The emphasis should move away from the teacher and technology; it should be on the learner's ability to learn.

As discussed in the previous paragraphs, for learning to effectively take place in e-learning, the focus should be moved back to learning, the learning part of the word "e-learning" should be more important regardless whether the term e-learning or online learning is used. To support that the focus should be on learning, it becomes more clear when one has to write the word "e-Learning, the "e" is written in small letters and the "L" in large letters to emphasise the learning, as the "e' is just an abbreviation[99]. It is concluded that e-learning is not about technology, it is about turning information into knowledge.

As much as one can argue that e-learning is not about technology, the fact that technologies play an important role in e-learning cannot be disputed. The emphasis on e-learning is often on the technologies used and on learning management systems (LMS) and not the learning process itself[100]. A Learning Management System is software that automates the administration of learning. It registers users, tracks courses, records data from learners and facilitators, and provides management with reports[101]. Two types of interaction in the e-learning environment that would be referred to in this study is human-

[96] Rosenberg, M.J. 2001. E-learning strategies for delivering knowledge in the digital age p 4.
[97] Greenagel, F.L. 2002. The illusion of e-learning, online
[98] Paton, R., Peters, G., Storey,J. Taylor,S. 2005. Handbook of corporate university development p 65
[99] Paton, R., Peters, G., Storey, J. Taylor, S. 2005. Handbook of corporate university development p 65
[100] Reichert, T.R., Hartmann, W. 2004. On the learning in e-learning p 1590

[101] Morrison, D. 2003. E-learning strategies p 383

human interaction through technology, also referred to as computer mediated communication and human–computer interaction.[102]. Computer mediated communication takes place through text or video chat rooms, discussion forums etc. Human-computer interaction includes educational software, simulations, etc.

To have more understanding of learning environments; eight components of effective learning environments have been identified: interactivity, institutional support, task orientation, teacher support, negotiation, flexibility, technological support and ergonomics[103]. By providing these learning environments a more significant assessment of learner satisfaction and outcomes can be obtained. It is further explained that the identified environments are compatible with both traditional and online learning. From the above discussions one can conclude that as much as e-learning is based on technologies, the learning process can still be derived from the electronic tools used, it is not all about the electronic system. In the learning process, individuality and uniqueness of learners will also play a role to influence the process, the learning orientations model shows different types of learners and how different traits influence learning process.

3.8.7   Learning orientations model

There are different kinds of learning styles and preferences in the learning process. In this section the focus is on learning orientations, not on learning styles. Learning styles focus more on the cognitive factors and tend to overlook the other factors, whereas learning orientations represent a comprehensive set of psychological factors (conative, affective, cognitive and social) that influence how individuals approach learning[104].

The learning orientations model is comprised of four learning orientations; transforming, performing, conforming and resistant learners[105]. To determine how different learners cope in e-learning, different traits of learners have been matched to the learning orientations model.

- Transforming learners

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[102] Reichert, T.R., Hartmann, W. 2004. On the learning in e-learning p 1590
[103] Johnson et al. 2000. Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments p 33.
[104] Martinez, M. e-learning p 5.
[105] Martinez, M. e-learning p 5.

In the learning orientations model this type of learner is described as an individual who deliberately uses personal strengths, deep desires, strong emotions, persistence, assertive effort, sophisticated abstract or holistic thinking ability and strategies to self-manage learning successfully. This type of learner enjoys acquiring new expertise, take responsibility and control for their learning and become actively involved in managing the learning process. E-learning adds the benefit of encouraging learners to take responsibility of their learning to build self knowledge and self confidence[106]. Transforming learners already possess those traits that e-learning can add to the benefits of the learners, it seems like this type of learner can cope with e-learning and can manage to complete the course successfully.

- Performing learners

Performing learners are identified as lower-risk, semi-skilled to skilled learners that rationally, systematically, and capably use psychological processes, strategies, preferences, self-regulated learning skills to achieve learning objectives and tasks[107]. In contrast to transforming learners, performing learners are more selective about how hard they work on learning goals. They prefer focusing on the process and steps towards attaining worthwhile goals. Performing learners enjoy coaching (e.g., guided discovery), team or group relationships, they prefer relying on available external resources, social influences, and interaction or collaboration to accomplish a task or common goal. For this type of learner, it can be difficult to adjust or cope with e-learning as in e-learning the tutor or instructor is not always available for guidance and support.

- Conforming learners

Conforming learners are described as complying learners that prefer to passively accept knowledge, store it, and reproduce it to conform. They follow simple steps to complete assigned tasks, and please others[108]. They prefer doing the easy or basic tasks first and like using step-by-step procedures to accomplish the stated objectives. They enjoy having

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[106] Broadbent, B. 2002. ABCs of e-learning – Reaping the benefits and avoiding the pitfalls p 29.
[107] Martinez, M. e-learning p 5.
[108] Martinez, M. e-learning p 5.

a clear idea about what specifically needs to be done, being shown how to do the tasks or steps, and having plenty of feedback describing how they are doing and what needs to be done next. This type of learner might not enjoy learning through e-learning, as they are dependent on the teacher or instructor's guidance for learning to take place.

- Resistant learners

This type of learner lacks an essential belief that achieving learning objectives set by others is of any value or worth the effort[109]. They cannot learn and enjoy achieving goals set by others. They believe that academic learning and achievement cannot help them achieve personal goals or initiate desired changes. A resistant learner's personal goals strongly conflict with learning goals set by others. They do not believe in formal education or academic institutions as positive, necessary, or enjoyable influences in their life. Resistant learners are a complex mixture of skilled or unskilled, motivated or frustrated, or passionate or apathetic learners. In most cases they are uninterested or aggressively disobedient learners or passionately assertive non-learners. This type of learner can be hopeless in e-learning, as e-learners should be motivated and be interested in achieving the course's objectives.

3.8.8   Some misconceptions about e-Learning

E-learning is sometimes mistakenly perceived as requiring a significant investment that only the big boys can afford. It is the large blue chip companies and public sector that have been investigating and implementing e-learning up until now[110]. However most organisations can afford to have e-learning and already most organisations and learning institutions are already using e-learning as an informal or formal tool of training or a source to disseminate knowledge.

A common misconception of e-learning is that learning has to take place by the use of packaged material in a stand alone computer[111]. Interaction still has to take place between an instructor, a learner and other learners. The packaged material is an essential part of learning but the interaction is more important. There is a debate that online instructions

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[109] Martinez, M. e-learning p 5.
[110] Leteney, F. 2004. Making it happen p 26
[111] Erkunt, H. 2004. Developing systematic quality e-learning content p 52

threaten to commercialise education, isolate learners and faculty and may reduce standards or may even devalue university degrees. One can say that those can be misconceptions of those organisations that have never been introduced to e-learning. Higher education institutions, the public sector and private companies have been using e-learning for the past few years, some organisations more successfully than others[112].

3.8.9   Instructors' or Lecturers' perceptions of e-learning

Based on a study that was conducted on an online university programme, it was found that full-time faculty's reluctance to participate in e-learning can be traced to several causes[113]: There is a perceived loss of research time because of the work involved in developing and teaching online classes. It is found that even repeated delivery of the same online course requires extensive preparation time and more effort is required to deliver a high-quality, tailored course. Also, the effort needed to maintain the quality increases as the numbers of online learners go up, so the payoff for a course's popularity is additional work to make it capable of serving more customers.

Another cause may be attributed to the fact that many faculty members feel that the financial reward structure for e-learning does not correspond to the amount of work involved. In studies conducted, faculty members show that there are few, if any, financial inducements for participation in e-learning programs. A report in the Chronicle of Higher Education noted that financial rewards for e-learning professors are decreasing as administrators come to perceive the technology as a routine element of academic duties[114].

Quality of courses prepared seems to be another area of concern for full-time faculty members. Studies conducted indicate that course quality was the top-ranked concern among full-time professors, followed closely by release time and pay issues. Preparing acceptable online materials involves far more work than reusing slides or taking a traditionally taught course and applying the same techniques and materials for online learners.

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[112] Johnson, S.D, Aragon, S.R, Shaik, N, Palma-Rivas. 2000. Comparative analysis of learner satisfaction in online and face-to-face learning environments p 30.
[113] Ruth, S. 2006. E-learning - a financial and strategic perspective p 5.
[114] Ruth, S. 2006. E-learning – a financial and strategic perspective p 7.

With all the headlines that e-learning is making especially in higher education institutions, it would benefit higher education institutions to reward their academic staff with good financial packages and to give them recognition for the work they do in e-learning. E-learning can also be made part of those prestigious projects that lecturers get recognition for, that way lectures won't feel like they are losing valuable time for research or prestigious projects because e-learning will be valued equally. Lack of recognition of hard work that academic staff deal with to facilitate and develop e-learning courses cause academic staff to be demoralized and that can decrease level of productivity and commitment and that can be identified as a barrier to e-learning.

3.9   Blended learning

Blended learning is defined as learning that involves online learning, face-to face learning, and self-paced interactions among the instructors, learners and the instructional system[115]. With blended learning more than one teaching or learning method complement each other and learners benefit from getting information from both methods. The use of hybrid models in higher education and corporate training can be highly effective because the learning model for each part has been carefully thought through[116].

Blended learning is the integration of classroom face-to-face learning experiences with online learning experiences there has to be a balanced integration between the two. The real test of blended learning is the effective integration of the two main components (face-to-face and Internet technology) such that it is not just adding on to the existing dominant approach or method. A blended learning design represents a significant departure from either of the two learning approaches.

If organisations are to achieve learning from e-learning, they must stop promoting it by dumping classroom learning[117]; the two learning methods can be more effective if combined. To support the idea, most organisations are implementing some form of blended learning; for transitional purposes and that can be a great way to initiate an organisation into e-learning. It allows organisations to gradually move learners from

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[115] Choid, K.V., Groeneboer C. 2004. Integrated cost model for blended learning environments p 1012.
[116] Greenagel, F.L. 2002. The illusion of e-learning, online
[117] Masie, E. 2002. Blended learning p 57.

traditional learning to e-learning in small steps, making change easier to accept. One may agree that the gradual move from classroom to e-learning gives institutions, learners and instructors time to adjust to the new exposed method and that can reduce some resistance to adopt the new learning method.

With blended learning users of e-learning are able to access physical learning materials and e-learning materials outside work hours and at home[118]. It is not viewed as a method of offering the training or learning but a method of accessibility and that it is effective for learning to take place. There has to be an interaction for collaborative learning to be effective and a good set of tools is required. The set of tools that is required includes a web conferencing that supports the components of the virtual classroom. It is noted that virtual classrooms are a requirement for effective learning to take place in interaction.

In most cases blended learning projects lead to over budget, low quality and late delivery[119]. There are so many factors involved in blended learning, support centres that control the blended learning life cycle, the staff that deliver the learning material and the learners who are the recipients of the blended learning experience. Blended learning is viewed to be cost-effective to the company, many companies or organisations spend a lot of money on developing materials and once the materials are outdated they are forced to get rid of them and replace them with new updated materials as they will be of no use to the organisation[120]. With blended learning, the organisation can supplement or compliment existing courseware rather than replace it. Blended seems to offer the best of the two learning methods, it can compensate or supplement the weaknesses of the other method. In most South African higher education institutions, one teaching method is used to facilitate learning; it could be through face-to-face teaching or e-learning. Many of those higher education institutions do not have the facilities to support e-learning and blended learning. One may conclude that the lack of facilities to support e-learning and blended learning may be a barrier to e-learning.

3.10   Benefits of e-Learning

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[118] Lustig, D. The truth about collaborative e-learning p 33.
[119] Choid, K.V., Groeneboer C 2004. Integrated cost model for blended learning environments p 1012.
[120] Driscoll, M. 2002. Blended learning, online

The increased use of computer and network technologies to offer instruction and provide access to information resources has the potential to change higher education significantly[121]. That will improve organisational relationships, financial operations, learner participation patterns and faculty roles and responsibilities. The use of such technologies will result in the removal of time and place constraints, with instruction available whenever the learner wants to access the information. That will increase competition among the education providers.

The main purpose of e-learning is to reduce the time people need to learn by providing specialized up to date information[122]. The central focus for e-learning is learning[123]. E-learning adds the benefit of encouraging learners to take responsibility for their learning and build self-knowledge and self-confidence. E-learning enables workers to be competent in their jobs without the need to undertake time consuming and expensive courses.

An example of a recent global e-learning initiative at Deloitte Consulting shows that the online setting can level the playing field it is well documented that males and females perform differently in face-to-face settings, often to the detriment of women[124]. Women find themselves facing discrimination in business practices that may be due to religious, corporate or industry cultures. The results of the Deloitte Consulting study support the fact that e-learning can conceal gender and potentially eliminate gender discrimination. It is argued that information and communication technologies (ICTs) learning methods are more democratic and egalitarian than traditional approaches, breaking down barriers to higher education for many groups, particularly for women[125]. One may argue that online learning breaks down barriers between genders in learning that was introduced by traditional learning.

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[121] Katz, R.N., Oblinger, D. 2000. The "e" is for everything p 56.
[122] Zabunov, S., Ivanov, K. 2003. Methods and forms of teaching information systems p 141.
[123] Broadbent, B. 2002. ABCs of e-learning – Reaping the benefits and avoiding the pitfalls p 29
[124] Van Dam, N. 2004. E-quality in e-learning p 119
[125] Meyers, W. Bennet, S., Lysaght,P. 2004. Asynchronous communication: strategies for equitable e-learning, online

The following example shows the role that e-learning played in 1999 in the German government[126]. Government followed a politics of equality of treatment in order to achieve equal opportunities for both men and women in all public administrations, from the community to the federal government level. A special application of this gender mainstreaming can be found in the federal program, "Innovation and workplace in the information society of the 21st century". The set targets were intended to be reached by the end of 2005: The government wanted equal Internet access for men and women. The German government used the Internet to address issues of inequalities and barriers.

E-learning seems to be playing the role of an all-rounder, from addressing inequalities to global changes. E-transformation is one of the changes that have been brought through connectivity[127]. Connectivity is viewed as a key driver of globalisation and is currently served by the Internet or extranet and the intranet. The advantages of e-learning stem from its networked environment where rapid updating, sharing of information and instruction are conveniently performed. The sharing of information promotes a team-learning pedagogy in which the primary focus is to cultivate a learning environment favourable to group interaction through collaboration and self-learning. The "e" for e-learning is much bigger than just trading "electronically" using the internet, it is the way that organisations communicate and undertake transactions with each other[128]. From the above arguments one can conclude that one of the roles served by e-learning is that of connecting people and organisations around the world.

Cultural background plays a major role in different kinds of learning. It is argued that a successful distance-learning program must not only utilize cutting-edge technology, it must also encourage the development of innovative methods to address the needs of special populations[129]. A learner's cultural background helps shape that learner's attitude toward distance learning. It is indicated that a program that has been designed to accommodate cultural differences helps break down cultural prejudices and can combine

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[126] Kuhlen, R. 2006. Collaborative e-learning- an opportunity to identify and to overcome gender barriers, online
[127] Sloman, M. 2004. The e-learning revolution p 122.
[128] Sloman, M. 2004. The e-learning revolution p 148
[129] Lagier, J. 2003. Distance learning and the minority learner, online

learners from multicultural backgrounds[130]. For distance learning to be successful developers and educators must take the socio-cultural beliefs of the target population into consideration when designing effective modes of course delivery and instructional content.

E-learning provides an opportunity for universities to reach out into the community, reaching parts of society, which previously had little contact with higher education[131]. The use of such technologies will result in the removal of time and place constraints, with instruction available when the learner needs it and at a virtually unlimited number of locations. A critical outcome of computers and the Internet is the removal of time and space barriers to learning; location is viewed as an arbitrary barrier and that education can be far more dynamic when liberated from the walls and gates of schools and allowed to flourish in exciting real-world environments[132].

Web is referred to as a portal to social inclusion, the web do not have any physical boundaries or any ethnic or religious discrimination[133]. Computers are seen as gateways to the Internet and the World Wide Web; it allows users to interact instantly with people and information resources anywhere on this planet[134]. From the above arguments, one can deduce that the web is a portal to social inclusion; nobody can be discriminated against to take part in e-learning. Even people with physical disabilities that cannot attend face-to-face classes can be accommodated to take part in e-learning.

The "e" as in e-learning should be an abbreviation for experience not electronic[135]. One may reiterate that the focus should be on the learner and not on the computers to avoid losing the learning process. The focus should be on the interaction with the learner with the intention of transferring or increasing the knowledge. With e-learning, knowledge can be disseminated and people can learn at their own time and own pace. It is indicated that

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[130] Kuhlen, R. 2006. Collaborative e-learning- an opportunity to identify and to overcome gender barriers, online

[131] Timms, D. 1999. ELearning-back to the future p 2.
[132] Shimabukuro, J. 2005. Freedom and empowerment, online
[133] Timms, D. 1999. ELearning-back to the future p 2.
[134] Shimabukuro, J. 2005. Freedom and empowerment, online.

[135] Sloman, M. 2004. The e-learning revolution p 148

one of the significant benefits of e-learning is that it gives learners access to learning materials at their convenience[136].

Freedom in the form of flexible work schedules is the most desired perk in the workplace today[137]. It is further illustrated that flexible work schedules beat retirement savings plans, health insurance, extra time off and bonuses. With advances in technologies that free workers to do their jobs from home or other remote sites 24 hours a day, seven days a week, this trend toward greater control over working conditions will undoubtedly grow to include flexible work sites. The same benefits can be attributed to e-learning, studying without leaving one's house or premises that guarantees one's freedom of flexibility.

There is little reason to believe that e-learning will not be the defining transformative innovation for higher education in the 21st century given the increasing evidence that internet information and communication technologies are transforming much of society. E-learning can be one of the solutions of the digital divide that can be utilised through e-learning of intranet for employees, private education for school kids and that of universities for cyber learners[138]. For e-learning to promote digital literacy, it should focus on the more self-directed interaction of the user. With the focus being on the user, it is highlighted that e-learning equips learners with an opportunity to become familiar with technology that is changing at a very fast pace and to acquire skills to use this technology[139].

There appears to be a general opinion among faculty lecturers that online courses require more time to teach than traditional face-to-face courses[140]. That may not be necessarily the case because many face-to-face teachers integrate some form of online interaction in their teachings. e.g. use of emails and the internet. With e-learning, learners are exposed to real-world data; they gather a more thorough learning experience and develop better thinking skills[141]. It gives learners an opportunity to broaden their knowledge because

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[136] DeLima, F. 1999. Web based learning more cost effective p 29.
[137] Shimabukuro, J. 2005. Freedom and empowerment, online.
[138] Song, L., Singleton, E.S., Hill,J.R.,Koh, M.H. 2004. Improving online learning p 59.
[139] Horton, W. 2000. Designing web-based training p 30.
[140] Hislop, W.G., Ellis, H.J.C. 2004. A study of faculty effort in online teaching p 15.
[141] Horton, W. 2000. Designing web-based training p 22.

they can learn on their own, at their pace and choose any topic they want to read on. E-learners choose the type of learning material that suits them and their needs[142].

From the above mentioned arguments, one can conclude that e-learning can offer accessible learning, connect people around the world and ensure freedom to learn or study at any time and anywhere. With all the benefits highlighted, most people would be interested to be involved in e-learning, especially first time encounters. E-learning can bring solutions to the busy lives that people are embodied in; working, studying, building careers and raising families at the same time. For e-learning to be accepted and embraced with fewer questions, its challenges and limitations have to be indicated so that learners are aware of the downside as well.

3.11   Deficiencies of e-Learning

E-learning cannot provide solutions to every problem that may be experienced in teaching and learning; it has its shortcomings like any other teaching or learning method. Referring to a study that was conducted on Web-based classes at the community college level, it indicates that there seems to be a lack of information on why learners are dropping out[143]. Factors like lack of counseling before taking course, kind of training offered, and course design were investigated to determine if they could have contributed in the drop-out. Considering the identified factors investigated in this study, let us investigate other factors that may play a role.

Another study indicated that corporate learners said that their top reason for dropping out was lack of time[144]. Learners indicated that they could not complete their courses from their desktop because of frequent distractions from their co-workers. Some said they could not access the courses from home as their only access is through the company's intranet, so they could not finish their assignments from home.

The high rate of failure of learners that have enrolled for distance education can be attributed to factors like lack of motivation from the learner, technical problems and lack

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[142] McCormack, C., Jones, D. 1998. Building a web based education system p 22.
[143] Muse, H.J. 2003. The web-based community college learner p 250.
[144] Frankola, K. 2001. Why online learners drop-out p 153.

of time from the learner to get involved in the course content[145]. For the learner to complete online courses successfully the learner has to be highly motivated and have a self-directed learning style[146]. It is further indicated that most colleges and universities experience challenges with learners who are often unprepared for self-directed learning. Learners still have the mentality that a teacher will guide and teach them about everything they need to know or learn.

Mungania[147] describes e-learning self-efficacy as an employee's belief that one can be a successful e-learner. A high self-efficacy leads to a perception of fewer barriers. Organisations should therefore determine e-learners' self-efficacy levels and implement strategies to support the levels. The above arguments show that it is not only about the technology- the attitude and the determination of the learner plays a huge role in the success of e-learning.

There is a suggestion that factors, such as feelings of isolation, time management problems, limited accessibility of materials to other learner, and to instructors, can influence learners' perceptions of distance education in a negative way and result in learner frustrations and anxiety[148]. The following types of e-learning barriers that have been identified ; personal or dispositional, learning style, instructional, situational, organizational, content suitability, technological barriers, changing nature of technology, the complexity of the networked systems, the lack of stability in online environments and the limited understanding of how much learners and instructors need to know to successfully participate[149].

The main target of universities and colleges are the non-traditional learner[150]. The non - traditional learner has unique learning needs that must be met in the online classroom. The following factors may act as barriers: no history working with technology, have not worked with online courses in the past, lack of social support in place, lack of resources and of digital divide.

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[145] Vezina .N.I., .C, Fournier, .H, Dufresne, A., Doucet, J. 2004. Web based learning p 1667.
[146] Martinez, M. 2003. E-learning p 2.
[147] Mungania, P. 2003. The seven e-learning barriers facing employees, online.
[148] Middleton, A.J. 1997. How effective is distance education p 133.
[149] Johnson, S.D, Aragon, S.R, Shaik, N, Palma-Rivas. 2000. Comparative analysis of learner satisfaction and learning outcomes p 30.
[150] Miller, M.T., Mei-Yan, L. 2003. Serving non-traditional learners in e-learning p 163.

There is a general concern about the quality of most e-learning or distance learning courses. Some educators argue that distance education is compromising the quality of education[151]. It is argued that a great deal of information available on e-learning is sales based[152]. That information may be good for justifying budgets and how the organisation spends the money, but it does not always help the organisation in using the medium or the tools. Of course, the quality and the relevance of the learning materials have a huge impact on the success of e-learning courses, and that can result in organisations to have a buy-in or out of e-learning courses.

Another impact on e-learning might be the use of language. Language used in online learning is mostly purely text-based medium communication; it is constrained by the loss of nonverbal resources, it lacks the emotional side[153]. It is further argued that rhetoric tools are to be used for effective language use. Rhetoric is referred to as the study of the techniques of persuasion. It is indicated that when language is used in rhetorical form, it helps the writer to share his or her viewpoint with the reader. Rhetorical use of language allows for interaction - the writer and the reader can both engage in the discussion. So the use of language that is not in rhetorical form may be a barrier to e-learning as it will prevent the learner from exploring the interaction and the emotional side of the communication.

According to the literatures referred to in the previous paragraphs, communication plays a major role in learning, and that makes instructor immediacy in e-learning to be the suggested mode; the instructor has to make himself or herself available for communication with learners and respond immediately to learners' correspondence[154]. Immediacy is described as the extent to which selected communicative behaviours enhance physical or psychological closeness in interpersonal communication. Referring to numerous studies done in face-to-face classrooms on instructor immediacy, it was found to have positive effects on learners. Few studies that were done on web learning indicated that instructors who were rated by their learners as more verbally immediate, expressed greater positive effect and higher perceived cognition than learners taught by

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[151] Rovai, A. 2003. A constructivist approach to online college learning
[152] Little, B. 2004. Taking the plunge p 22.
[153] Zhang, D., Zhao, J.L., Zhou, L, Nunamaker J.F. 2004. Can E-Learning replaces classroom learning p 77.
[154] Lanham, E., Zhou, W..2003. e-learning p 276.

less immediate instructors[155]. That may highlight the point that instructors need to play an influential role in e-learning as much as in the traditional classroom.

To further illustrate the point of instructors playing an influential role in e-learning, even though learners appear to be demanding more technology in tertiary education, they are not demanding technology as a substitute to face-to-face teaching[156]. Learners still require support from their lecturers. It is further stated that support is essential in any form of programme delivery including the use of the World Wide Web, the facilitator should be able to identify the areas where the learner needs motivation and be able to provide resources, instruction, direction, feedback and support to assist the learning process. Lack of support from instructors may serve as a barrier or threat to e-learning in higher education.

Comparing different roles played by teachers in traditional classrooms and online teachers, good classroom trainers pay attention to key human factors, based on the fact that they can adjust content and presentation to meet the needs of the learner and to promote learning[157]. It becomes a challenge with online learning; there are no signals or signs that can help the instructor to adjust the learning content to meet the learner's requirements. Other than the lack of cues to the instructor, it indicates that e-learning designs lack appropriate personalised support that will help individuals manage their online experience, stay motivated and learn satisfactorily.

Trainees and colleagues who are exposed to the traditional view of learning might perceive an e-learning approach as devalued[158]. One may suggest that a bridging course from traditional learning to e-learning might serve as a remedy to learners that have no prior exposure to e-learning; exposure may be what learners really need to close the gap between the two learning methods.

It is argued that information systems can deliver information but e-learning technologies and content cannot actually deliver learning[159]. The fact that some learners do not see value in e-learning does not mean that it should be disregarded, there are many learners

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[155] Lanham, E., Zhou, W 2003. e-learning p 276.
[156] Parker, M.B. 2002. Three pillars of technology enhanced learning e-learning p 3.
[157] Martinez, M. 2003. E-learning p 2.
[158] Roffe, I. 2004. Innovation and e-learning p 65.
[159] Paton, R., Peters, G., Storey, J., Taylor, S. 2005. Handbook of corporate university p 82.

and organisations that have derived quality learning form e-learning. Most of the above mentioned arguments seem to emphasise the success of traditional methods and the presence of the teacher in a classroom. A question that one may pose is, what are the requirements needed to make a learner successful in an online environment. Some authors argue that it is the content of the course, as discussed previously. Some authors approach it from the angle of the learner's attitude, characteristics and perceptions. Distance education learners have different characteristics and needs from classroom learners. Persistence is one of the characteristics that are needed for a distance education learner to complete the course successfully[160]. Lack of positive attitude towards and persistence may pose as a barrier to e-learning.

Although many authors argue that e-learners can have access to the system at all times, that may not be the case. Some learners who are involved in distance learning have full-time or part time jobs and family responsibilities. They need to juggle their careers, studies and families. Those learners need to be motivated to succeed in online learning and to complete their studies successfully; success cannot be attributed to accessibility only.

Technical problems can bring out feelings of frustration in online learners, and in most cases learners do not meet the technical requirements of the course [161]. The lack of familiarity with technology also affects the online group participation and results in confusion and uncertainty. Another problem is that some people have a fear of technology and as a result are not attracted to e-learning[162]. The fear or lack of exposure to technology may scare away some learners without even first trying to attempt it. Limited bandwidth can cause downloading to be very slow and that can have a negative effect on the learning process of the learner. Other than technological challenges, learners may experience distractions on the web and may also be side-tracked by the interruptions in the surrounding environment[163].

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[160] Rovai, A. 2003. A constructivist approach to online learning p 78
[161] Horton, W. 2000. Designing web based training p 38.
[162] Roffe, I. 2004. Innovation and e-learning p 115.
[163] Horton, W. 2000. Designing web-based training p 40.

The challenge of e-learning focusing on dissemination of knowledge and the concept of teaching is addressed. In some studies the finding or conclusion was that most learning systems are offered based on curriculum sequencing, and the learner has to follow a well-defined sequence of learning steps That kind of learning restricts the learner, as it does not accommodate the learner's individual style. The course should be designed based on the needs of the learner. Factors like learner characteristics; experiences and settings can contribute to the learners not completing e-learning courses[164].

To reduce the rate of online dropout personalised e-learning designs that accommodate individual learner profiles should be introduced[165]. It is emphasised that to improve the completion rate, the instructional presentation should adapt to the learner's aptitude, expectations and personality. Failure to disseminate knowledge through online learning may be a barrier to e-learning. The course curriculum should be drafted in a way that promotes knowledge dissemination; that is relevant to higher education learners; that will enable different learners to complete e-learning courses successfully and reduce the rate of drop-out. In the next section social challenges to e-learning will be discussed.

3.11.1   Social Factors

In ancient times, learning networks occurred within one's immediate family, community, and tribe[166]. These days people go to schools, colleges and universities to establish learning networks. People form learning networks to share, provide information and relationships are formed within those networks. One can be interested to find out if people can share information, form strong working relationships, and develop insight and understanding when their interaction occurs primarily via electronic media. To answer the question, it is explained that the interruptions and lags associated with asynchronous communication can disrupt conversational routines and potentially hinder tacit learning, which relies on deep and subtle information exchange[167]. It is explained that lack of face-to-face contact among participants can reduce group identity and make relational ties more fragile. The fact that group ties and identity are reduced may be a barrier to e-

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[164] Martinez, M. 2003. E-learning p 2.
[165] Martinez, M. 2003. E-learning p 2.
[166] Desanctis, G., Roach, A., Fayard, M., Jiang, L. 2003. Learning in online forums p 565.
[167] Desanctis, G., Roach, A., Fayard, M., Jiang, L.. 2003. Learning in online forums p 565.

learning because mostly people feel comfortable to share information with people that they identify with and if a threat is introduced to the relationship, sharing of information becomes limited.

Before one can identify social factors that could be considered as challenges or barriers on e-learning, one has to find the reasons why people or individuals could prefer not to learn in an electronic environment, some of the reasons found were; avoidance, fear of demonstrating a lack of skill or competence, general lack of awareness of the need to develop or the opportunities available, blaming others for inadequate performance or capability rather than taking responsibility for own actions or feelings, lack of personal confidence and a general belief that people cannot change[168]. Learners identify more reasons why they prefer not to learn; they identify issues like fear of technology, isolation from other learners and the classroom, etc. So, fear of trying to learn pose as a serious barrier to e-learning because it is through exposure that one can master or be comfortable with electronic learning. A view at how perceptions and attitudes may act as barriers to e-learning will now be discussed in the following paragraphs.

There is hype about e-learning that is going around, everybody is talking about it and most organisations are trying their hand at it. One needs to consider the social and emotional aspects that learners go through while studying through e-learning. The hype should not influence organisations to make hasty decisions to implement e-learning without doing proper research.

Information systems can deliver information but e-learning technologies and content cannot actually deliver learning[169]. It is argued that only people can learn and they learn most effectively by doing and by learning with and through other people. For people to learn effectively, they have to interact and be involved with other people participating in similar activities that may be related to socialisation. One may define socialisation as a learning process that takes place in a society or community without any formal teaching. It is learning derived by observing or interacting with other people. It is the kind of learning that one can propose to be reintroduced in the formal learning sectors, including

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[168] Sloman, M. 2004. The e-learning revolution from proposition to action p 110.
[169] Paton, R., Peters, G., Storey, J., Taylor, S 2005. Handbook of corporate university development p 96.

e-learning environments. Socialisation can make learning communities work and learners to transform the information they get from instructors and texts into meaningful knowledge through conversations, arguments over lunches, discussion groups and other real world activities[170]. People can learn together and from each other by arguing, and if the notion of knowledge is truth, and this is adhered to without allowing room for social interpretation, it is argued that only minimal benefits of learning will be achieved[171].

Some learners perceive face-face teaching as personal and social but e learning as cold and impersonal. E-learning reduces personal contact between instructors and learners, among learners, and personal contact is something that is valued by learners[172]. It will be difficult for those that perceive it as cold and impersonal to accept and adapt to e-learning as the ideal approach of learning and that in it are a threat to e-learning.

Learners perceive loneliness and lack of personal contact while using e-learning. In physical classrooms, learners experience a sense of belonging and are interdependent on each other. That sense of community is also essential in e-learning, learners are bound to have similar confusions, and working together is a great way to clarify and understand the material[173]. The social group helps maintain interest and keep people together to reach the common identified goals.

Studying in the cyberspace can be lonely and isolating[174], the results were based on the study that was done by Frankola on New York University (NYU) Online. The study indicated that learners in NYU Online's pilot admitted that live sessions could be inconvenient but thought they were worth the effort. It was found that the benefit of learners in live discussions is not only learning but also success and that the learners who persevere through the self-paced portions of the course achieve good results. Nearly all the NYU online learners who completed the course said that live sessions provided an emotional lift. As much as technology plays a major role in learning, people still yearn

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[170] Greenagel, F. 2002. The illusion of e-learning, online
[171] Wesley, D. 2002. A critical analysis on the evolution of e-learning p 41.
[172] Broadbent, B. 2002. ABCs of e-learning p 29.
[173] Currin, L. 2004. Feelin' groovy: experts now believe that e-learning must elicit positive emotions to succeed p 1.
[174] Frankola, K. 2001. Why online learners drop-out p 53

for the physical interaction. Physical interaction is described as the human factor[175]. The human factor plays an important role in the learning process. It is stated that most training facilitators miss the collegial relationships and in-process rapport with learners[176].

It is further argued that online learners also miss the incredible youth energy they had during their face-to face schooling days in the corridors and classes. The lack of activities in an online classroom and social stimulation that engage learners in the regular classroom make online learners feel lost[177]. One can conclude that the lack of physical interaction on online make the learners to experience feelings of isolation that can add unnecessary strain on the learning process.

Computer-mediated communication can reduce overall communication within a social network and that kind of communication can hamper network survival and growth[178]. It is argued that if participants lack the same background, common attributes, and a history of interaction, knowledge transfer may become more difficult. Some e-learning systems only present text-based learning materials, which may lead to boredom and disengagement in learners and prevent them from gaining a good understanding of a topic[179]. Boredom and disengagement from the learners can be remedied by the introduction of multimedia technology. These systems integrate and present learning materials in diverse media such as text, image, sound, and video. True as that may be, the challenge lies with that the learner has little control over the knowledge structure and the learning process to meet his or her needs. This kind of learning can be costly and time consuming, e.g. watching a video delivered via the internet, trying to locate what is relevant and not. It becomes difficult for interactive learning to take place.

Communication plays a major role in learning, without constant guidance and feedback from online faculty, learners get confused[180]. Most learners dropout of e-learning because of poor communication. The learner may experience endless problems while studying with no one to turn to because the online tutor is not available for communication and

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[175] Mclester, S. 2002a. Virtual learning takes a front row p 25.
[176] Mclester, S. 2002b. Virtual learning takes a front row p 4
[177] Hiltz, S.R., Turoff, M. 2002. What makes learning networks work p 56
[178] Desanctis, G., Roach, A., Fayard, M., Jiang, L. 2003. Learning in online forums p 565.
[179] Zhang, D., Zhao, J.L., Zhou, L, Nunamaker J.F 2004. Can E-Learning replaces classroom learning p 75.
[180] Hiltz, S.R., Turoff, M. 2002. What makes learning networks work p 58

support. When learners and instructor are separated over time and space, support for the learner becomes essential for e-learning to be successful[181]. Without the support the learner feels that he or she is alone and that may be a barrier to learning.

The learner does not only need academic support, there is also technical and administrative support that is required. Learners get discouraged if they do not get a quick response from their instructors, the more learners tend to be discouraged they tend to discontinue the learning. For the instructor to be able to give a quick response, support responsibilities should be shared. The technical and administrative tasks should be directed to other staff members leaving the instructor with the academic enquiries only. Lack of support from instructors limits the success of e-learning.

3.11.2 Lack of emotions in e-Learning delivery

Events that evoke powerful emotions in people stay fresh in their memories because people's brains are hard-wired to remember and to learn things that are connected to intense emotions[182]. Classroom learning tends to have more activities that involve emotions. That can be noticed or felt from the introductions at the beginning of the course. Elliot Masie of the Masie Center in the USA states that classroom based training begins with a "drum roll", participants arrive, the door is closed, they write their names on a badge or name card[183]. From then on introductions take place; participants get to know each other and the instructor then proceeds with the training. Masie states that this "drum roll" signals a change in atmosphere, participants know that they are there to learn, they will be expected to concentrate for the first few minutes. Learners go through a phase of excitement and anticipation waiting for the instructor to proceed with the course; they pay attention to what is to be said. The excitement that is being referred to, may take place in once off training programmes or courses but that cannot be the case with or in higher education institutions. In higher education institutions introductions may only take place at the beginning of the first class to give learners and the lecturer opportunity to know each other.

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[181] Erkunt, H. 2004. Developing systematic quality e-learning content p 52.
[182] Currin, L. 2004. Feelin' groovy: experts now believe that e-learning must elicit positive emotions to succeed p 1.
[183] Sloman, M. 2004. The e-learning revolution from proposition to action p 121

Unlike classroom training, e-learning does not begin with an introductory "drum roll". There are no shared rituals and there is no change in atmosphere. Masie further states that if e-learning is to be effective, it must take place in an appropriate organisational surrounding. This must involve physical signals to colleagues that learning is taking place. The unavailability of face-face learning makes some learners feel frustrated and uneasy[184]. An e-learning experience that does not engage emotions is unlikely to attract learners' interest or leave them with much long-term learning. Involving some emotions in the learning can reverse that; preferably positive emotions that will make learners feel good about themselves.

For teaching to be effective, cognition and emotion must work together, the following elements must be present for an e-learning experience to be successful: strong motivation; the material should be structured around a problem that the learner really cares about[185]. Positive encouragement should also be part of the success process. To enhance the chances for an e-learning experience to be successful; a strong social commitment should be present and can be achieved either by having people work in teams or by establishing a strong personal commitment to the teacher through continual feedback and interaction. The last element identified is stress; deadlines on projects that learners have to submit are necessary, a little stress is a great focus-booster. One can conclude that e-learning that simply throws cold; hard facts at the learner have limited chances of being a success. The next section is about institutional policies, management support and how they impact on the success of e-learning.

3.11.3   Institutional policies and senior management support

One of the challenges that may be facing South African higher education is the lack of an ICT national policy framework. There is no specific educational technology policy for higher education nor is there any monitoring or coordination of relevant related

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[184] Lautenbach, G., Van der Westhuizen, D. 2002. Professional development of the online instructor in higher education p 25.
[185] Currin, L. 2004. Feelin' groovy: experts now believe that e-learning must elicit positive emotions to succeed p 1.

policies[186]. This makes it difficult for the government to have control over the ICTs in higher education. It is further highlighted that only few higher education institutions in South Africa have detailed and comprehensive ICT policies in place. University of Pretoria and Stellenbosch University are two of the few higher educations institutions with policies in place and have gone beyond the implementation phase, there could be other higher education institutions that have already done so the researcher was only aware of those. Other higher education institutions are in the process of drafting their policies or still in the process of working on the operational policies. This study will not go into detail on how far other South African higher education institutions are on ICT policies. The illustrated institutions were to show that only handful institutions have ICT policies in place and that those that do not have to take a lesson from the two mentioned.

It is very important to get the support of top management when implementing online learning[187]. For e-learning to be successfully implemented in an organisation, senior management should buy into the idea. They should be able to sell the idea to junior management and staff members. One of the major reasons for keeping e-learning programs from organisations may be found in the attitude of line managers or even senior training and development staff[188]. Many of these people have never experienced e-learning on a personal level, or they have a closed mind to the role that it can play in organisational and personal development. In such cases where there is high resistance, a separate and highly licensed implementation group has to be brought in to propel this innovation forward.

3.12   Leadership theory and e-Learning

Leadership theory divides the leaders and their leadership approaches into different categories, each category with strengths and weaknesses[189]. The leadership theory has been applied in this study to find out how characteristics of leaders impact on e-learning in an organisation. It focuses on the following leadership characteristics: charismatic, transformative and authentic leaders to investigate the challenges that the different

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[186] Czernierwicz, L, Ravjee, N, Mlitwa, N 2006. Higher education monitors p 21.
[187] Tewitat, O., Igbaria, M. 2000. Opportunities in web-based teaching p 17.
[188] Masie, E. 2002. Blended learning p 10.
[189] Lorenzetti, J. 2006. Leadership challenges in e-learning p 5.

leaders experience in an online environment. The different types of leaders have been identified and how they will react if they themselves were learners in an e-learning environment.

- Charismatic leadership

The charismatic leader relies heavily on personality to achieve the status of a leader, even when he or she may not have much externally given power. A charismatic leader may be effective in e-learning environment at particular times in the organisational life cycle. Charismatic leaders are useful to get the ball rolling but they lose steam because the charismatic leader needs to have a physical presence. In the e-learning environment it may be difficult to have the direct experiences with members of the group that charismatic leaders rely on to maintain their influence. The charismatic leader learner will find it very difficult to complete a learning programme or course because of the isolation from the crowd.

- Transformative leaders

Transformative leaders are described as leaders that actively seek to transform the organisation with perhaps some implicit notion that the team members themselves may experience some of this transformation. Because e-learning organisations tend to be more dynamic with the changes occurring more readily than they do in traditional institutions, the transformative leader may be able to gain traction and effect changes. This kind of learner leader will enjoy e-learning environment and may even do well because of his or her attitude towards the kind of learning.

- Authentic leader

The authentic leader relies on the individual's ability to have empathy. The authentic leader needs to demonstrate a way to communicate concern for the people in the team by continually communicating focus on the mission, the vision and the ways to facilitate success. In order to foster the development of authentic leaders, e-learning organisations need to create opportunities for potential leaders to grow and learn.

One can deduct that; some leader's characteristics may hinder the success of e-learning e.g. the charismatic leader.

3.13   Course content

Most e-learning content suppliers come from the IT industry[190]. It is argued that the suppliers or developers know very little about how learning works. The main focus of the suppliers is on improving the efficiency of the process rather than the effectiveness of the learning.

A repeated criticism of online learning is that it is used too often to dump content[191]. The real opportunities lie in the communication possibilities of the technologies. The assumption is that technology is a kind of machine for inserting knowledge into passive learners more cost effectively than classrooms. E-learning is viewed to be a substitute to other forms of learning rather than simply being a tool[192]. Technology cannot substitute the process of learning; the course content has to be engaging for both the instructor and the learner.

The amount of high quality material available online is small[193]. Much of the content is from commercial suppliers. Academic sources are still dominated by paper and books. Most of the material being generated by the online content providers is not catalogued in any formal way, as it would be if it had received an ISBN number and were catalogued in a library. This makes it difficult for the digital content to be reviewed by specialists in the field. That limits training managers, teachers or learners to learn from what reputable reviewers have to say about the quality of an online course. Learners should be able to access the content as conveniently as possible preferably at any time and any place[194]. More learning materials have to be made available online.

While many e-learning programs are quite effective, there is a lot of dull ineffective e-learning materials being sold and implemented within some organisations[195]. Low quality

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[190] Paton et al. 2005. Handbook of corporate university development p 160.
[191] Czernierwicz, L, Ravjee, N, Mlitwa, N. 2006. Higher education monitors p 21.
[192] Paton, R., Peters, G., Storey, J, Taylor, S. 2005. Handbook of corporate university development p 160.
[193] Wallace, P. 2004. The internet in the workplace p 206.
[194] Erkunt, H. 2004. Developing systematic quality e-learning p 53.
[195] Masie, E. 2002. Blended learning p 28.

electronic page-turning programs, sold as interactive learning programs, only to be mocked by both learners and managers. The e-learning industry is becoming commodified[196]. It is suggested that due to high costs and the complexity of developing e-learning materials, some companies are opting to purchase off-the shelf learning modules. The cost of development for e-learning programmes is high and bad or cheap programmes drive out the good ones in the absence of commitment to measure effectiveness[197]. Organisations are more interested in throughput and low unit cost; so solid measures of effectiveness are infrequently developed or applied. Learners and the organisation's culture should be taken into account from the initial design of the content that will contribute to the quality of the content.

The attitude of a content writer can also play a role in the quality of the programme; the production of course content by full-time university professors is not guaranteed because growing evidence indicates that many career-minded faculties are skeptical of investing much time or effort in developing online learning courses, believing the effort to be low in yield both financially and intellectually[198].

The quality of the content is very important in e-learning but the factor that should be considered is that the learning material is relevant to the organisation and its needs. Implementing e-learning can be difficult and some organisations that adopt the e-learning approach make a number of mistakes; they often concentrate on hardware rather than on content[199]. This leads to the organisation spending a lot of money on new systems before studying the precise needs of their organisation and the appropriate solutions. Some of the mistakes can be avoided if the course content is tailor-made for the organisation. The content should cover all the information that learners need to know, should be presented objectively and through unbiased language, should match the learners' level of understanding, and cover topics in appropriate breadth and depth[200].

For the benefit of both the learners and the organisation, the content chosen should be based on input from content experts in both academia and industry to ensure that high

[196] Wesley, D. 2002. A critical analysis on the evolution of e-learning p 42.
[197] Greenagel, F. 2002. The illusion of e-learning, online
[198] Ruth, S. 2006. E-learning
[199] Roffe, I. 2004. Innovation and e-learning p 116.
[200] Macdonald, J. 2004. Developing competent e-learners p 215

and acceptable standards are maintained. The content should reflect problems and issues that arise in the workplace and require learners to engage in activities that present the same type of cognitive challenges they encounter in the work environment.

Analysis of the needs of the target audience and collection maintenance and use of learner information is critical in distance education[201]. Learners are not often met face-face; extra efforts need to be made to understand the varying contexts and needs of learners. If not, that may lead to unnecessary drop-out.

It is further indicated that distance education courses are used for too long and are not updated. Some of the references might be 15-20 years out of date. Courses do not even reflect changes in the world. Learners should be able to relate the course content to their daily activities and to the society in general.

It is maintained that e-content is one of the most overlooked areas in higher education institutions in Africa[202]. Most of the content and style of online training materials are produced in developed countries and are mostly unsuited to social and cultural traditions in less developed countries[203]. Again most of the content on the Internet are generated by developing countries and with English being the common language. The lack of local content seems to be one of the critical challenges of ICT in South Africa[204]. In response to the concern, senior South African leaders have called for local content and information to bridge the digital and knowledge divide to ensure that people can access information that can shape their lives in the language of their choice.

Western Cape research data reflects that 68% of learners and 84% of staff report that they can access content relevant to South Africa on the Internet.[205]. However, fewer say that they can find locally produced content, only 56% of learners and 74% of staff report that they can. Comparing the percentages of relevant content and locally produced content raises concern and one agrees with South African senior government leaders that the lack of local content issue needs to be addressed.

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[201] Welch, T., Reed, Y. 2005. Designing and delivering distance education p 47
[202] Adam, L. 2003. Information and Communication technologies p 208.
[203] Jaansen van Vuuren, J.C., Coetzee, F.P. 2004. ICT education and training p 899.
[204] Czernierwicz, L, Ravjee, N, Mlitwa, N.. 2006. Higher education monitor p 62
[205] Czernierwicz, L, Ravjee, N, Mlitwa, N 2006. Higher education monitors p 63.

The difficulty in Africa in creating local e-learning content could be attributed to the factor that most academics in the region are not familiar with courseware tools and digital environment[206]. Another factor identified was that academics have excessive work loads and limited time to dedicate to developing e-learning content. Academics also lack the skills and incentives to develop e-learning materials suitable to their needs. It can be argued that the educational reward system was not designed to encourage faculty and learners to own and get involved in e-learning content development and use. Another challenge to be discussed is technology barriers.

3.14   Technology barriers

In this study, technological barriers will refer to challenges that are related to the technical aspects of the systems or computers.

3.14.1   Lack of access to computers

The major factors bearing on technology are cost and the availability of telecommunications infrastructure[207]. The majority of South African learners do not have access to personal computers and internet. It is estimated that in South Africa personal computer density is low at 7.2 in 100 people. Comparing it to other countries, South Africa is still way behind[208]. Nationally, 39% of South African schools have a computer and 26% have one for teaching and learning. Comparing it to other countries, in the United States the percentage of computers available at secondary school is 73% and 78% for the United Kingdom. It is further indicated that one institution in South Africa reported that the current ratio of learners to computers is 1:100. Access to Internet connections, computer laboratories and printers is also limited. In some institutions there are practices such as laboratory operating hours, time limits and booking systems for computer use. The above indicated figures show an alarming concern for the success of online learning in South Africa. Access to computer is one of the basic requirements for online learning to take place.

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[206] Adam, L. 2003. Information and Communication technologies p 208.
[207] Jaansen van Vuuren, J.C., Coetzee, F.P. 2004. ICT education and training p 898.
[208] Czernierwicz, L, Ravjee, N, Mlitwa, N. 2006. Higher education monitors p 58.

3.14.2   Lack of technical skills

Technology literacy is one of the foundation blocks of technology enhanced learning[209]. Equipment (computer) only is of little use, unless information about how to operate, maintain and adapt such equipment to local conditions accompanies such equipment[210]. One of the most important prerequisites of e-learning is familiarity with computers. The lack of familiarity with technology can hinder e-learning and have a negative effect on the learner's confidence[211]. The lack of technological skills among learners hampers the learning opportunities offered by teachers and acts as a barrier to effective learning for learners[212].

It is mentioned that learners who have never been exposed to using computers may even be afraid to press the keys in fear of damaging the computer[213]. Learners should have a basic understanding of how both hardware and software operates. Learners should in addition to basic computer skills, have strong writing, typing and study skills to succeed in online learning[214]. The lack of the indicated skills could be detrimental to the learner's studies because writing is the only communication for e-learners. For e-learning to be successful in higher education, the issue of lack of computers should be addressed proportionally with the skills to operate computers because one cannot function without the other.

Technical problems can frustrate learners and can hamper the progress of learners. The lack of computer skills could also affect e-learning, group participation and that can result in uncertainty[215]. One can argue that the enabler for online learning is technology and an online learner cannot learn if he or she is experiencing technical difficulties.

Workers often accelerate many technologies into acceptance and mainstream use by personal usage at home[216]. CD drives and even email usage were accelerated within organisations as workers had personal experience with them at home. The more people

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[209] Parker, M.B. 2002. Three pillars of technology –enhanced e-learning p 8.
[210] Jaansen van Vuuren, J.C., Coetzee, F.P. 2004. ICT education and training p 898
[211] Lautenbach, G., Van der Westhuizen, D. 2002. Professional development of the online instructor p 62.
[212] Parker, M.B. 2002. Three pillars of technology-enhanced learning p 10.
[213] Zafeiriou et al. 2001. Using learner's perceptions p 87
[214] Tetiwat, O., Igbaria, M. 2000. Opportunities in web based teaching p 1
[215] Lautenbach, G., Van der Westhuizen, D. 2002. Professional development of the online instructor p 26.
[216] Masie, E. 2002. Blended learning p 58.

use e-learning on a daily basis in other activities as part of pursuing their hobbies; e-learning will become more acceptable and not considered as a threat.

3.14.3   Bandwidth

ICTs in most universities in Africa have remained clutters of computers and networks that have either worked badly or islands of low bandwidth connections with frequent breakdowns[217]. It is further stated that bandwidth is the scarcest ICTs resource in African universities mainly due to prohibitions on academic institutions' accessing international circuits and too high licensing fees for connecting to advanced circuits or for obtaining authorisation.

Bandwidth and browser limitations might restrict instructional methodologies[218]. The effects of networks that work badly affect productivity of users to decrease dramatically if network-based applications are not available or too slow because of denial-of-service attacks[219]. For example, if a web-based e-learning system is slow, users do not only need more time to complete their work, but they also become frustrated, increasing the negative effect on productivity. It is further mentioned that limited bandwidth means slower performance, limited bandwidth affects the time required for downloading applications. Furthermore, the increased time taken to download the application due to the limited bandwidth has a negative connotation to e-learning; it makes learners assessment and feedback limited and it cannot be easily reordered from its original state.

One of the problems that learners may encounter when courses are delivered online are that learners may be unable to connect during real-time sessions e.g. videoconference[220]. Some learners may connect and want to continue while others cannot connect and are calling the instructor for support. In some cases it may be that learners cannot download course materials, or they can download, but cannot decompress them (incompatible file format, no unzip, etc). South African higher education institutions have to come up with solutions on how to improve challenges caused by bandwidth problems. Security has been identified as one of the barriers of e-learning.

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[217] Adam, L. 2003. Information and communications technology p 196.
[218] Parker, M.B. 2002. Three pillars of technology-enhanced learning p 12.
[219] Weippl, E.R. 2005. Security in e-learning p 3.
[220] McGreal, R. 1998. Integrated learning environments p 2

3.14.4   Security

Using electronic systems in an area also entails additional security and privacy issues[221]. In e-learning systems, participation rates and reaction times of learners are recorded. In many cases technology that is used for security purposes is considered a technology that increases the complexity of processes and makes everyone's life harder. However, one has to take into account that people only use a system if they can trust it and that makes security an enabling technology.

Two different groups of people are identified who might use digital content in ways not intended by the author; people with legitimate access and people who access the content without authorisation, with no legitimate access[222]. So, it is therefore necessary to ensure that access control is enforced on all layers such as the operating system and database. This also includes physical access to the servers. The essential security requirements in this context are that learners must be able to rely on the accuracy of the content and not worry if the content has been tampered with or not.

Learners also need to confide in both the e-learning system and the other participants in order to openly contribute to discussions[223]. Contributions are stored electronically and may be retrieved for a long time after the course has been completed and that makes learners feel threatened to participate or contribute for fear that their contributions to a discussion might be stored and quotations might be published out of context. Learners may also not contribute to avoid embarrassment, as their contribution will be open to everybody who has access to read. Data theft is not a major problem in e-learning however some learning materials may contain confidential and sensitive information requiring that the flow of such information should be restricted to well-defined groups[224].

Another challenge that can be associated with the flow of information is that the World Wide Web does not provide the degree of interactivity, exactness, reliability and security which is needed for effective monitoring of the learning successes of the learners[225].

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[221] Weippl, E.R. 2005. Security in e-learning p 3.
[222] Weippl, E.R. 2005. Security in e-learning p 3
[223] Weippl, E.R. 2005. Security in e-learning p 3
[224] Graf, F. 2002. Providing security for e-learning p 358.
[225] Graf, F. 2002. Providing security for e-learning p 359.

Furthermore there is no way to guarantee that the learning material is delivered to a learner and even if it is delivered one cannot ascertain that it was delivered on time.

In the previous paragraphs, security in e-learning has been indicated as a benefit for learners. The same learners that need to be protected from the threats of e-learning security can be a threat to e-learning systems. The progress of the learner's professional life is based on those certificates that are obtained from university; a learner will do anything to obtain the certificate[226]. That can include various forms of cheating. Traditional forms of learning have established ways to prevent cheating.

To protect e-learning systems from manipulation, solutions like encryption, digital signatures, firewalls and virtual private networks (VPN) have been developed to combat threats from outside[227]. Because of what learners can gain, one can conclude that there is a higher readiness to cheat. Solutions have to be devised to stop the readiness to cheat.

3.14.5 Non-performance issues

In this study, non-performance issues refer to where technology fails to perform what it is supposed to perform. Provision of supplies and maintenance of equipment remains a problem in Africa; there are inadequate numbers of maintenance staff trained and available[228]. An example of a performance crisis that hit University of Stellenbosch with the use of WebCT[229]; the university experienced performance problems on WebCT where close to 500 users were performing the same task, such as writing the same online test, caused the system not to perform. The problem continued as more users logged on to the system, it reached a stage where tests had to be abandoned and lecturers lost faith in WebCT.

The technical support people had to hold daily telephone conferences with the WebCT support team in the United States of America. The problem was solved eventually and lots of costs were incurred during the whole process. The university did not have technical specialists on the campus or within the country to assist with such a technical problem. The researcher did not investigate other higher education institutions to find out

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[226] Graf, F. 2002. Providing security for e-learning p 356.
[227] Graf, F. 2002. Providing security for e-learning p 359.
[228] Jansen van Vuuren, J.C., Coetzee, F.P. 2004. ICT Education and training p 898.
[229] Van Der Merwe, A., Pool, B. 2002. The e-campus initiative at the university of Stellenbosch p 14

if they have the necessary technical support or readily available support team within the country to handle such a crisis. Most e-learning technology that is used in South Africa has been imported from foreign countries and those countries provide the technical support as well. The lack of technical support expertise affects learning of the learners and the day to day running of the campus if problems occur. One can argue that such problems may affect the credibility of e-learning in the country especially to lecturers and learners who have never been exposed to the e-learning concept before.

3.15   Copyright

Copyright protection is one of the challenges of e-learning; the major drawback is that copyrighted material should be made available in digital form to the learners[230]. The threat is that once the learning material reaches the learners from the training provider, the learners may copy and redistribute the data as they please. Copyrights for e-courses of core content are of little value since they are likely to be obsolete in a few years when learning management systems or Internet technology changes[231]. It can be argued that it will cost an institution a lot of money to attain copyright over materials and will not be able to secure a long-term use of the material. But then again without the copyright, the institution can be in trouble with the law and that may lead to endless battles in and between organisations over ownership rights of learning materials.

3.16   Cost

One of the barriers to e-learning in South African higher education institutions is the lack of resources to partner the commitment, and that the specific challenge facing e-learning besides money was, the first one is money, the second one is money, the third one is money and the fourth one is money[232]. It is further stated that institutions are spending large amounts of money on e-learning software such as WEBCT, etc and these costs may not even be part of the institutional IT budget. The huge expenditures on IT create enormous problems for institutions; the expenditures exhaust all the money and leave no money for learner bursaries and that may demoralise the staff. That becomes a nightmare

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[230] Graf, F. 2002. Providing security for e-learning p 358.
[231] Jones, E.R. 2002. Implications of SCORM and emerging e-learning, online.
[232] Czernierwicz, L, Ravjee, N, Mlitwa, N 2006. Higher education monitors information p 11.

for the staff and learners involved and that is the last thing that can make anybody to be interested in e-learning.

It is mentioned that it is expensive in Africa to use the web compared to the other continents like Europe or America. To save the costs, one can just put the content on a CD and give it to the learners because learners will still get the same information[233].

The cost of web-based learning is comparative to that of traditional education, travel expenses are eliminated or minimised, and learners do not have to take time off work, move away from home, or move their family to further their education[234].

With all the hype about e-learning in different organisations, how does one measure the results and the return on investment on e-learning deliveries? Checking the costs and the benefits of the programme can do that. In universities and colleges, the success of e-learning can be measured by a successful completion rate; but what about the success in the corporate environment where e-learning could have been introduced to improve skills, for example, soft skills of the employees. Any training, traditional or e-learning can be evaluated at four progressive levels using Kirkpatrick's classic model[235].

3.17   Kirkpatrick's classic model

Level 1 – Reaction

The focus at this level is to measure how the participants in a training programme feel about their experience. The first level is referred to as Smile sheet evaluations, where one finds out if the trainee liked the training[236]. The results of level 1 will show how the participants feel about e-learning but cannot measure the rate of investment.

Level II – Learning

Kirkpatrick defines learning as the principles, facts and techniques that are understood and absorbed by trainees. So in this level, trainers measure the learning that has taken

[233] Czernierwicz et al. 2006. Higher education monitors information p 37.
[234] Macdonald, J. 2004. Developing competent e-learners p 217.
[235] Strother, J. 2002. An assessment of the effectiveness of e-learning p 2.
[236] Abernathy, D. 1999. Thinking outside the evaluation box p 20.

place. This is referred to as the testing phase, and determines if the trainees understood the information. Trainers give a pretest and a posttest to determine how much has been learned as a direct result of the training program.

Level III – Behaviour

This level is identified as the level of individual improvement. The trainer determines if the training has helped the trainee to do his or her job. Change in job behaviour is the main goal for corporate training. It is at this level where the trainer or the company can start to measure job performance if the employees are applying the skills they have gathered from training.

Level IV – Results

Level IV attempts to measure the results of training as it directly affects a company's bottom line. This is the level as organisational improvement level; this is where the trainer investigates if the company has increased profits, customer satisfaction, etc. as a result of the training.

The addition of a fifth level to Kirkpatrick's model is recommended where necessary. Level V is a measure of the Return on Investment. It is at this level where Level IV data are converted to monetary values and then compared with the cost of the training program. With reference to e-learning, this level can be crucial to the company as it will give them an indication of which training method, traditional, blended or e-learning technologies to invest more money based on the economic costs. It will be difficult to apply Kirkpatrick's classic model in higher education institutions, higher education institutions are not meant for profit but for learning to be transferred. Level two, learning level, of the model will only be the applicable phase to higher education institutions, that level can be used to measure the rate of learning that took place.

3.18   The demand-driven learning model

Superior Outcomes
- lower costs for learner and employer
- personal advantages for learner
- superior learning outcomes

Superior Content
- comprehensive
- authentic/ industry driven
- researched

Superior Delivery
- usability
- interactivity
- tools
- instructional strategies

Superior Service
- resources
- administrative and technical support
- staff
- accessibility
- responsiveness

Ongoing Program Evaluation

Continual Adaptation and Improvement

Superior Structure
- learner needs
- learner motivation
- learning environment
- program goals
- pedagogical strategies
- learner evaluation
- learner convenience

Figure 3.1: The demand-driven learning model
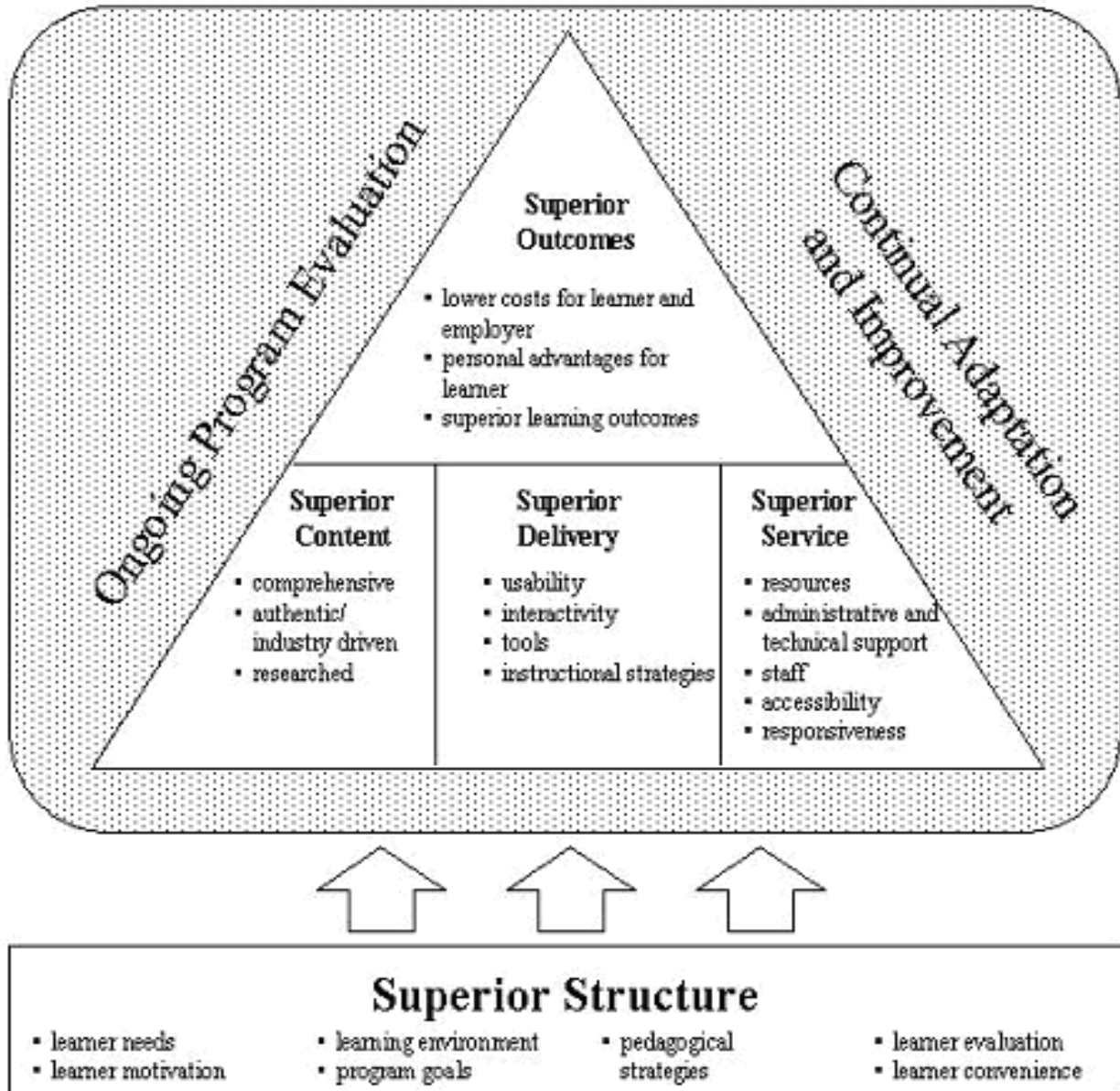
The demand-driven learning model is based on the technology learning management system vendor's model of technology, content and service[237]. The main focus of the model is to encourage academics to take a proactive role in the development and use of

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[237] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A.2001. The demand-driven learning model p 19.

technology in the teaching process. The model put emphasis on the three consumer demands; high quality content, delivery and service. It indicates that the content should be comprehensive, authentic and researched. Delivery should be web-based and the interface of e-learning programmes should be user friendly with communication tools to support interactivity. Service should include the provision of resources needed for learning as well as any administrative and technical support needed. This model will be applied against the findings of this study in the next chapter.

3.15   Conclusion

The focus ~~o~~in this chapter was on different views and perspectives of different authors on e-learning. Factors and issues that are considered to be the stumbling blocks, i.e. barriers of e-learning, have been identified~~;~~ under the categories technology, cost, social factors, copyrights and security.

It is indicated that learners seem to experience the same or related psychological or social factors and share similar experiences while studying through e-learning that is regardless of whether they are from first or third world countries. The distinction between the use of e-learning in the corporate environment and higher education institutions show that focus in the corporate environment is more on skills development and with higher education institutions it is with transferring knowledge and getting qualifications.

The literature study illustrates how some South African education institutions has successfully managed to implement e-learning and how some are still battling to come to accept e-learning as a teaching or learning method. The findings from other studies reflected that most identified challenges or barriers to e-learning in the South African higher education context were technological related lack of policies and lack of resources. Information gathered from different literature sources will be compared to the findings that have been obtained from this study. The next chapter will focus on the data analysis and enquiry process.

Chapter 4

The Design and Process of the Enquiry

4.1   Introduction

This chapter will indicate data collected and data analysis conducted in the study. The data in this study was obtained from the interviews conducted with the e-learning learners and the course instructors and developers. Some of the data was obtained from observation sessions and from literature study indicated in the previous chapter.

4.2   Data obtained from interviews conducted with the learners

This is data obtained from the interviews conducted with the learners and will be discussed as follows:

4.2.1   How learners perceive their daily experiences in online learning

Learners perceive e-Learning to be challenging

Sixty-five percent (65%) of the learners indicated that e-learning to be difficult, challenging, and stressful. Learners in the study are graduates from different universities; they have never been exposed to e-learning before. They have studied for their junior degrees through traditional learning where lecturers had to facilitate learning through face-to-face teaching. Martinez[238] supports the idea by indicating that most universities and colleges experience challenges with learners who are more often unprepared for self-directed learning. The learners in this study are new to self-directed learning through e-learning and that also creates challenges for the learning institution.

The learners also indicated that one has to be disciplined to focus on the studies because there are lots of distractions from other learners and there is always the temptation of

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[238] Martinez, M. 1998. E-learning p 2.

browsing through the Internet for materials that are unrelated to the course. Findings from previous studies show that learners indicated that they could not complete their courses from their desktop because of frequent distractions from other learners. It is discussed that the web and the interruptions in the surrounding environment can also serve as distractions to learners[239]. Factors like learner characteristics, experiences can also contribute to the learners not completing e-learning courses[240].

Thirty-five percent (35%) of learners explain that they have not experienced any benefits of e-learning. Learners find e-learning difficult; they just do not see any benefits at all. They project challenges they are experiencing in their studies to e-learning. It is argued that individuals who have a traditional view of learning might perceive an e-learning approach as of no value.

Learners perceive lack of computer skills to have an effect on e- Learning

Lack of computer skills was mentioned to be one of the reasons that made learning difficult. Learners indicate that it takes some time for one to be comfortable with using computers; the time dedicated to learn the computer skills could have been used to concentrate on one's studies. It is shown that the lack of familiarity with technology can hinder e-learning and can have a negative effect on the learner's confidence[241].

Eighty percent (80%) of learners have indicated that they did not have computer literacy skills when they joined the programme, in e-learning courses; communication is mostly done through writing, so typing skills plays a major role in the success of e-learning. Twenty percent (20%) of learners indicated that they have basic computer skills e.g. typing. For learners to succeed through e-learning, they need to have strong writing, typing and study skills[242]. Learners perceive e-Learning to be an information tool

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[239] Horton, W. 2000. Designing web based training p 40.
[240] Martinez, M. 1998. E-learning p 3.
[241] Lautenbach, G., Van der Westhuizen, D. 2002. Professional development the online instructor p 62.
[242] Hiltz, S.R, Wellman, B. 1997. Asynchronous Learning Networks p 46.

Learners indicated that they use e-learning to get information posted by the course instructor and to gain knowledge. They also indicated that it was easy to access the information that one requires and can improve one's knowledge in different field subjects. It is argued that computers, gateways to the Internet and the World Wide Web, allow people to interact instantly with other people and information resources anywhere on this planet[243]. That supports the findings that e-learning plays a vital role as an information tool. E-learning gives access to information that makes the learner to improve his or her abilities. It is stated that e-learning has the potential to improve higher education significantly[244].

Learners enjoy studying through e-learning

Forty-five percent (45%) of the learners mentioned that they enjoy e-learning better than face-to-face learning as they can access more information from the internet and that they only find e-learning threatening when they encounter learning problems. Learners have indicated that the lack of support from course instructors may be identified as one of the reasons for the learners to panic when they experience problems through e-learning. Lack of support from instructors has been identified to have a negative influence on learners towards e-learning[245].

4.2.2   Reasons for studying through e-Learning

- **Learners registered because of subject interest**

Fifty-eight percent (58%) learners shared that they have registered for the e-learning course because they were interested in the course subject and the university was only offering the course through e-learning. This makes choices of learners to be limited; they are being restricted to e-learning due to lack of many options to choose from. Twenty-two percent (22%) of the learners indicated that if there were other higher education institutions in the province offering the same course through traditional training, they would have opted for such a course.

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[243] Shimabukuro, J. 2005. Freedom and empowerment, online
[244] Katz, R.N., Oblinger, D. 2000. The "E" is fro everything p 78.
[245] Middleton, A.J. 1997. How effective is distance education p 133.

- **Learners registered for the course for exposure**

Twenty percent (20%) of the learners indicated with enthusiasm that their main reason for registering for the course was to get exposure in e-learning. The enthusiasm could be related to the hype about e-learning that is around the world, the subject matter and learning interest should be what attracts learners to the course.

4.2.3   Challenges experienced in e-Learning

Technical problems perceived as barriers

Ninety-seven percent (97%) of the learners indicated that technical problems can be a challenge while using e-learning as a medium of learning. Learners mentioned that if there is a technical problem with the computer, Internet that makes learners to lose contact with the instructor. It is not only the contact with the instructor that they lose if there are Internet problems, the learner is also cut off from other learners and that makes learning difficult. The demand-driven learning model indicates that administrative and technical support should be freely available to both learners and learning facilitators[246].

Learners have indicated that learning materials or tasks to be done sent electronically may be delayed or never reach the learner or the instructor at all. That creates problems as it may take a while for both the learner and the instructor to realise the delay or that materials or assignments were not received or delivered to the intended recipient. Learners indicated that the delay or lack of delivery might have serious implications for the learner when it comes to examinations, tests and assignments. The lecturer or instructor may fail or penalise the learner for not submitting the required test or assignments on the expected or set time.

Another challenge that was mentioned was the inability to open some documents or attachment that one finds relevant to his or her studies. It is illustrated that the increased time taken to download files and information due to limited bandwidth has a negative connotation to e-learning; as it makes learner's assessment and feedback limited[247]. Some

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[246] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A. 2001. The demand-driven learning model
[247] McGreal, R. 1998. Integrated learning environments p 25.

technical problems that are related to the findings of this study are that, learners are unable to connect during real-time sessions e.g. videoconference or struggling with downloading of information. The demand-driven learning model identifies technologies, as intellectual tool kits that help learners build meaningful interpretations and representations of the world, the tools chosen for e-learning programs should support instructional objectives[248]. The technology tools used to facilitate the learning should cause minimal destructions to the learner and to the learning process.

- **Lack of communication perceived as a barrier**

Eighty-three percent (83%) of the learners have indicated that they have minimal communication with the instructors, as instructors are not available at all times for communication. Learners stated that the lack of communication may lead to misunderstanding of instructions from instructor and that may be a barrier as that affects their studies. It is argued that computer-mediated communication can reduce overall communication within a social network; the same can be applied to e-learning network, learners in this case[249]. It is further argued that asynchronous communication disrupts conversational routines and can hinder tacit learning.

- **Lack of support perceived to be a barrier**

Sixty-eight percent (68%) of the learners perceive lack of support from online instructors to be a challenge towards their learning. Learners explained that there was no one to assist when they experience problems. It takes long to get hold of the instructor to assist with the problem. Learners perceive communication to be prolonged and delayed, "If I am confused and want to get clarity, I have to send an email to the instructor or one of the learners and that can take 30 minutes or longer to get a response", that was the response from one of the learners expressing frustrations they experience due to lack of support. Learners feel that the lack of direct contact with the instructor cause them to be frustrated, as opposed to face-to-face learning where communication is instant and spontaneous.

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[248] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A. 2001. The demand-driven learning model
[249] Desanctis et al. 2003. Learning in online forums p 565.

According to Hara and Kling[250] lack of access to other learners and to instructors may have a negative impact on the learning process of an individual but that does not hinder the learning to take place. E-learning is viewed to lack appropriate personalised support that can help individuals to manage their online experience, stay motivated and learn satisfactorily[251]. The biggest threat identified to lack of support may result in learners being discouraged and leave the course[252]. When it comes to support, the online instructor must take into consideration the different learning styles, preferences and knowledge when giving assessment and feedback. Dependent learners tend to need more support from the instructor than independent learners.

4.2.4   Benefits of e-Learning

- **E-Learning enhances level of independence and teamwork**

Thirty-two percent (32%) of the learners indicated that e-learning improves one's ability to work independently as the instructor is not always available for support and that encourages teamwork. Learners indicate that they contribute and share knowledge by pasting information on the blog where all learners can access it, which promotes teamwork because learners start to depend on each other for knowledge sharing. Learners perceive that e-learning makes one to access more information and that improves one's level of knowledge and independency. E-learning gives learners an opportunity to broaden their knowledge because they can learn on their own and that increases learner's level of confidence and independence[253].

- **Learners perceive e-Learning to improve computer skills**

Ninety-three (98%) of the learners shared that through the use of e-learning, they get exposed to different programmes and that improves their computer skills. Working on the computer at all times improves one's abilities to work efficiently on different programmes, typing fast and accurately, formatting and spell checks are some of the skills that have been pointed to have improved. Two percent (2%) of the learners

[250] Hara, N., Kling, R. 2000. Learners' distress with a web based distance education p 557
[251] Martinez, M. E-learning p 2
[252] Erkunt, H. 2004. Developing systematic quality e-learning content p 52.
[253] Horton, W. 2000. Designing web base training p 30

indicated that computer skills are a requirement for e-learning; it makes one work harder to achieve skills needed to use computers and also to manipulate different programmes. The findings in this study relate or are similar to some of the studies that have been done before, the results of one of the studies indicate that e-learning equips the learners with an opportunity to become familiar with technology that is changing at a very fast pace and to acquire skills to this technology[254].

4.2.5　　Emotions relating to e-Learning

- **Feelings of being content and comfortable experienced**

Twenty-one percent (21%) of the learners stated that they experience feelings of content and comfort from e-learning; learners are pleased with the fact that they can access their study work anywhere and at any time. E-learning is perceived to be an excellent study tool for people who are studying through distance learning. It is argued that the use of e-learning removes time and place constraints.

4.2.6　　Time frames to complete the course

- **Learners perceive that they will complete the course successfully**

Fourteen percent (14%) of the learners believe that they will complete the course successfully but they indicate that they need more time than the set time to complete. Learners indicated that they are behind the schedule due the challenges they have experienced. The advantage of e-learning is that people can learn at their own time and own pace[255]. The e-learning programme that this study focused on is a postgraduate programme that learners have to complete within a year; that challenges one of the benefits of e-learning; for a learner to learn at one's time and pace. So the fixed time set for learners to complete their degrees restricts them from the flexibility that online learning offers.

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[254] Horton, W. 2000. Designing web base training p 30
[255] Sloman, M. 2004. The e-learning revolution p 149.

- **Learners perceive that they will not complete the course successfully**

Eighty-six (86%) of the learners believe that they will not be able to complete the course successfully. Learners indicate that lack of clarity from the instructors may play a role in their failure to complete the course. One learner stated that "I have already spent eight months in the course and have only completed few modules successfully and the set time to complete is running out". One of the issues to be considered is that universities work according to prescribed period for degrees to be completed, if one does not complete at the set time, one may even be excluded from the university programme. That can also be considered to be a challenge for e-learning.

4.2.6 E-Learning to be the ideal learning method

- **E-Learning perceived to be the ideal learning method**

Thirty-four (34%) of the learners perceive e-learning to be the ideal learning method. One learner indicated that "it avoids spoon feeding" and makes learners to think for themselves. It is perceived to be the best distance learning method because one can study from anywhere where there is an internet connection. The easy access to information makes one to appreciate e-learning more. It is stated that e-learning offers a possibility of providing a stimulating learning environment to engage learners in meaningful learning through reflection and application[256]. Some learners perceive that for e-learning to be the ideal learning method, more support staff should be made available to the learners. From the comments of the learners, one may conclude that e-learning may be considered an ideal learning method once the highlighted challenges have been properly revised.

- **E-Learning perceived not to be an ideal learning method**

Sixty-six (66%)of the learners perceive e-learning not to be the ideal learning method as it lacks physical contact with instructor. Learners feel that there are some practical courses that need the instructor to do live demonstrations and that is impossible with most e-learning methods. It is also perceived that instructors tend to give more focus on some

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[256] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A. 2001. The demand-driven learning model

courses or specific areas of the courses and neglect the other courses. Another factor that was mentioned was that e-learning is totally based on technology, if there are some problems e.g. technical problems with the computer or electricity power is off, learning will not take place until the problem is fixed.

4.2.7 Factors to improve e-Learning

- **E-Learning to be supplemented with face-to-face teaching**

Learners feel that e-learning would be more effective if it is supplemented with face-to-face teaching, where it would give learners an opportunity to meet with instructors. Learners indicated that they will be more comfortable if they can meet with instructors at the beginning of each module where instructor can introduce the content of the course and what the outcomes will be and what the instructor's expectations from the learners are[257]. The argument can be supported by the idea that the use of hybrid models in higher education and corporate training can be highly effective because the learning model for each part has been carefully thought through[258].

- **E-Learning courses to be updated regularly**

Learners stated that to avoid confusion course content should be updated regularly because one can find outdated information. Learners have indicated that they have come across information with previous year's date and that could be that the content that has been used for previous groups and has not been updated yet. It is argued that distance education courses are used to for too long and are not updated and their argument agrees with the findings of the literature study.

- **Clear instructions should be outlined**

Learners feel that clear instructions and schedules on courses should be outlined so that the learners can manage their time better. It should be outlined in a manner that does not cause any confusion to the learner who is going through the instructions alone. Instructions should be given in a way that would give the learner opportunities to engage

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[257] Welch, T., Reed, Y. 2005. Designing and delivering distance education p 50.
[258] Greenagel, F.L. 2002. The illusion of e-learning, online.

and think, instruction giving should move away from didactic instruction to discovery of information[259].

- **Network systems to be improved**

Learners feel that network systems should be improved; internet speed should be fast during the day to accommodate an increased number of learners that are using internet during the day. This seems to be a challenge that is affecting most of African universities. It is illustrated that ICTs in most universities in Africa have remained clutters of computers and networks that have either worked badly or islands of low bandwidth connections with frequent breakdowns[260]. This reflects on how far behind African higher education institutions are in information communication technologies.

4.3 Analysis of the data obtained from interviews conducted with the instructors and course developers

4.3.1 E-Learning as a teaching method

A weblog-based method is used to offer the course, lecture guidelines, assignments and instructions are posted on the blog. Learners' assignments are also posted on the blog and that is where they get feedback from the lecturers and comments from other learners. Instructors indicated that the institution is using weblog that is PowerPoint converted to shockwave; the learning management system referred to as Knowledge Environment for Web-based Learning (KEWL). KEWL is a South African Web based learning tool which was developed at the University of Western Cape. Instructors further indicated that e-mail is also used as a learning tool. The researcher did not investigate the learning management system (KEWL), how effective it is as a web based learning tool and its shortcomings as a learning tool.

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[259] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A 2001. The demand-driven learning model
[260] Adam, L. 2003. Information and communication technologies p 196.

4.3.2   Perceived benefits of e-Learning

These are according to the course instructors some of the activities that they find beneficial while they use e-learning. They will be discussed as follows:

- **Accessibility**

E-learning eliminates distance as a barrier to education and manages to reach a larger group of learners. E-learning offers a unique opportunity of access to lifelong educational opportunities for diverse groups of individuals who would not normally be able to further their education[261]. That will include people who live in remote areas, with full-time employment and with physical disabilities. With e-learning, lecturers and learners can get information from the internet and can do their learning at their convenience with no restriction. E-learning has incredible potential as a means of providing education to large masses of people, especially in South Africa with its chronic shortage of teachers.

- **Revision of material**

Instructor perceives that e-learning is good for revision of material; the learner does not have to refer to the lecturer for information that was offered previously, the learner can access it directly from e-learning system used.

- **Good for facilitation**

Instructor prefers to facilitate courses through e-learning; the instructor does not view facilitation through e-learning as a replacement of lecturer, the lecturer has still to offer support to the learners. E-learning requires learners to have mature attitudes towards their studies that can make the instructor's job easier. It is argued that for e-learning facilitation to work there has to be an understanding of how much instructors and learners know and how to participate successfully[262].

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[261] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A. 2001. The demand-driven learning model, online
[262] Johnson, S.D., Aragon, S.R., Shaik, N., Palma-Rivas, N. 2000. Comparative analysis of learner satisfaction p30.

4.3.3 Perceived challenges of e-Learning as a teaching tool

- **Time consuming**

Instructors indicate that it is time consuming to develop online teaching materials. It is mentioned that even repeated delivery of the same online course requires extensive preparation time and more effort is required to deliver a high-quality, tailored course[263].

- **Rewards perceived to be unjust**

Instructors perceive preparation of lecture materials to be difficult and a lot of effort. Instructors find it hard to justify the effort-reward balance; they feel that they are not being rewarded sufficiently for the work they put in. Many faculty members feel that the financial reward structure for e-learning is not corresponding with the amount of work involved[264]. Lecturers perceive that valuable research time is lost because of the work involved in developing online learning materials. A critical factor is identified, most African higher education academics have excessive loads and limited time to dedicate to developing e-learning content and that they also lack the skills and incentives to develop e-learning materials suitable to their needs[265]. It is further identified that African higher education institutions do not encourage or motivate their staff to develop materials that are suitable to their needs and those of their learners.

- **Lack of respect for intellectual property**

Learners tend to copy and paste other writers' work, claiming the work as their own without giving credits to the original writer or author of the work. At higher education institution learners gets penalised for taking other people's work without references or proper referencing. This seems to be a huge problem affecting all higher education institutions in South Africa; the media has been on the buzz about the rate of plagiarism and lack of respect for intellectual property in South Africa.

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[263] Ruth, S. R. 2006. E-learning p 68.
[264] Ruth, S. R. 2006. E-learning p 71.
[265] Adam, L. 2003. Information and communication technologies p 208.

- **Lack of understanding**

Learners tend to misunderstand instructions set by instructors on the blog. Lecturers indicate that the interaction with the learners especially via email reveals how big the mismatch is between lecturer intentions and learners' understanding pertaining to the work that is online. The lack of understanding can be related to learners not asking clarity from instructors.

- **E-Learning not viewed as a participatory platform**

Many learners do not see e-learning as a participatory platform where they can have freedom to explore their own themes and argue to their heart's content with lecturers and other learners. Some learners feel disempowered to pose comments freely; they seem to accept lecturer's input and instructions as they are with no questions asked. Some learners feel that it is difficult to query a lecturer that can be thousands miles away only to resort ask questions via email. Through emails the lecturer can see the level of misunderstanding and the resistance of learners to pose questions online. The lack of participation may be attributed to lack of computer skills, as that may lead to lack of group participation and results in uncertainty[266].

Instructors find emails to be time consuming because same questions are posed by different learners and the instructor has to respond to each learner. If same questions were posed on the blog for example, the instructor would have addressed the whole class with one response to avoid duplication of the same information via emails. Comments on the blog from learners can also assist to point out flaws on learning materials.

4.3.4 Perceptions of instructors towards e-Learning

- **Weak learners battle with e-Learning**

Instructors perceive weak learners to perform badly with e-learning and they tend to fall back even further. They seem to battle to follow and understand the set instructions and that seem to have a negative impact on their achievement and learning process.

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[266] Lautenbach, G., Van der Westhuizen, D. 2002. Professional development of online instructor in higher education p 26

- **Good learners perceived to perform well**

Instructors perceive that good learners tend to do better and are perceived to be more positive when studying through e-learning. One may attribute that to the fact that they have confidence in themselves and they approach e-learning with a positive attitude. It is mentioned that strong commitment and positive encouragement from learners may lead to success in e-learning[267].

- **E-Learning perceived to be an ideal teaching method**

E-learning is perceived to be an ideal teaching method for selected courses and that it requires considerable instructional design. Instructor feels that one can do incredible training with e-learning but one need to identify the most suitable tools to be used. Some tools are perceived not to do what they are promised to deliver.

One instructor indicated that "I do not believe that there is such a thing as an ideal teaching method". Some forms of learning suit some situations better than others. E-learning seems to be best at content based or skills learning where specific knowledge is being imported. E-learning becomes challenging for a more open form of learning, where what is being taught is more intangible, one can benefit from face-to-face teaching.

4.4 Observation Data

Participant observation method has been used to investigate the challenges of e-learning in higher education. The researcher used the same group of learners that the researcher interviewed. The researcher observed the following:

4.4.1 Setting of the computer rooms

- Learners sit in a room with two or three learners in each room.

- Each learner has an allocated workstation with a computer.

- Learners use computers for writing assignments, projects and tests, for surfing the Internet, to access the blog and for sending emails.

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[267] Currin, L. 2004. Feelin' groovy: experts now believe that e-learning p 1.

4.4.2   Daily activities of learners

- Learners arrive at the set workstations from 07H30 in the morning.

- Apart from the morning interaction and greetings, they go straight to their workstations and log on to the computer.

- Learners check their emails and blog to check communication and instructions from instructors and other learners.

- Depending on the instructions, learners carry on with their daily work.

- Learners take breaks in between to chat and offer assistance to each other whenever possible.

- Learners finish at 16H00 in the evening.

4.4.3   Tendencies or behaviours observed when working on

assignments or projects

- Most learners tend to leave their workstations and walk around, taking unnecessary and extended breaks when experiencing difficulties with what they are working on. That may distract other learners that are busy with their work.

- Learners frequently browse through the Internet for information.

- Learners go to entertainment websites, download movies and music in between their daily schedule. The researcher observed that the downloading of music and movies tend to delay the learners from finishing allocated projects or assignments. The downloading of music and videos may cause the computer to hang for some time and during that period the learner will not be able to do any work on the computer.

- Learners demonstrate different behaviours when they find the work challenging, some learners would sit in frustration just staring at the computer. Some learners

would start to play around with things that are surrounding them; the researcher read that as a sign of boredom or agitation.

- When learners experience technical problems with computers, they send emails to the technical support department for assistance. That may take sometime before the problem is sorted or when technical support people come to check on the problem and that makes learners to be behind the set schedule.

- Learners with inadequate computer skills tend to disrupt other learners as they consistently ask for assistance from other learners. Their lack of adequate skills makes them to be behind the set schedule and that makes them to stay behind after normal hours so that they can catch up with the rest of the group.

- The researcher observed that learners do not use the blog as a learning tool; learners do not often put comments or get involved in discussions with other learners over the blog. They use it as an instructional tool, just to retrieve information from instructors.

- Learners experience technical issues that are beyond their powers and organisational powers. In Gauteng, there are constant power (electricity) cuts especially in winter months due to power shortages in the province. That has been observed to make learners helpless as that affects their work because they cannot access computers.

4.5   Conclusion

In this chapter, the researcher discussed data obtained from interviews conducted with the learners and course instructors. Data gathered using the observation method has also been discussed. The findings from interviews and the observation method could be supported by information from the literature study. The observation method served the purpose of confirming what learners described and the researcher gained some information that learners thought was not relevant or was not aware of those factors that played a role in their learning process. The next chapter will be dedicated to findings, recommendations and conclusion of the study.

Chapter 5

Findings, Recommendation and Conclusion

5.1   Introduction

This study has attempted to answer the research question posed in chapter one. This chapter intends to present the findings of the study. The consolidated data will be interpreted against the background of the existing theoretical framework and this will be done through a discussion of the conclusion drawn from the findings.

5.2   Findings

5.2.1   Findings from learners

The findings from the study can be summarised as follows:

Learners do not use e-learning as an effective communication tool, but restrict e-learning to an instruction tool. They only use the system to access instructions from course instructors. Learners do not engage in discussions or discuss their viewpoints on the blog with other learners or instructors; they would rather send an e-mail to the instructor to get clarity on instructions. The demand-driven learning model advocates for collaborative learning environments where knowledge evolves through social negotiation[268]. The findings of this study indicate that learners view instructors as a source of knowledge, they do not challenge instructors and other learners. E-learning is supposed to create a learning environment where learners would construct their own knowledge and understanding.

Most learners did not have computer skills when they registered for the programme. They have gained intensive computer skills through the use of e-learning. E-learning cannot take place without computers and skills to operate them. It takes time for learners to

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[268] Macdonald, C.J., Stodel, E.J., Farres, L.G., Breithaupt, K., Gabriel M.A. 2001. The demand-driven learning model, online.

become proficient on computer skills and valuable time is lost to learning computer skills - time that could have been used to study course content. It becomes an obstacle to e-learning programmes that have set a period for learners to get the qualification; it reduces the success rate of the learners and increases athe drop-out rate. Some of the learners in the study have left the programme to go and pursue full-time employment.

E-learning makes learners move from lecturer dependency to independency,. Llearners indicate that they use the Internet as an information tool. Instructors are not always available for support, therefore learners are forced to be independent when it comes to their learning, and they have to search for information for themselves fromon the Internet and other prescribed learning sources. Online instructors do not seem to share the same view with the learners - they perceive that learners take information on the web as it is and do not construct meaning for themselves from study materials. That may give an explanation toof the level of plagiarism in South African higher education. The acquisition of new knowledge and skills from learning environments will make learners to become confident and independent.

Learners who are computer illiterate find e-learning difficult and not to be an ideal teaching or learning method. Computer illiterate learners find themselves thrown in at the deep end; they have limited skills to operate a computer. They find themselves faced with a situation where they have to learn and interact with instructors and other learners via the Internet, and they do not even have a clue what it is. Learners were not offered any computer training course prior to the e-learning course, lack of skills and support make learners feel threatened by e-learning.

Learners find e-learning to be impersonal. Learners studying through this programme come from traditional higher education institutions; they have never been exposed to this kind of learning. They are used to normal campus life where they attend classes and the lecturer will be in charge of the class, guiding them through the learning materials and giving them verbal instructions.

Lack of support has been indicated as one of the major challenges of e-learning; that can be attributed to lack of technical support and support from instructors. Learners are based far from the university; the only interaction with lecturers is through the blog or e-mails.

Due to heavy work load of instructors and busy schedules, they cannot be always available for academic support. Communication can be delayed or prolonged due to the unavailability of instructors. A learner may be working against a deadline for assignments and need to get in touch with the instructor urgently; the instructor may only be available a day later to assist the learner. Those are some of the problems that have been identified to be associated with lack of support from lecturers.

Technological problems have been indicated to be one of the barriers of e-learning. Technology problems that have been highlighted were lack of computers; most of the learners do not have personal computers that they can use while they are at their homes. Learners are compelled to work on their studies at a designated venue, at the centre where they have been placed. The lack of access to computers frustrates the purpose of e-learning, i.e. accessibility at any time and anywhere.

Technological problems may have a direct impact on the work pace of learners, bandwidth problems, downloading of files from the internet and inaccessibility to some websites have also been identified as a challenge to e-learning as that may slow down learning activities of learners. For example, if the bandwidth is slow, it will take longer than normal for learners to complete the allocated task or project. That may even result in learners not being able to complete the task on set deadlines, sSet deadlines pose a threat to e-learning, e-learning learners are supposed to study at their own time and own pace.

Physical distractions from surrounding people and surfing of the Internet were identified as disturbances to the learning process. Learners tend to move around, taking unnecessary breaks or chatting to each other. The setting in this environment is more like in a traditional classroom where one is allocated time slots to work on different courses, if learners do not manage their time effectively, they tend to be left behind and that may lead to unnecessary frustrations.

Technological tools that are used in e-learning should be user-friendly. Tools used should involve learners in critical thinking and be stimulating to learners. Feelings of boredom that have been related to e-learning can be directed to dull technology tools that are used to implement e-learning.

Different kinds of emotions have been identified, learners that enjoy e-learning; talk about being happy and content. Mixed emotions have been shared, there are times when learners find e-learning easy and enjoyable. Emotions of being stressed and being confused have been described especially when a learner is not clear with instructions and does not have anybody to turn to for support. Learners that are competent in computer skills tend to enjoy e-learning course offerings.

5.2.2 Research findings from course instructors and developers

Higher education institutions lecturers are expected to conduct research in their teaching fields. In South African higher education institutions, teaching staff has to concentrate on teaching, administrative and course development. The identified tasks take ~~most~~so much of their time that they tend to neglect some tasks. Course instructors have indicated that developing online courses materials was time consuming and that ~~makes~~causes them to neglect the quality of course content.

Course instructors are not happy with the rewards that are related to online course development. The monetary value and the recognition that is given to e-learning do not justify the hard work and the time spent working on developing the course materials. Most of the learning materials that are used in South Africa are from other countries, especially the developed countries. Lecturers are not motivated to develop local learning materials that are culturally related to South Africans due to the ~~above indicated~~ challenges indicated above.

Course instructors and course developers perceive e-learning to be an ideal teaching method. Learners benefit from course materials that are always available and that they do not have to depend on the instructor for revision. E-Learning forces learners to be responsible for their own learning.

5.3   Recommendations for e-Learning in higher education

5.3.1   Recommendations for factors that affect learner proficiency

Computer skills assessment should be done before a learner can enroll for an e-learning course. That way, learners with no computer skills can be encouraged to take basic computer lessons.

Course content should be designed to suit or compliment different kinds of learners, preferences and learning styles. E-learning course content should meet the requirement of National Qualifications Framework (NQF) and South African Qualifications Authorities (SAQA).

Course content should be revised and updated at all times. Higher education institutions should hire more support staff that will be responsible for administrative duties so that they can take off the heavy burden from academic staff. Support staff may be utilised to regularly check that the course content has been updated.

Instructors should let learners know their availability schedule so that learners can know when to expect a response from an instructor. A backup plan should be put in place in cases where the instructor will be out of reach or unavailable for a long period. Additional staff members should be provided for support. If higher education institutions have sufficient support staff members it will free the teaching staff to become more available to assist and support learners.

Course content should be made available in different languages that will make learning easy for learners. In South Africa, we have more than one official language; it would benefit learners if the course content is in their home language. As the country has not yet reached a stage where most of the learning materials are home developed, it might be premature to suggest course content to be in different languages, as English is considered to be the medium of instruction in the country.

English lessons should be made compulsory in higher education to bridge the language gap that is experienced and to make learners more proficient in English. To cater for cultural diversity, learning materials should be in line with the South African context and culture.

Learners should be given clear instructions on what is expected from them whether it is in an assignment question or test. Both learners and instructors have highlighted that there is a communication gap; they seem to communicate across each other. Language proficiency lessons can also serve as a remedy in this situation because the miscommunication could be attributed to limited understanding of English.

From the challenges identified in this study, there are some factors that still need to be addressed before e-learning can be used independently as learning or teaching tool. Blended learning can be used as the transitory phase to e-learning in South African higher education institutions.

Instructors should focus on the attitudes and mindsets of learners since these have an influence and impact on e-learning that can be derived from assessments done by learners. In South Africa there are learners with different experiences in one country: there are learners from rich areas, like Sandton, a suburban area, with a lifestyle which is similar to first world countries lifestyle; learners from there have first world countries experiences and exposures. There are learners from areas like Alexandra who have third world experiences. Learners from such areas have never seen or used a computer until they reach higher education level. Government is introducing computer literacy at schools as early as in primary schools but it is not in all schools that such kinds of programmes have been introduced. For e-learning to be successful in South Africa, mindsets and attitudes towards learning of such diverse learners should be taken into consideration.

A technical helpdesk should be available at all times for support and should provide speedy delivery service as delayed responses affect the learning process for the learners. The focus should not be on learner support only; maintenance and technical support for the whole organisation should be considered, and strategy plans should be put into place. Technical problems would be limited or could be fixed in a shorter period if higher education institutions opt to use South African e-learning systems. Even with South African learning management systems, there should be trained technical support people within the country that can be easily reached when there is a crisis with the system.

5.3.2 Recommendations for institution in implementation of policies

E-learning should have support from management to down structures. If e-learning has a buy-in from senior management, institutions will have a fixed budget that has been set aside to maintain and develop e-learning facilities. More course developers would be sent for high technology courses to be able to maintain the world standard in course development. There would be good incentives and rewards to motivate teaching staff to invest their time in e-learning.

Training should be offered to instructors and course developers so that they can be more familiar with the learning management systems. They should be encouraged to attend internal and external workshops so that they can always be aware of recent software and changes on learning tools.

Technological learning tools should be maintained at all times. Bandwidth and network systems should be improved and modern computer applications should be developed. With the support of senior management and a budget available for e-learning activities, licenses would be bought to get access to updated software and technologies.

The issue of intellectual property, ownership and copyright should be addressed with course developers to avoid unnecessary battles over learning materials. Higher education institutions should have agreements and sign contracts with teaching and development staff on intellectual property, ownership and copyright.

5.3.3 Recommendations for higher education government policies

More coordination and resource sharing between different higher education institutions could benefit institutions. There are some higher education institutions that have shown success in the implementation and managing of e-learning; those institutions can share their success factors with other institutions.

Partnerships should be developed between government, higher education and the private sector. Government departments and the private sector should be encouraged to sponsor development of technologies in higher education institutions; that will produce a workforce that is competent in technologies.

5.4   Recommendations for Further Research

- The relationship between technology applications and learning outcomes should be investigated

- The following areas of e-learning require further study:

  - Cost-benefit analysis

  - Appropriate teaching software

  - Use of blended learning

- The role of computers in improving learners' performance

- The influence of computers on instructors' and course developers' performance

5.5   Conclusion

ICT plays a huge role in knowledge transfer and for South Africa to have sufficient and competitive knowledge workers, the government calls for the education system to play a role in that contribution. ICTs have to be introduced in schools from an early age that can be beneficial to the success of online learning. For the past few years, many South African Higher Education institutions have introduced online learning and many learners are being taken in by it, especially working learners, who want to work full-time and study part time.

This study identified a number of barriers to e-learning amongst postgraduate black students in South African higher education. There is clear evidence that the challenges can be overcome if there is appropriate technology, improved technical skills and adequate resources to make e-learning possible. ~~Through t~~The introduction of ICTs in schools at early grades~~, that~~ will enable learners to transit from face-to-face teaching to e-learning with less pressure.

The study has also highlighted some cases were e-learning has been implemented successfully in South African higher education institutions with minimal challenges. The success formulas that have been used by those institutions can be used as a framework or a benchmark for other institutions that want to implement e-learning. With the

government, private sector and higher education institutions working together, the challenges can be minimised and manageable.

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Appendix A

INTERVIEWS WITH THE LEARNERS

1. Please share with me your e-learning experiences on a daily basis.

2. What made you register for a course through e-learning?

3. When you started with this course, were you computer literate?

4. What are the benefits of e-learning?

5. What are the challenges that you have experienced while using e-learning as a medium of learning?

6. What kind of emotions do you experience when it is just you and your computer and you are going through a lesson or working through a posted assignment?

7. How do you feel about e-learning?

8. How can you describe your online interaction with your lecturers?

9. What are your chances of completing this course successfully?

10. Do you consider e-learning to be the ideal learning method and why do you say so?

11. If there are any changes that you can implement to improve e-learning, what are those?

Researcher: Thank you very much for your time.

Appendix B

INTERVIEW WITH LECTURERS AND COURSE DEVELOPERS

Researcher: Thank you very much for making yourself available for this interview. Your real names will not appear anywhere in the project or in the thesis.

1. What is your role in this programme?

2. What method of e-learning are you using to offer the course?

3. What are the benefits of e-learning?

4. As a lecturer, what kind of challenges have you experienced while using e-learning as a teaching tool?

5. What are learners' perceptions and attitudes towards e-learning?

6. What are your perceptions towards e-learning?

7. How can you describe your online interaction with the learners?

8. Do you consider e-learning to be the ideal teaching method and why do you say so?

Researcher: Thank you very much for your time.

Appendix C

OBSERVATION METHOD

1. Setting of the venue that e-learning takes place.

2. Activities that take place in the computer room.

2. Behaviour of the learners while working on the computer.

3. Emotions experienced while working on the computer.

4. Online interaction with the other learners and instructors.