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Institutional and individual Barriers of E-learning adoption in Higher Education in Oman: Academics' Perspectives

A thesis submitted in fulfilment of the requirements
For the degree of Doctor of Philosophy

By
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GO To Table of Contents

Declaration of Authenticity and Author's Rights

This thesis is the result of the author's original research. It has been composed by the author and has not been previously submitted for examination which has led to the award of a degree.

Signed:  **Date:** 25/5/2017

In the Name of Allah, the Most Merciful and Compassionate

"He gives wisdom to whomever He wills.
Whoever is given wisdom has been given much good.
But none pays heed except those with insight."
(Holy Quran 2:269)

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Abstract

In the past two decades, rapid advances in information and communications technology (ICT) have encouraged some educators to opt for technological learning environments to support teaching and learning. As a result E-learning has grown to be an essential element of vast Higher education institutions around the world with large investments to improve the quality of teaching and learning. In spite of all these investments on E-learning facilities, academics face challenges that discourage them from changing to this mode of delivery.

The goal of this study was to explore and examine academics perceptions on the factors that inhibit the adoption of E-learning in Higher education in Oman. The key focus of the study is on the examination of how the institutional and individual barriers affect the adoption of E-learning by academics. Thirty academics from three teaching faculties at Sultan Qaboos University (SQU) participated in this study. Through teachers' semi-structured interviews and LMS use statistics, this study signifies the factors that hinder academics use of E-learning.

The findings from this study reveal (a) that academics have positive perceptions of the use of E-learning in teaching and learning, (b) that academics perceive that lack of specialized training, lack of solid IT infrastructure, lack of accessible E-learning support, and lack of E-learning strategy are the main institutional barriers to academics' E-learning adoption, and (c) that academics believe that lack of awareness of E-learning effectiveness, lack of knowledge of integrating E-learning in teaching, and resistance to change were the main individual academics' barriers to E-learning adoption. Furthermore academics with more E-learning support structures have more positive attitudes and adoption level of E-learning. The findings from this study deepen our understanding of E-learning adoption in the higher education context in Oman through examining the issues associated with institutional barriers and their effect on individual barriers of academics' adoption of E-learning technologies.

Contents

List of Figures

List of Tables

Acronyms and Abbreviations

CET	Centre of Educational Technology
CIS	Centre of Information Systems
EDU	College of Education
HE	Higher Education
HEI	Higher Education Institution
ICT	Information and Communication Technology
IS	Information System
LC	Language Centre
LMS	Learning Management System
Moodle	Modular Object-Oriented Dynamic Learning Environment
SCI	College of Science
SQU	Sultan Qaboos University

Definitions of Terms

To gain a better understanding of the research question, operational definitions of central concepts are needed.

Academics: Faculty members who are teaching in one of the colleges or the Language centre at the Sultan Qaboos University and holding an academic rank. (SQU, 2015).

Adoption: Often used with the term "diffusion" and refers to the decision of an individual to make full use of an innovation (Rogers, 2003, p.21).

Barriers: A barrier is defined as "any condition that makes it difficult to make progress or to achieve an objective" (WordNet, 1997). In this context, the objective is adoption of E-learning, hence a barrier can be defined as "… an event or condition that hinders the adoption decision" (Seffrin et al., 2009, p.477).

Blended Learning: Is "the combination of instruction from two historically separate models of teaching and learning: traditional face-to-face learning systems and distributed learning systems" (Graham, 2006, p.5). This is the approach of E-learning deployed at Sultan Qaboos University (SQU) of combining face-to-face and online instructions.

E-learning: "an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning." (Sangra et al., 2012, p.152).

Information and Communication Technology (ICT): ICT is a convergence of computers and digital communication to enable access to information and other resources and to facilitate the communication and collaboration.

Learning Management System (LMS): The software which provides a means of administering E-learning through access system and tracking system for student

progress and which also facilitates communication, assessment and content display.

Chapter 1 Introduction

Not that the story need be long, but it will take a long while to make it short.
(Henry David Thoreau, Letter to Harrison Blake; 16 November, 1857)

Over the past two decades, Higher Education institutions (HEIs) throughout the world have undergone rapid changes because of the development of technology and ICT in education. These "changes occurring in the primary processes of higher education courses and degree granting are closely related to the contextual trends of virtualisation, internationalisation, lifelong learning and customer orientation that are part of society in general" (Collis and Moonen, 2001, p.30). To keep pace with these changes, many traditional universities were inevitably forced to alter their instructional method significantly. Accepting and adjusting to the new developments is unavoidable for everyone in society and especially for those in the educational setting (Ali, 2003; Collis and Moonen, 2005; Shank, 2011; Moore, 2013). Higher Education institutions (HEIs) have invested heavily in developing robust infrastructures and IT support teams. Yet despite the enthusiastic endorsement of technology in higher education at a national and institutional level, there has not been a widespread adoption of these technologies by individual academics (BECTA, 2004; Blin and Munro, 2008; Hughes, 2009). The limited adoption by academics is very evident in the HEI in developing countries and the case study of this research investigates the use and level of adoption by academics at the Sultan Qaboos University (SQU) in the Sultanate of Oman.

Much of the literature exploring E-learning adoption in higher education (HE) has reported on either the individual (internal/micro) factors or investigating the institutional (external/macro) factors enabling or inhibiting adoption of E-learning. The present research study addressed these restrictions by examining responses towards E-learning adoption in higher education in the context of a case study underpinned by Innovation Diffusion Theory (IDT). This approach allowed an investigation of not only the individual constrains but also the institutional barriers and their influence on academics' individual behaviour in E-learning adoption. The purpose of such a deep exploration was to provide a richer understanding of educators' views and responses towards technology in their teaching practice. The goal was to inform stakeholders to

more effectively recognise and address the needs of educators, and ultimately improve the quality of E-learning in higher education.

1.1 Background of the Study

Technology advances have affected almost all areas of production and services including teaching and learning. There are various changes in uses of technology on teaching and learning driven by many factors within and outside academic institutions. Private and public firms, government institutions, as well as academic institutions, participate and emphasize the usage of E-learning systems to maximize their production and performance value. Sultan Qaboos University (SQU) is the first and only Public Government University in Oman. SQU uses an online learning management system to support teaching. The University implemented this Moodle learning system in 2002, replacing an older version of WebCT. Moodle is mainly used by SQU teachers to support face-to-face teaching.

Although E-learning systems are equipped with a lot of useful features, obligations to technology advance, the use of emerging information technology in general has fallen below expectations (BECTA, 2004; Blin and Munro, 2008; Hughes, 2009). This is also seen at SQU, where some of the teachers have adapted Moodle in their teaching while many others have not. How users are influenced to adopt E-learning and what are the factors inhibiting their adoption is worth of consideration by all SQU stakeholders, including management, instructors and system administrators.

Before introducing the purpose and objectives of this study, it is necessary to understand the concept of E-learning. A common definition of E-learning has not yet been agreed by researchers, but some perceive it as a way of teaching by using electronic media, such as internet, audio/video tape, interactive TV, satellite broadcast, CD-ROM and intranets (Engelbrecht, 2005; Urdan and Weggen, 2000), while others view it as online learning which utilizes web-based communication, knowledge transfer, collaboration and training which add value to the individuals and organizations (Kelly and Bauer, 2003). Raab et al. (2001), describe E-learning as a situation where instructors and learners are separated by distance, time, or both. According to Liaw (2008), E-learning involves network technologies to create, operate and enable learning anytime and anywhere.

E-learning is highly dependent on technology (Keskinarkaus, 2010), thus describing the relation between users of E-learning and technology is essential. Sangra et al. (2012) offered a more comprehensive definition of E-learning. This definition is as follows:

"E-learning is an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning." (p.152)

Technology integration in educational settings has forced the institution and system developers to analyse the best methodologies for teaching and learning through technology. In this interdependent situation, interpersonal factors for successful use and adoption of a teaching system, such as end users' acceptance, play a major role in determining the full implementation of an E-learning system. Manross and Rice (1986) indicated that, when an institution introduces new technologies, full implementation and successful adoption will not be achieved, unless the workforce accepts the technologies.

As a member of academic staff at the department of Computer Science at the college of Science, and despite the awareness of EL through WebCT since 2001 and then Moodle in 2005, the researcher observed that EL was not used by most of the colleagues at the department and the college as a whole. The researcher herself was not using the technology and did not attend any ELearning training offered at the university. It was not until Fall' 2010 when she was first introduced to the technology through Moodle as a management tool to manage a large size multi section programing course. The course was taught by five academics and all such courses at the college were all using Moodle to unify learning content and assessments presented to students. And submissions of assignments and lab exercises were also provided to students through Moodle. None of the Moodle courses at the department or the college carried High stake exams. All of the midterm and final high stake exams were paper based. With this reality, the researcher started asking questions and investigating the Moodle courses at the college. Many issues related to EL practice were raised through the initial investigation, for example the large number of courses registered as EL courses at the college and published in the EL Moodle website did not reflect the actual figure of current running courses as many were replicas of the same course but created by different instructors,

and others are dead courses that either are not taught anymore at the college or were created by instructors who were no longer teaching at SQU. With these observations and concerns, the researched anticipated some problems with academics use at the college and wanted to explore the challenges that inhibit these academics from using EL technology not only at college of Science but other colleges at the University.

Three teaching faculties at SQU were the basis of this exploration to build knowledge of the challenges academics are facing in these faculties at the University in adopting ELearning technology in their teaching practice. The choice of these three faculties was made based on exploring academics' perceptions of these challenges from two academic colleges and a teaching support centre. Furthermore, the selection of the colleges was made by selecting one college from the five scientific colleges at SQU, namely the college of Science, and one college from the four humanities colleges, that is the college of Education .

1.2 Research Problem

As E-learning continues to introduce new teaching and learning prospects for students and educators, it has become popular in many HEIs worldwide. And although HEI in developing countries strive to improve their education systems, there is a general lack of awareness of the benefits and potential of E-learning amongst educators.

Many of the problems related to E-learning, including provision of ICT infrastructure, resources, and internet access are still major hurdles in developing countries. Nevertheless, over the last few decades E-learning supported courses have been introduced in an increasing number of HEI in these countries as an alternative to the solely traditional face-to-face method (Abdel-Wahab, 2008; Bandalaria, 2007; Gronlund and Islam, 2010; Rhema and Miliszewska, 2010). In spite of this, E-learning practice in the Arab countries remains largely unexplored and needs to be fully examined and understood (Duan et al., 2010; Rossiter and Crock, 2006).

In Oman E-learning has grown rapidly since WebCT was first introduced in Sultan Qaboos University in 2001 (Al Musawi and Abdelraheem, 2004; Al-Musawi, 2007; Weber, 2010) and later replaced by a Moodle Learning Management System in 2005. However, despite this rapid growth of E-learning in the country, research is not going at the same pace.

Although there have been some studies on Omani faculty members' ICT adoption in the past (Al-Senaidi et al., 2009), the current status of E-learning uses and skills by faculty members has basically remained unknown and the faculty members' perception of barriers to adopting E-learning and perception of E-learning attributes have barely been explored (Al-Senaidi and Gawande, 2013; AlNaibi et al., 2015). Furthermore, most of these past studies were quantitative, with no qualitative studies to investigate the cross relation between the individual and institutional barriers in depth.

1.3 Research Aim and Question

The aim of this research is to explore and examine academics perceptions on the factors that inhibit the adoption of E-learning in a blended learning environment in Higher education in Oman. The key focus of the study is on the examination of how the institutional barriers affect the individual adoption of E-learning by academics

In order to achieve this aim, this research seeks to answer the following question:

How is the adoption of E-learning technologies affected by institutional barriers and the attitude of academics?

In order to explore the research question, the below sub-question were developed:

Question #1: In the absence of any common university directive for E-learning, to what extent do the three academic faculties at Sultan Qaboos University use LMS in their teaching? And what is the nature of this use?

Question #2: What do academics perceive as the benefits of E-learning to their teaching practice and to students' learning?

Question #3: In the absence of an E-learning strategy, how do participants perceive the institutional factors that challenge academics' adoption of E-learning?

Question #4: How do participants perceive the individual factors that inhibit academics' adoption of E-learning?

Question #5: How do participants perceive the factors that inhibit students' adoption of E-learning?

Question #6: How do different E-learning structures and organization at the three faculties affect academics' perceptions of E-learning barriers?

1.4 Contributions of the Study

While E-learning is increasingly considered as an important success factor in building the new Oman, research relevant to E-learning in supporting learning in Oman higher education is scarce. This thesis presents an examination of the relationships of individual and institutional constraints in E-learning adoption by academics in higher education. The qualitative interviews are accounts of how academics perceive the use of a learning management system as a beneficial tool for teaching and learning with technologies. Analysis of Moodle statistics data from the E-learning unit at the university has furthered the understanding of academics' usage of the system.

This research addresses an issue which is believed critical, and would provide a guide as to how Higher education in Oman can engage more efficiently and effectively in E-learning and overcome the barriers that stand in the way of E-learning adoption and integration. Thus, this research study contributes to the current limited body of knowledge, and provides an evidence-based source of information for academics, administrators, and decision-makers involved in planning, design and implementation of E-learning in Oman.

1.5 Thesis Structure

The thesis has been organised into seven chapters. Each chapter presents an introduction, major concepts, and summary as follows:

Chapter one	Defines the research problem and questions, including the background to the research. The contribution of the research is explained, followed by an outline of the study design.
Chapter two	Develops the case study of Sultan Qaboos University and the teaching faculties in which the research took place, examining the literature and studies that covered academics' adoption of E-learning in Higher Education in Oman in general and Sultan

Qaboos University in particular.

Chapter Three	Provides a critical analysis of the literature surrounding E-learning in Higher Education (HE). It explores in detail the current body of literature that relates to E-learning in higher education, blended learning management system (LMS) use in HE, academic perceptions that included aspects of E-learning, academics individual factors of E-learning, and institutional factors affecting E-learning.
Chapter Four	Presents a description of decisions relating to methodological choice based on philosophical fundamentals. The chapter presents the qualitative case study approach employed in this research as well as participant details, ethical considerations, methods of data collection, and data analysis, and validity and reliability of the research.
Chapter Five	Introduces the results of this research. It includes participants' use of the LMS tools as well as the benefits of these tools in teaching and learning. Based on participants' points of view on the barriers that inhibit E-learning adoption, suggested strategies to enhance academics' integration of E-learning are discussed in this chapter.
Chapter Six	Synthesises the findings of this study and discusses how the results answer the aims and research questions of this study. It comprises a cross case analysis comparing the different and common issues of academics' perceptions at the three faculties.
Chapter Seven	Discusses the study findings and limitations, provides a set of recommendations for the adoption of E-learning in Oman, and outlines suggestions for further research.

Chapter 2 Research Context

Sultan Qaboos University is a major landmark of Oman's modern Renaissance and its students are the object of our country's hope. It is our wish to see it fully provided with all the facilities and utilities it needs to enable it to play its full part in this society. Our society is eager for knowledge and learning and keen to join the ranks of the advanced nations
(From speech of H.M. Sultan Qaboos bin Said; 30 October, 1990)

Since the present study is directed at identifying the perceptions of the faculty members at Sultan Qaboos University (SQU) in Oman, it is important to give some insight on the educational system in Oman and SQU and the subject colleges concerned.

2.1 Country Profile

The Sultanate of Oman is the third largest country in the Arabian Peninsula with an area of 309,500 square kilometres. It is located in the South East of the Arabian Peninsula (see Appendix B). The total population of Oman according to the 2014 census was 3.99 million. It is divided into nine regions. The region of Muscat is the most densely populated region in the Sultanate with a population of more than half a million. It is the political, economic, and administrative centre in Oman. (Oman Statistical Year Book, 2015, p.35).

Like its neighbouring Gulf countries, Oman's economy relies mostly on Oil exports since the first development of oil started in 1967. Recently, the Omani government has been promoting other exports like liquefied natural gas, agriculture, and fisheries to contribute to the economy supplement oil exports.

In addition, like other Arab countries, Oman is a Muslim country and the official language in Oman is Arabic, but with 43% expatriates living in the country (Oman statistical year book, 2015, p64), English is the second practiced language particularly in communication, business, and many HEIs (Al-Abri, 1995).

Oman's development as a country started when its current ruler His Majesty Sultan Qaboos bin Sid, took power on 24th July 1970. Before this date, Oman was closed and

isolated from the rest of the world. The development of the education sector was at the top of the new government agenda that needed its immediate attention.

2.2 ICT in Oman

According to statistics from the Internet World Stats site (2012), the number of internet users in Oman increased significantly in 2012 compared to the year 2000. Oman is looking to develop information technology and telecommunication industries by investment in this area (Information Technology Authority report, 2013). Oman invests heavily in ICT infrastructure as a part of economic development. It intends to enhance internet access through broadband, 3G, and recently 4G mobile technologies.

However, many factors could block development and usage of the internet in Oman. Alqudsi-ghabra et al. (2011) reported that "lack of competition, lack of a well-developed information infrastructure and high prices have caused the relatively slow spread of the Internet in Oman" (p.51). Al-Gharbi and Ashrafi (2010) reveal a number of factors that contribute to the reluctance to adopt online tools and technologies in Oman including lack of awareness of the benefits of using internet in the workplace and security concerns.

2.3 Oman Higher Education

All universities, colleges of education, specialist colleges and private academic institutions in Oman are operated and supervised by the Ministry of Higher Education, which is responsible for the development of higher education. The Ministry of Higher Education aims to ensure quality higher education meets the requirements for sustainable development in Oman.

The private sector has played a significant role in the development of higher education in Oman. They participate in accommodating student demands for higher education. While there is only one public university in Oman which is Sultan Qaboos University (SQU), the Omani government encourages and supports private college and university involvement in developing higher education. It offers the opportunity for the private sector to participate in this field of education by providing them with many facilities. "The private colleges are entitled to receive partial financial support and other

government assistance including the provision of land and exemption from some tax obligations" (Al-Aufi, 2007, p.19).

According to the Ministry of Higher Education (2012), there are five private universities and nineteen private colleges in Oman. Most of these colleges and universities are affiliated with Universities in the UK, USA, Australia and India. Governmental regulation requires private institutions of higher education to affiliate with recognised foreign universities. According to Harthy (2011), "the importance of the academic affiliation agreement is to assist the private institution in all technical and educational areas, including curriculum development, follow-up and evaluation of colleges' and universities' academic performance, and the awarding of degrees" (p.103). There has also been a substantial increase in the number of scholarships awarded to students as well as staff in different institutions to study in-country, as well as abroad. This includes undergraduate and graduate studies.

Sultan Qaboos Univeristy (SQU)

The first public university in Oman was Sultan Qaboos University, which officially opened in 1986. It is located in the capital of Oman, Muscat, and it is the only state university in the Sultanate of Oman. The University commenced with five colleges, namely Medicine, Engineering, Agriculture, Education and Science. Four more colleges were established later, the College of Arts in 1987, followed by the College of Commerce and Economics in 1993, the College of Law in 2006, and finally the College of Nursing in 2008. SQU has developed plans for scholarships for academic staff as well as non-academic staff to study abroad. This includes English-speaking countries and non-English-speaking countries, for example US, UK, Canada, Australia, New Zealand, Japan and Singapore.

As the only Government University in Oman, the University has attracted a large number of students. According to SQU (2015), the total number of students registered at SQU increased from 557 in academic year 1986/87 to 17,200 in academic year 2013/14. The University provides various services and facilities for students as well as academics to promote teaching and learning at SQU. For example, it provides seven support centres, including the Centre for Community Service and Continuing Education (CCSCE), which aims to extend educational and community services to the largest

possible part of the community through providing social services and training programs for all segments of the Omani sociery; the Centre for Information Systems (CIS), which aims to develop, maintain and run SQU's computing infrastructure and to provide and to support SQU's computer-based information systems; and the Centre for Educational Technology (CET), which intends to "enhance teaching and learning at SQU through supporting faculty members and departments with the latest technologies in teaching and encouraging the adoption of best instructional practices" (SQU, 2012). Other support centres include human resources and staff development Centre, Language Centre, Centre of Career Guidance and student counselling. In addition, there are seven research centres and many laboratories in each college. The research centres include Humanities Research, Excellence in Marine Biotechnology, Communication and Information Research, Earthquake Monitoring Research, Environmental Studies and Research, Oil and Gas Research, Omani Studies, Remote Sensing GIS and Water Research.

In order to provide a comprehensive and balanced range of high-quality information resources, SQU has four libraries. The main academic library (Main Library) provides a range of services to support academic education and educational and research needs, including databases, e-book, e-journals and e-references. Other libraries include Medical libraries, which serve students and academics in the College of Medicine, as well as staff of the University hospital; Library of the College of Art and Social Sciences, which focuses on services specific to the needs of students and academics in the college; the Information Centre, which is located within the College of Commerce and Economics and serves the students and business faculty at the college and, finally, the Mosque Library (Library of Masjid), which provides a diversified collection of Islamic books and other Islamic items.

College of Education (EDU)

According to the SQU (2015), there were 2069 students registered in Bachelors, Diplomas, Masters, and PhD Degrees in the academic year 2013/14. After four years of study at the college, most of the students are expected to graduate as teachers in the field of their study. Language of instruction in all the college's programmes is Arabic, except for the English Language program, science and maths program, and Information and learning technology program, which are taught in English. There is a total of 135

academic staff working at the college. The following table shows the college's distribution of academics' ranks and job titles.

Table 2-1 College of education academic staff

	Omani			Expatriate			**Total**		
Job Title / Gender	M	F	Total	M	F	Total	**M**	**F**	**Total**
Dean	-	1	1	-	-	-	**-**	**1**	**1**
Assistant Dean	1	1	2	1	-	1	**2**	**1**	**3**
Professor	1	-	1	4	-	4	**5**	**-**	**5**
Associate Professor	10	-	10	12	2	14	**22**	**2**	**24**
Assistant Professor	26	18	44	21	7	28	**47**	**25**	**72**
Lecturer	8	14	22	1	-	1	**9**	**14**	**23**
Demonstrator	1	6	7	-	-	-	**1**	**6**	**7**
Academic Staff	47	40	87	39	9	48	**86**	**49**	**135**

(SQU, 2015)

As shown in table 2-1 above, there are seven academic ranks in EDU, including the post of Demonstrator which is reserved for young Omani college graduate with academic staff. In ascending order, they are as follows: Demonstrator, Lecturer, Assistant professor, Associate Professor, and Professor. The academic promotion of SCI faculty members, is based on Teaching, Scholarly achievement, and Community service. The table above shows that EDU academic population are mainly Omanis with almost equal percentages of Omani females and males. However the expatriate academics are mostly males, which makes EDU academics population highly male dominant.

College of Science (SCI)

According to SQU (2015), there were 2883 students registered in Bachelors, Diploma, Masters, and PhD degrees. Students normally spend five years studying at the college before graduating and the language of instruction for all the college's programmes is English. There is a total of 205 academic staff working at the college. The following table shows the college's distribution of academics' ranks and job titles.

Table 2-2 College of Science Academic staff

	Omani			Expatriate			**Total**		
Job Title / Gender	M	F	Total	M	F	Total	**M**	**F**	**Total**
Dean	-	1	1	-	-	-	**-**	**1**	**1**
Assistant Dean	2	1	3	-	-	-	**2**	**1**	**3**

Professor	2	-	2	22	-	22	**24**	**-**	**24**
Associate Professor	4	2	6	48	-	48	**52**	**2**	**54**
Assistant Professor	16	13	29	34	3	37	**50**	**16**	**66**
Lecturer	3	14	17	18	10	28	**21**	**24**	**45**
Demonstrator	1	11	12	-	-	-	**1**	**11**	**12**
Academic Staff	28	42	70	122	13	135	**150**	**55**	**205**

(SQU, 2015)

The academic ranks and academic promotion at college of Science (SCI) are the same as the college of education (EDU) above. The table above shows that unlike EDU, SCI academic population are mainly expatriates with more Omani females than the males. But like EDU, the expatriates academics are mostly males and likewise makes SCI academics population highly male dominant.

Language Centre (LC)

All students admitted for studying at SQU must take a placement test which determines their proficiency in four main components: English language, mathematics, computer skills, and study skills. The program is called the Foundation Program which was implemented at SQU in 2010. Before entering to study in any college, all students must fulfil the FP requirements by presenting an equivalent qualification, passing the exit test, or attending the courses and passing them. The language centre offers two major English Language programmes for students registered for study at SQU. They are the Foundation Program English Language (FPEL) and the Credit English Language Program (CELP). After passing the FPEL students' progress to CELP. Each semester approximately more than 4000 students go through Foundation and Credit programmes with 227 teaching academics from 30 different countries.

As shown in table 2-3 below, there are six academic ranks in the Language Centre, including the post of Demonstrator which is reserved for Omani academic staff. In ascending order, they are as follows: Demonstrator, Language Instructor, Senior Language Instructor, Assistant Language Lecturer, Language Lecturer, and Assistant lecturer. The following table shows the Language centre's distribution of academics' ranks and job titles.

Table 2-3 Language Centre Academic staff

	Omani			Expatriate			**Total**		
Job Title / Gender	M	F	Total	M	F	Total	**M**	**F**	**Total**
Assistant Professor	-	-	-	1	-	1	**1**	**-**	**1**

Language Lecturer	-	-	-	2	1	3	**2**	**1**	**3**
Asst. Lang. Lecturer	5	7	12	46	63	109	**51**	**70**	**121**
Senior Lang. Instructor	6	15	21	23	38	61	**29**	**53**	**82**
Language Instructor	3	5	8	-	2	2	**3**	**7**	**10**
Demonstrator	3	7	10	-	-	-	**3**	**7**	**10**
Academic Staff	**17**	**34**	**51**	**70**	**104**	**174**	**87**	**138**	**227**

(SQU, 2015)

The academic promotion of LC faculty members is based on teaching, Professional service, and Scholarly achievement. At the language centre, providing quality teaching is considered of central importance in determining promotion at LC. Like SCI academics, LC academics population are at large expatriates but with mostly females academics. Omani academics are also mostly females, which makes the LC academics population female dominant in contrast to EDU and SCI.

2.4 E-learning Infrastructure at SQU

The internet was made available to SQU late in 1997. The Centre of Information Systems (CIS) at the university supports academic and research activities, administrative needs and clinical and diagnostic work. It provides various resources including hardware, software, networks and other support facilities. To use these resources and the internet, users must respect University regulations as well as national/international law. The use of the internet facilitates learning processes for students. It has become a main resource for students with respect to learning; Amer (2004) found that 71% of undergraduates in Oman use the internet as a source of reading materials .

The advancement of technology is one of the most apparent trends affecting education at SQU. SQU has used the internet to increase e-education. LMSs such as Blackboard, WebCT and Moodle are used for teaching and learning in higher education institutions around the globe. E-learning using WebCT was implemented at SQU in 2001. Two years later, the number of online courses increased from eight to 40, and the number of students enrolled in these courses increased from 981 to 3,001 (Al Musawi and Abdelraheem, 2004). Over that time, the CET at SQU conducted many workshops in order to demonstrate the functionality of the WebCT package and how to use it to design online teaching materials. Two negative points were reported by students regarding E-learning instruction, as indicated by Al Musawi and Abdelraheem (2004):

Internet delays and interruption of WebCT service, and difficulties encountered in using onscreen materials for learning. These factors can be connected to a lack of technical support and the lack of quality of the internet connection. However, many students also found themselves learning better and understanding more of the course material by using these technologies (Naqvi, 2006) .

WebCT was later replaced by Moodle, which supports teaching and learning processes. Since 2005, Moodle has become a major technology used in SQU by educators to create online content and to present course materials. It has gained the interest of some researchers at SQU. For example, Ahmed and Al-Khanjari (2011) explored the effect of Moodle on students learning in a particular course at SQU, and they found that the students were comfortable using Moodle overall. Students reported that Moodle helped them in better understanding and learning the course material. In 2012, the University introduced a new version of Moodle, which has new characteristics (wikis, YouTube, blog, chats, forums, etc.) and additional features. In addition, the CET at SQU offers many workshops each year for all academic staff in order to introduce new technologies in education.

2.5 Summary

In this chapter, the profile of the Sultanate of Oman is described so that the elements of this study may be contextualised. Other issues related to the context of Oman and E-learning practice will be examined in several sections of the following chapter.

Chapter 3 Literature Review

I think technology is a very, very interesting field and when you couple it with education, it becomes as complex as the people that we are trying to teach.
(Linda, College of Education, SQU)

This chapter reviews the literature of E-learning in Higher Education (HE). It explores in detail the current body of literature that relates to (a) E-learning in higher education, (b) Blended learning or hybrid learning, (c) Academics' perceptions of E-learning, (d) Academics' individual factors affecting E-learning, and (e) institutional factors affecting E-learning.

The study is not concerned with how to design or develop effective E-learning resources. Rather, this study is concerned with analysis of the barriers affecting the adoption and use of E-learning resources for teaching and learning from the perspectives and experiences of teachers in the higher education sector in Oman.

Due to the limited studies carried out in Omani HE context, studies from other countries with similar teaching and learning environments and processes were included. These included studies from Kingdom of Saudi Arabia (KSA), Kingdom of Bahrain, United Arab Emirates (UAE), and Jordan. The adoption of E-learning at higher education institutions in the Arab world faces many obstacles including technological, administrative, organisational and human aspects of E-learning. In Jordan, which is one of the major Arab countries in adopting E-learning technologies (Al-Shboul and Alsmadi, 2010) and the first Arab country introducing Open University institution, the adoption of the technology was reported to be below expectations (Al-Shboul and Alsmadi, 2010). These barriers and their variables must be identified and controlled to eliminate undesired results and limitations.

The chapter is designed as follows: Section 3.1 presents the literature of E-learning and the modes of application in higher education, followed by the benefits of E-learning in HE in section 3.2. Section 3.3 presents in detail the classifications of barriers and obstacles of E-learning and how it relates to the institutional and individual barriers classification used in the current research. Section 3.4 presents the adoption and

integration theoretical framework for the current research study. And finally, the summary of the chapter is presented in section 3.5.

3.1 E-learning Review

This section examines the literature on the use of E-learning in Higher Education (HE) context. It commences with discussing the different definitions of the term "E-learning" found in the literature in order to identify a definition of E-learning that represent the scope for this research. Then the types and models of E-learning mostly practiced at HE institutions are presented to relate to the context of the Omani study case. This is followed by a review of the current E-learning technologies used in delivering and managing E-learning content and activities. The section concludes with an overview of the stakeholders involved in E-learning adoption process in HE with a focus on the role of academics in E-learning adoption.

3.1.1 Defining E-learning

It is not sure as when exactly the term E-learning was firstly introduce, but it is most probably emerged in the 80's (Moore et al., 2011). It was during 1840's that distance or correspondence education started offering courses and training to geographically scattered and dispersed students. And by 1960, the first Computer-based Training Project (CBT) called PLATO (or the Programmed Logic for Automated Teaching Operations) was initiated in the USA. The world's first distance education university, the Open University (OU), was established in the UK in early 70's; with learning at distance as its main focus. By 20th century, internet came into existence and the tools of E-learning and strategies of delivery started being extended with advanced instructive encounters. However, there are various differences between the terms "postal education" than that of "E-learning", where the latter is an advancement meant for the former term (Sangra et al., 2012).

Not only the roots of the term E-learning in the literature is unclear, disparity also exists regarding the definition of the term itself with extensive variations (Govindasamy, 2002; Khan, 2005; Singh and Hardaker, 2014; Moore et al., 2011; Sangra et al., 2012). All these confusing definitions add to the challenge of arriving at a common definition of E-learning. The diverse E-learning definitions in the literature may be contributed to the different fields and interests of the researchers and practitioners offering these

definitions, such as the fields of computer science, ICT, education, and educational technology. Which yielded recognition of different applications and understanding of E-learning by many users and researchers (Roffe, 2002; Govindasamy, 2002; Khan, 2005; Stein et al., 2011). Moreover, irrespective of all the recognized and documented advantages of E-learning (Barczyk et al., 2010; Alavi and Gallupe, 2003; McMillin et al., 2010; Haughey, 2006), there seem to be a continuous dispute between academics from the field of education and educational technology in particular over the effectiveness of E-learning in improving teaching and learning.

Disparities among researchers' and practitioners' fields and disciplines in defining E-learning might have contributed to the different and confusing views of E-learning (Wagner et al., 2008; Alhomod and Shafi, 2013) as shown in figure 3-1 below. For HE, there are three classifications of definitions, noted as per the purpose of "delivering learning", "collaborating learning", and "enhancing learning".

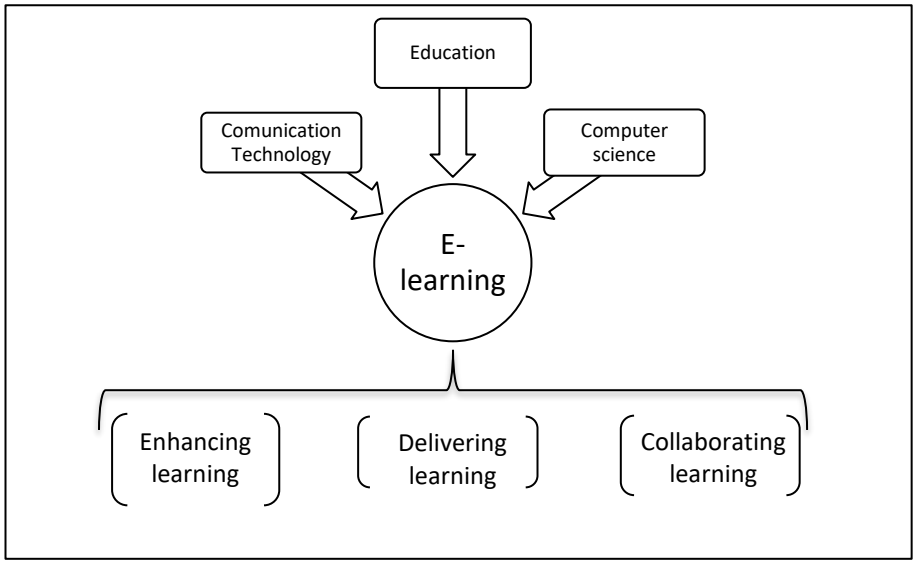

Figure 3-1 Definitions of E-learning

"Delivering learning" definitions

The fundamental focus of this group of definitions is the availability of learning resources and not the outcomes of any achievements. These definitions view E-learning as a way of allowing learners to access learning materials via electronic media (Abbas et al., 2005; Moore, 2006), the internet (Lee and Lee, 2006; Alhomod and Shafi, 2013) or other web methods (Liao and Lu, 2008). An example definition representing this group as follows:

> "E-learning is the delivery of a learning, training or education program by electronic means" (Moore, 2006, p.198).

"Collaborating learning" definitions

This class considers E-learning to be tool for communication, interaction, and collaboration. It includes studies investigating the interchange of information and collaboration among learners and teachers through the utilization of learning technologies (Bermejo, 2005; Kear, 2004). An example definition representing this class as follows:

> "Communication tool which can support a variety of collaborative learning tools" (Kear, 2004, p.151).

"Enhancing learning" definitions

This category of definitions were noted in the literature investigating the use of technology in terms of enhancing the process of teaching and learning in HE (Guri-Rosenblit, 2005; Osika, 2006; Birch and Burnett, 2009; Boettcher and Conrad, 2010). Moreover, these investigations highlighted the technological aspects of E-learning and presented the other elements as secondary (Sangra et al., 2012). An example definition representing this category as follows:

> "E-learning, on the other hand, is a relatively new phenomenon which is related to the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for the face-to-face meetings by online encounters" (Guri-Rosenblit, 2005, p.469).

On reviewing the above definitions, it is observed that these definitions emphasized the role and use of E-learning either as a delivery tool of learning content, or as a tool supporting communication and interactions among people participating in learning, or as a supporting technology to improve teaching and learning.

In the context of this study, E-learning is viewed as the adoption of technology tools by academics to deliver learning resources and support students learning through communication and collaboration between students and instructors. This in principle

includes all the three perspectives described above. Sangra et al. (2012) suggested a similar comprehensive definition of E-learning. This definition is as follows:

> "E-learning is an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning" (p.152).

In spite of the fact that this definition by Sangra et al. (2012) gives an extensive comprehension of E-learning in instruction, there are diverse meanings of the models of E-learning in HE. These models are depicted in the following section to further understand the context of the present study.

3.1.2 Dimensions of E-learning

According to (Wagner et al., 2008), there are different attributes and properties of the use of E-learning in an educational course. Table 3-1 below shows these properties as four dimensions namely, synchronicity, locations, independence, and mode. And these dimensions are further described by attributes. The content delivery of E-learning can be synchronous, in which delivery and receipt happen at the same real time and hence require learners to be present the same time of delivery, like the case with video conferencing technology. On the other hand, the delivery and receipt of asynchronous E-learning happen at different times allowing learners to access the learning content at flexible time and pace, like when viewing instructions and tutorials.

Table 3-1 E-learning Dimensions

Dimension	Attribute	Meaning	Example
Synchronicity	Asynchronous	Content delivery happens at various times than receipt by learners.	Teaching through email. Where email communications are the mode of delivering teaching materials to students and receiving students feedback to instructors.
	Synchronous	Content delivery happens at the same time as receipt by learners.	Lecture notes via Web cast.
Location	Same Place	Learners and teachers share the use of applications at the same physical location.	By utilising a Group Support System (GSS) to solve a problem in a classroom.

	Distributed	Learners and teachers share the use of applications from different physical locations.	By using the GSS to solve a problem from different locations.
Independence	Individual	Learners work on completing learning tasks independently from one another.	Students finish the whole E-learning modules independently.
	Collaborative	Students work collaboratively with others to finish learning tasks.	Students contribute in forums to discuss and share ideas.
Mode	Electronically Only	All course learning content and modules are delivered electronically only with no face-to-face contact.	An electronically facilitated online E-learning course.
	Blended	E-learning is utilized to complement traditional face-to-face classroom learning.	In-class lectures are improved with hands-on computer practices.

(Source: Wagner et al., 2008)

According to Wagner et al. (2008), a single course component consists of a single attribute value from each dimension. However, a course may contain more than one component, each with different attribute values. In particular, some components of a course can be delivered synchronously or asynchronously. But most of the E-learning courses offered on the internet are asynchronous (Greenagel, 2002). Typically supported be e-mails and discussion boards, asynchronous E-learning supports collaboration among learners and teachers even though the involved participants are not online at the same time. This remains as core factor for the adaption of E-learning (Hrastinski, 2008). By implementing asynchronous E-learning, determined learners are at an advantage to sign in E-learning environment and can conveniently download learning contents or otherwise send messages to their educators/peers. Learners or students are also capable of investing more time in terms of refining their contributions and submitted assignments than students in synchronous E-learning (Hrastinski, 2008). However, as high-speed internet is becoming widely available, many HEIs are moving to synchronous E-learning, where collaborations and communications between geographically distant learners and teachers can be made in real time through audio and video multimedia (Beck, 2004). A process of synchronic E-learning is liable to motivate all the aspects regularly through media as video-conferencing and chatting. Through this dimension of E-learners, there is the scope to improve through learning groups. Instructors as well as learners experience the status of synchronous E-learning as social activity with least baffling as they have real time sessions in which they exchange information and can ask and answer questions. Synchronised E-learning can assist the learners in gaining more committed course with less feeling of seclusion (Haythornthwaite and Kazmer, 2002).

3.1.3 Modes of E-learning

As indicated by El-Ghareeb (2009), there are three forms of E-learning which have suggestions for educators and teaching, as given below in Figure 3-2.

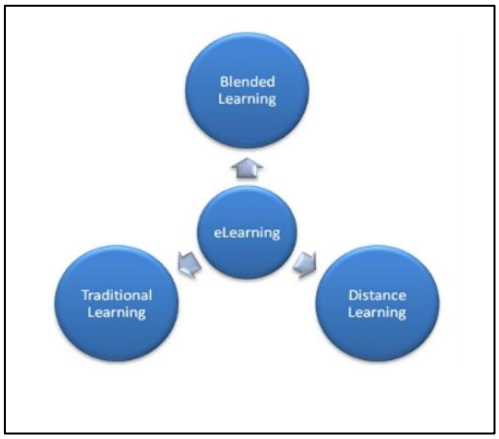

Figure 3-1 Learning Modes (El-Ghareeb, 2009)

- Face-to-face/Traditional Learning: implemented under the conventional teaching settings at current educational institutes. However, it gets reinforced by E-learning through various means (Horton and Horton, 2003) like

    - The instructor shows a topic subject and then asks students to use internet or CD-ROM.

    - The teacher informs the students to find information through search engines using the internet.

    - As an after class activity, teacher asks students to visit a website over internet and further locate answers to the relevant queries that are related to the class topics.

- Distance Learning: El-Ghareeb (2009) states that this learning facilitates students or learners and their instructors in not been fixed to single spot or time. In this way, respective courses can be conveyed synchronously or asynchronously. Distance learning has been identified as different from face-to-face or traditional education.

- Blended Learning: Al-Qahtani and Higgins (2013) refers it as an amalgamated form of E-learning along with classroom instruction (that has eye-to-eye

contact). The purpose is to use related educational E-learning to be included as part of educational classrooms. Many advocate educational professionals remain supportive of this Mode and recognise its relevance towards the use of E-learning. It consolidates benefits of E-learning, added by the advantages of traditional classroom and distance learning. Thus, using communication and collaboration as tools in blended learning mode (Singh, 2003). According to Khan (2005) and Al-Qahtani and Higgins(2013), the most important attributes of this mode are:

- Enhancement of adequate learning through the expansion participation noted among prerequisites of learner and relevant instructive program.

- Expansion of the extent of accessibility: blended learning provides a collaborative environment for the learners with various ways to access learning resources.

- Increasing utility of highly expensive applications: it is the mixture of different methods that are prompted with notable expansion related to advantages marked by programs. The implementation of E-learning remains extremely expensive, yet implemented by blended learning approaches. However, the expense remain same or less to the costs of expected class documents and presentations.

"E-learning" in current research study is used to describe blended learning mode where the use of E-learning is to compliment face-to-face classes. This is the mode used in every academic colleges and teaching centres at SQU.

3.1.4 Blended or Hybrid Learning

E-learning idea was initially about the capability to reach to separate and distance students through the provision of adequate access as well as adaptability to these students (Allen et al., 2007; Mason, 2006). But, currently in higher education E-learning is becoming the centre of education practice for many students with the arising utilisation of blended learning mode of combining face-to-face and online learning (Borden, 2011; Keengwe and Kidd, 2010; Rollett et al., 2007). Through blended learning ICT tools are used to widen the physical boundaries of traditional classrooms,

for gaining the accessibility to learning contents as well as resources, and further develop capacity of instructors in getting learner's feedback (Klein et al., 2006). Preferences for blended learning offer appealing learning environments, and thus valued highly (Garrison and Vaughan, 2008).

However, the concept of the term "blended learning" has been criticized as unclear as it could have different meaning to different people and the term "blended" is ill defined in the literature (Oliver and Trigwell, 2005). The question of what is being blended is the main point of disparity between the different uses of the term by different scholars (Bonk and Graham, 2012). For the purpose of this study, blended learning is defined by Chew et al. (2010) as a "combination of face-to-face learning and teaching mediated by technology" (p.22).

Blended/hybrid learning links E-learning with conventional ways of teaching (Klein et al., 2006). According to Bielawski and Metcalf (2003), it is referred to as "blending classroom, asynchronous and synchronous E-learning, and on the job training" (p.71). Moreover, blended learning "combines the advantages of two learning modalities" (Voci and Young, 2001, p.157). As per Bowles (2004, p.47) " when classroom instruction is combined with self-paced instruction via the Internet, for example, the face-to-face contact makes for easy social interaction and allows for instant feedback." Fleck (2012, p.409) notes the benefits offered by blended learning as:

- To improve the quality of teaching and learning through fundamental educational pedagogies set by clear and well-designed learning practices.
- To offer added time as well as geographic adaptability for the extension of education purposes and innovation, particularly it will assist learners with serious limitations and disabilities.
- To gain accessibility towards extensive markets for educational institutions.
- To provide effective knowledge co-production opportunities.
- To incorporate different geographic, socio-political and various economic domains.

The role of LMS in HE, is to provide instructors in terms of environments that comprises collaborative tools (like online journals, blogs, and wikis) for using in teaching. These tools can easily facilitate collaboration and communication between

students and teachers (Palloff and Pratt, 2001). Aspect of stable gatherings leads to sharing of social practices within practice groups. As these tools combined with traditional face-to-face teaching, the use of blended learning via an LMS like Moodl is often the practice in HEIs (Pishva et al., 2010).

The focus of effective use of blended learning in education is offering learners extensive variations of experiences using ICT. On a critical note, higher order learning and communication attributes should be the basis of teaching experiences in any discipline with a thorough understanding of the discipline's requirements. (Garrison and Vaughan, 2008). Collaboration tools noted within LMSs, such as Moodle offers ways of attaining blended learning, present exploration over barriers faced by teachers as well as students in HE.

3.1.5 Learning Management System (LMS)

For stakeholders in education, Learning Management Systems (LMSs) have become a vital tool as a method of delivering E-learning. LMS systems offer higher education institutions many capabilities to manage instructors, students and courses specifically in testing and generating reports, transcripts and notification to students (Mahdizadeh et al., 2008). Liaw et al (2007) investigated the effects of the quality of E-learning systems on the instructor's intention to use the system. Around the globe, various universities have adopted LMS to improve the educational process (Browne et al., 2006; Hawkins and Rudy, 2007; National Centre for Educational Statistics, 2003). In the USA, more than 90% of all participating educational institutions are using LMS (Hawkins and Rudy, 2007). In a similar study in the UK, 95% of all participating educational institutions are using LMS (Browne et al., 2006). And the interest for E-learning adoption in the Middle East and Africa, is developing by a 5-year compound yearly development rate of more than 10% from 2009 to 2014 (Ambient Insight Research, 2011).

Szabo and Flesher (2002) describe LMS as:

> "Learning management systems are computer based database and presentation systems which manage the entire instructional program and learning progress of employees with respect to the competencies specified by the goals and objectives of an organization" (p.1).

Other terms are also used to refer to LMS, for example, Course Management Systems (CMS) and Learning Content Management Systems (LCMS) (Yueh and Hsu, 2008), and Computer-Assisted Learning (CAL), Computer-based Learning (CBL), and Online Learning (Chan et al., 2008). LMS have the capabilities to support traditional face-to-face classroom learning activities for on campus students, as well as in a virtual online environment for distance and learners (Turban et al., 2007; Coates et al., 2005).

These systems are highly appreciated by both teachers and students primarily as a communication tools and as innovative interactive tools to existing educational practices (Lonn and Teasley, 2009). Moreover, according to Alvarez et al. (2009), in order to implement E-learning environment, it is important to adjust the learning content in view of the technology selected and the pedagogical approach used by the teacher. Furthermore, Mishra and Koehler (2006) showed that learning was most effective when teachers had appropriate awareness of the complex interplay between pedagogy, technology, and discipline-specific knowledge.

(Coates et al., 2005) report that many HEIs have accepted the ability of online systems to support students with access to learning information and resources and have established policies and reward systems to promote content learning development. Moreover, some universities are requesting that their courses must have a web component associated to them. These systems have administrative tools for the educational institutions to control courses and allow the academics to develop and manage course learning content (Parker et al., 2008). Besides, it permits teachers and students to share instructional resources, to communicate with one another (Lonn and Teasley, 2009; Martín-Blas and Serrano-Fernández, 2009), and to survey and encourage students.

Examples of LMS systems used in HEIs include, WebCT, blackboard learning space, Moodle, WIZIQ and NextEd amongst others that perform as both internet based and enterprise-wide systems. These LMS system are mainly essential as a form for delivery of teaching, whether that delivery includes an environment of blended learning with an integration of online and traditional teaching, E-learning or MOOCs (Massive Open Online Course) or online teaching (Belanger and Thornton, 2013; Lewin, 2012).

The LMS system used in Sultan Qaboos university is Moodle, which was launched in 2005 as the main E-learning system to assist the course of blended learning to develop the learning and teaching across university. Moodle is a free open source software LMS written in PHP and distributed under GPL (General Public License). It had been translated into 78 languages, was being used in several countries, and had 74 million users in 2013 (Moodle, 2013). The survey of UCISA (Browne et al., 2008) predicted that a trend towards the Moodle adoption (an open source environment of virtual learning) had occurred at a school/departmental level because it was a cost effective and attractive form for institutions and schools to acquire online learning.

3.1.5.1 Type of Use of LMS Tools

LMS offers various tools for designing, supplementing, managing, enhancing and supporting learning (Morgan, 2003; Jafari et al., 2006; Vovides et al., 2007; West et al., 2007; Lonn and Teasley, 2009). These tools stand different from one system to another, yet most of them carry similar basic features (Jarrahi, 2010). This study was conducted at SQU, where Mooodle version 1.0 was the supported LMS for university wide-use. For the purpose of this study, the Moodle tools investigated were grouped into five broad categories as follows:

1) E-content, comprises of syllabus posting, materials for the course, connections to external resources (Govindasamy, 2001; Jefferies et al., 2003; Yueh and Hsu, 2008; Daniels, 2009);
2) E-assessment comprised of assignment submission, exams, surveys, and quizzes (Buzzetto-More, 2008; Henninger and Kutter, 2010);
3) E-collaboration comprising discussion forums, various expert blogs, and wikis (Alias and Zainuddin, 2005; Henninger and Kutter, 2010; Cifuentes et al., 2011);
4) E-multimedia comprised of audio and video embedding (Chawdry et al., 2011; McCabe and Meuter, 2011); and
5) E-interactive comprised of virtual chat-room and classroom and chat (Jarrahi, 2010; Parker and Ingram, 2011).

Though many tools are designed with the aim to remain specific uses, in general the academics use these tools as per the demands of their course (Morgan, 2003; Malikowski, 2008; Lonn and Teasley, 2009; Cifuentes et al., 2011).

E-content

These tools are utilised for posting as well as distribution of syllabi and course documents. They also monitor performance of student by grade centre (Govindasamy, 2001; Morgan, 2003; Daniels, 2009). E-content tools permit the instructor to create and further post the syllabus. It also assist in yielding virtually limitless accessibility of documents by different students (Chawdhry et al., 2011). Using such tools, academics gain the facilities to post links of external resources for student (Landry et al., 2006). Online grade-centre permits students in terms of monitoring the developments within respective course and gain instant feedbacks (Morgan, 2003; Buzzetto-More, 2008; McCabe and Meuter, 2011). Results can be attained for different studies through LMS tools within this category by academics (Morgan, 2003; Woods et al., 2004; Vovides et al., 2007; Jarrahi, 2010; Tella, 2011).

E-assessment

These tools assist academics in the field of designing, deploying, evaluating, and lastly offering feedbacks on assignments, surveys, tests, and quizzes (Lansari et al., 20101). There the added facilities of LMS grading for quiz/test, as per offered answers by academic, along with automatic recording (Woods et al., 2004; Buzzeto-More, 2008). Buzzeto-More (2008) reported that the students can identify LMS tools as ways to submit online assignment.

E-collaboration

It is an advanced LMS tool (Beatty and Ulasewicz, 2006; Chawdhry et al., 2011). For the academics, LMS tools encourage as well facilitate modes of communication with students (Beatty and Ulasewicz, 2006; Henninger and Kutter, 2010). Discussions forums lead to asynchronous classroom discussion about selected topics (Rempel and McMillen, 2008; McCabe and Meuter, 2011). By creating forums, everyone can have responses, and these responses get followed by replies of the members (Pulford, 2011; Unal and Unal, 2011). Use of wikis and blogs leads to the creation of online collaborative instances for students having the capability to share their ideas, innovative thoughts and solutions to different course related questions through posting as well as editing data (Cobus, 2009; McCabe and Meuter, 2011). Though E-collaboration tools

are used less than those of E-content and E-assessment tools, yet for any discussion forum these tools are most popular (Malikowski, 2008; McCabe and Meuter, 2011).

E-multimedia

Implication of audio-video materials through online accessibility is liable to enhance and develop the learning experience for the students. By hearing and seeing the content they can perceive the content well from the teacher (Pace and Kelly, 2006). For audio-video materials, academics imply the ability to embed such materials in LMS, and make the student hear/see the same through LMS website (Chawdhry et al., 2011).

E-interactive

The process of synchronous interactive mode of communication noted among the students and academics remain vital in online courses (Larkin and Belson, 2005; McCabe and Meuter, 2011). LMS is liable to incorporate tools like chat for better interactive communicative purpose about the courses (Larkin and Belson, 2005; Smith, 2006; McCabe and Meuter, 2011) .

Through this communication, academics can offer instant virtual feedback as well as guidance to students (Jefferies et al., 2003). This two-way communication assists in improving overall performance of the students (Yueh and Hsu, 2008). Various communicative tools possess the ability to use both synchronous as well as asynchronous provisions (Jefferies et al., 2003; Larkin and Belson, 2005; McCabe and Meuter, 2011). Communication tools for E-interactive purposes are used lesser than E-content, E-assessment, and even the tools of E-collaboration (Malikowski, 2008; Yueh and Hsu, 2008; McCabe and Meuter, 2011).

3.1.5.2 Reasons for different use of LMS

What is the reason that LMS technologies get used variedly? Though there are some scholars who mentions that there is no difference between LMS users as against the non-users (Yohon et al., 2004), yet few other mark reasons for emerging differences, as technical experience, impact laid by other technologies, course discipline & personal copyright concerns (Jarrahi, 2010).

Technical experience

Most discussed aspect is that of 'technical skills' of academics. Some refers to the state of lack of training as well as adequate technical knowledge as the barrier towards the use of LMSs (Mann, 2001). According to Kofler (2005), the act of reinforcing such aspect suggests 'intuitive application' of technology that cannot be 'picked up' by many academic staff. Instead, the same needs minimal amount of technical proficiency. Thus, selected literature considers training courses to remain efficient modes for developing the adoption rate of LMSs (Mann, 2001). However, there are literature contend common LMSs (e.g. WebCT) which are marked for being away from technical skills (Goldberg and Salari, 1997; Yohon et al., 2004). In the same way, Dutton et al. (2004) offer the suggestion of 'weak positive relation' in adopting LMS and traditionally considered concerns for E-learning, such as degree of IT expertise or otherwise academic discipline as has been addressed in the upcoming sections.

Discipline of the courses

The variations in different disciplines are noted factor for illustrating the reasons whereby LMSs get used in varied ways (Li, 2004). As per Kofler (2005) people from the departments of science and maths, embrace LMSs more easily than those from social sciences. Kofler marked the former group to remain involved in quizzes and problem sets, and so LMSs remain effective for their work

Personal concern about copyright

Some case studies refer to the personal copyright concerns as the reason for which the academics' remains reluctant in embarking the prevalent online environments. There are some academics, who doubt the ownership of respective course materials as they pass through LMS tools (Schifter, 2002). For Dutton et al. (2004) one such academics, explicitly regarded the concern of copyright as primary in adopting LMS.

The impacts of other technologies

Technological context for institutions remains a major element affecting the use of newer and innovative technologies, such as LMSs. By the implementation of diffusion model as led by Rogers (1995), scholars like Bennett and Bennett (2003) refer the degree where the members of the faculty assume technological tools like LMS as superior among available alternatives. These aspects shape relevant interpretations and

consequently lead to their adoptions. In the same way, Holm et al. (2003) refer to few academics who are reluctant in terms of adopting LMS as tools of current groupware appear more convenient to them.

3.2 Benefits of E-learning

It is essential to enclose in detail about the main advantages of E-learning in order to offer a context targeted at describing why certain academics perceive its use as advantageous to the teaching process . E-learning is developing rapidly as an acceptable education way. Remarkable advancement has been made in E-learning over the past few decades. E-learning offers a wealth of advantages which serve the major stakeholders of education in the learning surroundings namely teachers and students (Bhuasiri et al., 2012; Al-Harbi, 2011; Al-Marabeh and Mohammad, 2013; Alkharang and Ghinea, 2013). These involve a developed accessibility to data, personalized instruction, better delivery of content, standardization of content, on demand availability, accountability, confidence, increased convenience, self-pacing and interactivity. E-learning decreases costs, enhances a consistent content delivery, and develops tracking. The advantages of E-learning can be summarized in three forms as mentioned below:

- Providing Efficient Learning

E-learning has the significance to create meaningful and successful environment for learning that encourage the learners and provide strong tools for communication and interaction. Al-Harbi, (2011) discusses that in a course of E-learning, using stimulations made by software, such as Shockwave and Flash can assist the cognitive work of examining data, exploring concepts and ideas and manipulating models (Khan, 2005). Additionally using multimedia resources of enrichment develops the understanding of learners and enhances their experiences in education (Al-Harbi, 2011). Jethro et al. (2012) has stated that E-learning also makes a chance for learners to study according to their individual styles of learning and chosen style of cognitive, be it audio, oriented or visual, and permits learners to arrange the knowledge and content for their own requirements and styles of learning, and to develop the learning experience quality and assist learning by providing differentiated learning. Ibrahim et al. (2007) stated that the learner must be liable for seeking solutions actively to issues comprised within the

course structure and through generations of knowledge as students construct and generate their own knowledge in line with the instruction and support them acquire from instructor.

- Enhancing Communication and Interaction:

E-learning has the significance to develop patterns of traditional communication between teachers and students and students themselves by making a new learning surroundings. Mahdizadeh et al. (2008) mentioned that the relation between students and teachers is no longer a one-way relation, but rather it is about making much interaction and collaboration between students to develop their involvement and participation in classroom. According to Al-Adwan and Smedley (2012) E-learning can be much flexible and always includes techniques such as video conferencing, online discussion and audio-chatting, which offer learners the chance to communicate with students and teachers flexibly and effectively. The literature describes that the role of students and teachers is altering under the influence of new learning surroundings (McGhee and Kozma, 2003). These alterations have repercussions on roles of both students as well as teachers. Dargham et al. (2012) and McGhee and Kozma (2003) proposed that students plays an essential role in collaborative learning surrounding as they involve in discussions among the entire class or within little groups, search for data and exchange views with their peers, where there is both individual and shared responsibility for their success in the process of learning. They also highlighted that students perform collaboratively with their teachers and other students to accomplish success, and that their team member role is assisted through the use of communication software and hardware.

In addition, Dargham et al. (2012) recommended that teachers play an essential role in E-learning as collaborators. In addition they described that teachers perform with other teachers to create different activities and to develop the process of instruction. They also perform with students to accomplish the similar edges. Alhomod and Shafi (2013) and Vrana et al. (2006) discussed that offering students and teachers with opportunities to collaborate, interact and use techniques of education which develops the participation of students' in the process of education (Ibrahim et al., 2007; Vrana et al., 2006). This represent that E-learning creates actual prospects for teachers and learners to involve more in the process of learning by permitting them to share their suggestions and ideas

in various modes of E-learning (asynchronous and synchronous E-learning). Moreover, E-learning surroundings motivate students to build knowledge and to interact with teacher to develop the performance of education and experience of learning (Yongsheng et al., 2012).

- Offering flexibility in Learning Delivery

One of the major importances of E-learning is flexibility. The literature represent that the settings of education have been predicted to share some similar beliefs about the practical advantages which E-learning can offer in delivering flexible learning. The Chief Executive Officer and President of Cisco Systems, Mr. John Chambers stated that "There are two fundamental equalizers in life: the internet and education, which help to build a society of equal opportunities. Internet provides unprecedented opportunities to business, individuals, and states. Development of any country depends on the quality of the education system and professional qualities of its employees". Al-Harbi (2011) assists the idea that E-learning excels geographical barriers and time and provides new environment for learning. Kwofie and Henten (2011) and Alkharang and Ghinea (2013) also accept with this concept and state that the major advantage of E-learning is the delivery of flexibility. Several researchers support the fact in this context that the projects of E-learningoffers flexibility and offer developed environment for learning by focusing on learning without any bounded geographical places (Odunaike et al., 2013; Asiri et al., 2012; Al-Yaseen et al., 2012). Kwofie and Henten (2011) proposed that the E-learning flexibility can be offered by different types of learning materials which permit the learner to choose from different choices based on their demands and needs and demands (Mapuva, 2009). Dargham et al. (2012) pointed out that the E-learning flexibility comprise of varied perspectives associated to place, time and online feedback, as they enhance the chances for life-long learning.

This states that E-learning development and implementation can produce flexible environment for learning, bring together varied people from various places and enhance the accessibility to information. Al-Adwan and Smedley (2012) assisted some of the above advantages of E-learning as they mentioned that E-learning offers the chance to communicate between students and teachers at any mode and from any source (Rajasingham, 2009).

3.3 Barriers of E-learning Adoption

A full thought of the barriers to E-learning is not restricted to, or informed by the literature of E-learning. Indeed, it is proper to regard the research and literature in ICT (information and communication technology) and IS (Information Systems) field which has a big history of regarding adoption of technology and factors influencing adoption of technology. Within this literature, barriers are used interchangeably with "hurdles", "obstacles", and "challenges". The various categorization and classification of the barriers are described in this section with the explanation of the present study's category of barriers used.

3.3.1 Classification of Barriers

Given the developing use of E-learning, it is not surprising that authors turned to denote essential barriers to successful implementation of such techniques. Although current advances have been directed towards corporate E-learning, the majority number of studies of E-learning emerged from the literature of education, with investigations based on student samples in institutions of education. There are many obstacles or barriers identified in the literature as deterrent for academics' use and adoption of E-learning. The classifications of barriers include: external and internal source barriers (Rogers, 2000), micro-macro level barriers of the system of education (Tondeur et al., 2008; Balanskat et al, 2006;), teachers' first order extrinsic barriers and second order or intrinsic barriers (Ertmer, 1999; Albirini, 2006; Snoeyink and Ertmer, 2002), teacher level and school-level barriers (Jones, 2004), indirect and direct barriers (Hew and Brush, 2006), non-material and material barriers (Pelgrum, 2001), and other ways of classification (Ertmer et al., 2012; Bingimlas, 2009; Hew and Brush, 2006).

3.3.2 Internal and External Barriers

The internal barriers are associated with the attitudes of academics toward technology and their competency level of the new technologies. While, the external barriers involve the unavailability and inaccessibility of the required hardware and software, lack of related institutional and technical support, and lastly lack of funding and time resources (Rogers, 2000).

3.3.3 First Order (extrinsic) and Second Order (intrinsic) Barriers

Another category of barriers of E-learning is first order and second ordered barriers, referred to as extrinsic and intrinsic barriers respectively (Snoeyink and Ertmer, 2002; Butler and Sellbom, 2002). Extrinsic barriers to integration of technology (first order challenges) include lack of access to software and hardware, inadequate time, and lack of management support. On the other hand, intrinsic barriers (second order barriers) are associated with beliefs of academics about learning and teaching, attitudes towards technology and their resistance to change.

In general, first order barriers are resources related obstacles, and hence providing the necessary funding can be easily determined and removed (Ertmer, 1999). Furthermore, the removal of first order barriers permits second order barriers to emerge (Sandholtz et al., 1997 and most of the time, wide introduction of technology, drives academics back to their traditional mode of teaching to avoid problems like management of classroom, designing and lesson planning, and role definition. Second order barriers are always much challenging to overcome than first order barriers (Kerr, 1996). This is because these barriers are related to academics' underlying trust about teaching and learning and hence are not shown and identified easily.

3.3.4 Micro-level and Macro-level Barriers

In HE context, micro-level studies are focusing on individual and social issues of diffusion and adoption of E-learning technologies, whereas macro-level studies are concentrating on issues related to management. With the later specifically focusing on barriers like strategies for E-learning, support structures, and the role of administration. The principle aim of macro-level-based methodologies is through the investigation of organisational variables, to enhance adoption by improving the proficiency and viability of E-learning technology. Also included in this category are studies that researched systemic change that transforms the whole institution through organisational and structural transformation.

3.3.5 Teacher-level and School-level Barriers

Jones (2004) classified E-learning barriers as teacher-level (individual) versus school-level (institutional). The teacher-level barriers consist of resistance to change, lack of confidence, and lack of time available. Whereas the school-level barriers include lack of resources and lack of effective training.

Various studies have reported a link between academics' adoption of E-learning innovations and their attitudes towards technology, indicating that academics with negative beliefs about technology are less likely to use E-learning than those with positive attitudes (Shapka and Ferrari, 2003; Teo et al., 2008; Van Braak, 2001). However, Bingimlas (2009) reported that numerous studies show that academics who scarcely have enough time are less or never use E-learning even though these academics feel confident and competent in using the technology. This is in agreement with other investigators, who reported that absence of time and concerns about workloads are the main hindrances of E-learning in (Almuqayteeb, 2009; Alwani and Soomro, 2010; Schoepp, 2005; Al-Alwani, 2005; Schieman and Fiordo, 1990).

The lack of specialized training was identified as a primary hindrance to embracing E-learning in many studies such as Al-Senaidi et al. (2009), Almuqayteeb (2009), Alwani and Soomro (2010), Chizmar and Williams (2001), Panda and Mishra (2007), Schoepp (2005), and Al-Harbi (2011). Moreover, Lewis (2003) argued that academics cannot overcome the barriers of using E-learning, without providing them with the necessary specialized support inside and outside classrooms.

Numerous studies reported that insufficiency of staff professional development programmes as one of the barriers towards E-learning adoption in HE (Butler and Sellbom, 2002; Panda and Mishra, 2007; Schoepp, 2005; Schieman and Fiordo, 1990; Al-Ghonaim, 2005). Moreover, Al-Mohaissin (1993) and Johnson et al. (2014) specified that one of the main hindrances towards E-learning adoption by academics is the incompatibility between staff training and the software and hardware available. Other factors including lack of funding and absence of administrative support attributed to the poor ICT proficiency abilities by some academic (Johnson et al., 2014). Al-Oteawi (2002) argues that accomplishing successful integration of technology in education requires quality staff professional development. And Keengwe et al. (2008) stressed that teaching academics need to have extensive and quality professional development programmes to guarantee successful integration of new technologies. Keengwe et al. (2008) further argued that effective staff professional development programs must be: (a) pedagogically related to graduate's learning, (b) supported by sufficient resources, (c) built with forms of evaluation methods, (d) constantly funded, (e) given adequate time, (f) technically and administratively supported, (g) supported

as an on-going procedure, (h) situated towards being hands-on technology sessions, and (i) customized to all academic staff.

3.3.6 Institutional Barriers

3.3.6.1 E-learning Strategy

Rogers (2003, p.474) defines diffusion of innovation as: "the process in which an innovation is communicated through certain channels amongst the members of the social system" and is "concerned with the spread of messages that are perceived as new ideas". In many HEIs, the diffusion of E-learning as an innovation is through communication of an E-learning strategy. Moreover, in the literature, there is an agreement on the importance of such a strategy implemented by the institution administration that states the goals of E-learning adoption within the institution (Maguire, 2005; McLean, 2005). The provision of clear and well-communicated E-learning strategy prevents the disperse use of E-learning that occur in small pockets (McLean, 2005; Stiles and Yorke, 2007). McLean (2005) argues that regardless of academics interests in technology, without communication of a clear vision, they may be very reluctant in seeking any of the E-learning activities. Moreover, the absence of an E-learning institutional strategy is emphasised as one of the main barriers that can restrict wider adoption of E-learning by academic staff (Smith, 2002).

Many HEIs have addressed the E-learning challenges, along with devoted institutional change strategies. According to Sclater (2008) the Open University, UK promoted the awareness and adoption of E-learning through consistent communication programs. This is a movement that incorporates necessary motivation for solid administration support, showcases wide-ranged practices and further clarifies the use of E-learning in order to change institutional method from the transmission of information to collaborative learning. Open University, UK supplements the structured communication for endeavouring the same with confirmation related to success factor meant for achieving elements related to E-learning and further ads training courses in relevance to the development of staff skills.

Sclater argue that current measures for motivating academic staff are not enough and need to be supplemented with steps like monetary rewards, promotion policies changes, staff professional development programs related to E-learning technologies research

and development.

Another example of institutional effort in the UK is at the University of Leicester where an incremental approach of E-learning has been integrated into the learning process. According to Salmon (2010), the benefits of this approach, are (1) directly involving academic staff, (2) building up their abilities in starting and ongoing training and (3) giving them ownership for their E-learning ventures. However, the incremental approach is more expensive than a centralised innovation approach and requires more time.

Comparable institutional cases can be found in Europe at the University of Zu¨rich in Switzerland and the Katholieke Universiteit Leuven (KU Leuven) in Belgium. The University of Zu¨rich has coupled its E-learning integration with the three change drivers of Bologna reforms, the pedagogical capability of E-learning and quality assurance programmes for education (Schiedt, 2010). To enhance its academics' training experiences, it has initiated E-learning counselling, networking groups, and support services. Van Petegem (2010) highlights the 'Guided Independent Learning' common pedagogical model defined by KU Leuven to as well as financially supporting peer-reviewed activities to directly involve its' academics and to enhance E-learning technologies.

3.3.6.2 Time and Workload

The perceived time required to learn, create (Palloff and Pratt, 2001) and convey E-learning courses (Pirani, 2004) is one of the most cited barriers of adoption of E-learning reported by academics. Some studies have reported that E-learning courses require almost triple the time needed for face-to-face delivery courses (Palloff and Pratt, 2001). According to White and Myers (2001, p.98), the main concern for academics is the issue of having enough time available "to learn the E-learning system, convert and upload course data and provide student training".

Moreover, other issues related to time barrier and considered as hindering factors of E-learning are short life cycles for developing E-learning course materials, time needed to constantly update the course materials, and development and maintain of E-learning components (Boettcher and Conrad, 2010). Pirani (2004) points out that due to the fact that written communication in E-learning is more time demanding than verbal

communication in face-to-face mode, academics often underestimate the overall time needed for delivering E-learning courses and end up having insufficient time available. This can have negative effects on extended working hours and increased workload as academics constantly struggle to keep up with technology and provide instant and continuous feedback to both students and administration (Wallace, 2002). In return this has resulted in academics being hesitant towards taking on E-learning approaches, especially when they are expected to continue with the on-going duties and were not given any compensations or rewards for the newer commitments of E-learning courses (O'Quinn and Corry, 2002). This particular issue was confirmed in Eynon's (2005) investigation, revealing that the extra time needed for preparing and conveying relevant E-learning courses were not being acknowledged by top administration.

In the BECTA (2004) survey, 16% of the total responses selected lack of time as a barrier to ICT acceptance. In the UCISA (Browne et al., 2008) survey "lack of time was identified as the main barrier to further developments to promote TEL [technology enhanced learning]" (p.2). As indicated by Downes et al. (2001), it is not simply time that academics need with aim to "understand new concepts, learn new skills, develop new attitudes. More crucial still is the recognition that the provision of time must accompany a major redefinition of the nature of teachers' work" (p.75), and hence changing the department, college, and the whole institutional structures.

3.3.6.3 Training and Professional Development

Certainly, according to McLean (2005), the emphasis of training is regarded to be one of the most crucial aspects in enhancing the usage of E-learning; he states that researchers need to be sure that the employment of the technologies would act to improve their efficacy as teachers. The most obvious advantage of training is its capability to eradicate the anxiety pertaining to technology (Surry et al., 2005; Gulbahar, 2007).

In terms of training, Downes et al. (2001) suggest that the government, teacher education and professional bodies need to work in tandem to enhance "the knowledge and skills of teacher educators, many of whom remain unconvinced of the importance of the integration of ICT in their own teaching and learning" (Ertmer, 2005, p.80). So and Kim (2009) recommend that even pre-service teachers need to be included to ensure

that the commencement of learning experiences are planned to advance their comprehending of academic facets of merging technology. Mishra and Koehler (2006) concurred that the advancement of Technological Pedagogical Content Knowledge needs to be a crucial aim for any of the teachers in the teacher education course. Additionally, the writers of the Downes et al. study (2001) suggested that there needs to be a planned continuous professional development programmes for all existing teachers. Professional development was recognised to be a crucial aspect according to Webb and Way (2007) to successfully integrate ICT, based on the condition that it needs to be in line with the school's specific needs and requirements. Hegarty et al. (2005) inferred that early adopters – (the creators who do not hesitate taking chances in contrast to the late adopters (who desire slow or no altrerations) – have varied professional development requirements, which are similar to the inferences made by DEST (2001) and Weaver (2006). The analysis by Hegarty et al. (2005) also deduced that varied and on-time training of the staff was an aspect that helped in successful integrating online learning; this indicated that such actions need to be accorded more time.

Teachers should be offered training to improve their teaching skills by their department, colleges and institutions. Taylor (2003, p.75) describes the need for training through professional development as "the catalyst which allows the evolutionary process to move forward less catastrophically". She argues that without investing time and appropriate staff development programs for teachers, not only higher education institutions evolution would be ineffective, but also teachers succeeding in the new environment would be hindered.

Various training approaches have been implemented to help academic teachers improve their E-learning courses. One of these approaches is the use of example courses as showcase templates for other teachers would enable them to draw links their own courses using technology (Taylor, 2003). But, research has also shown that providing training and practice with technology is not straight forward with teaching academics (Alvarez et al., 2009) as different academics have different preferences when it comes to training needs. Alvarez et al. (2009) defined the teacher's roles and competencies in E-learning environments, with a view to assisting in the design of professional development activities.

In the opinion of Palloff and Pratt (2001), researchers need to be coached "not merely to adopt technology, but also to modify the manner in which they plan and teach the material". In this context, researchers agree and suggest that the inability to offer specialised training in both adoption of the technology and in comprehending how to successfully merge the technology into the syllabus can have an adverse influence on using the educational technology (Surry et al., 2005; Gulbahar, 2007). Undoubtedly, inferences from the case study analysis indicate that according to researchers corporate guidance schedules are unsuccessful in fulfilling the requirements of the teachers (Irani and Telg, 2007).

3.3.6.4 Technology Infrastructure

A helpful managerial and technical infrastructure is considered to be a crucial aspect in permitting adoption of E-learning (Surry et al., 2005; Benson and Palaskas, 2006). The literature focuses on the absence of systems dependability, technological issues and breakdowns which encompass slow download times and problems pertaining to bandwidth (Smith, 2002); it also includes the difficulty in accessing hardware and software issues as aspects that hamper successful adoption of E-learning.

The providing of ICT and technical support are the crucial aspects influencing merging of technology in the current times. Technical support was regarded to be a crucial aspect impacting the efficient adoption of E-learning packages by schools according to a New Zealand Education Review Office research (Education Review Office, 2005). Technical issues were rated to be as the biggest impediment in efficiently employing ICT by 13% of the respondents for a BECTA (2004) survey. The New Zealand Education Review Office (2005) discovered that several schools had issues pertaining to the budget which included, "funding, maintaining, and ensuring sustainability of ICT equipment" (p.12) for the goal of adopting online learning. Analysts undertaking the UCISA survey (Browne et al., 2008) discovered that as time passed for their longitudinal analysis finances from the central authorities for supporting service and finance for the venture became more crucial as a method to allow advancement of technology enhanced learning".

In the E-learning literature, there are few arguments pertaining to the suitability of centralisation or decentralisation of infrastructures. For example, Nicol and Draper

(2007) compelled people to focus on the employment of learning technologies at both the departmental and organisational level. They contended that central IT services characteristically desired all departments to employ the same consistent IT systems, while local departments and people preferred using IT systems that were tweaked as per their use. According to Roffe (2002), the decentralised framework of a big educational organisation acted as an impediment to use the systems and procedures. With regards to creativity, it is people who make robust choices pertaining to how the spread needs to be handled in decentralised diffusion systems; more so ever, if they are well educated and have the suitable technical skills needed (Rogers, 2003).

Execution of a new technology (for instance E-learning) in an organisation is equivalent to jointly agreeing to use the technology in the organisation (Rogers, 2003). Several studies linked to E-learning infrastructure have emphasized on IT infrastructure and training; many of researches indicated that several training factors allow or impeded usage of E-learning (e.g. Marshall, 2004; McLean, 2005; Palloff and Pratt, 2001; Salmon, 2005).

3.3.6.5 Institution and Administration Support

The institutional literature recommends that for long people have presumed that a chief precursor for an organisation's promising ambiance for usage of an innovation is support from the management. The efficient usage of a new technology characteristically depends on the capability of the administration to develop a setting of faith, innovation and teamwork. Researchers (Marshall, 2004; Surry et al., 2005; Benson and Palaskas, 2006), indicate that it is the top administration that is accountable for encouraging an institutional setting or philosophy in the organisation that supports and encourages early adopters of E-learning

The institution's organisational context according to McPherson and Nunes (2008) includes its total education framework and academic standard; this is the most essential aspect in ascertaining the efficacy of execution of the online learning system. They contended that the organisational setting results in impediments on the execution of the online course, in a continuous cycle of designing actions, taking those actions and assessment of those actions. The participation of the full school community and dedication from the office bearers and all the teaching academics including the new

teachers (Gao et al., 2010) is a crucial aspect to efficiently integrate the technology with the system. This was reiterated by Hayes and Harriman (2001), who inferred that the most crucial aspect impacting the efficiency of merging the technology was the dynamic participation and backing of the principal.

In context of administration, Samarawickrema and Stacey (2007) discovered that only individuals in the administration or those with management posts could develop an ambiance that was helpful for usage of innovation in the context of the institution. As per ACOT (1990), there was a higher chance for efficient development of new principles and customs when the administrators encouraged and directed the teachers (p.9).

According to Moyle (2006), "the entire school setting of learning" (p.98) was needed to penetrate any endeavour pertaining to execution of ICT. A chief aspect that motivated the online learning in the 2008 UCISA survey developed by Browne et al. (2008) was the existence of dedication local champions to the cause.

The strongest aspect impacting ICT integration levels in schools taking part in a research undertaken by Baskin and Williams (2006) was a collegial setting in which teachers exchanged both ICT information and experiences. This was reiterated by Chou (2005), according to whom the organisational and technical aspects were essential for the approach of teachers in context to and to comprehend the technology; however, it was sharing of knowledge that was a crucial aspect of the culture of the organisation. According to Park and Ertmer (2008) having a mutual vision was the most crucial aspect that impacted the usage of its technology-based PBL (problem-based learning) initiative as several shareholders were perplexed over what the school was trying to attain. This was also endorsed by Divaharan and Ping (2010) who discovered that there needs to be emphasis on the curriculum which encompasses the ICT aim for schools to ensure that they become efficient learning organisations.

On the other hand, while administrators desired to create top-down E-learning policies they, as per Salmon (2005), are unsuccessful in paying heed to the human aspects linked with the handling of change. Support from the administration is needed for both resources and also to act as a perfect standard to employ E-learning systems, indicating a keenness to always learn and seek new details and concepts, so that the staff copy the,

and the tendency of the staff to be engaged in E-learning is improved by sustaining the drive, and developing a setting that endorses or facilitates usage of E-learning (Huang, 2004). A study undertaken by Hanson (2003) investigating the spread of E-learning in Australian universities, inferred that the support by the top administration was crucial for any efficient spread of E-learning technologies. Actually this was regarded to be a crucial detail to "affirmatively impact the hearts and minds of lecturers" stated Hanson (2003, p.119), a result that relied on the top administration's support of teachers to adjust their teaching behaviour to include E-learning. However, despite the support of the top management being essential to encourage spread of E-learning, it is generally missing, or accorded less significance in the academic schema opines Eynon (2005). Other researchers have indicated that the "middle level" administration has failed to support the E-learning methodologies (Eynon, 2005), on account of opposing priorities, bureaucracy and absence of resources (Lisewski, 2004; De Freitas and Oliver, 2005).

3.3.6.6 Peer Support and Social Networks

The social structure engaged in the spread of the innovation also enacts a crucial function in ascertaining the kind of execution choices that need to be taken in the diffusion procedure. The usage of the innovation may not be a compulsion and may be a person's choice. It may be a joint decision and the result of an agreement between the members belonging to a system (Rogers, 2003). A social network can be considered "the pattern of friendship, advice, communication or support which exists among members of a social system" (Valente, 1996, p.31). Members of the same group share similar things, and based on earlier researches by sociologists, Rogers (2003) contended that this is a crucial determinant between the members of the same social network; this improves the spread of communication and endorses usage (Barton, 2013).

Interpersonal interaction can grow and help adoption choices via social networks as membership of the social group allows actors to gain knowledge about the result of an innovation. Rogers (2003), discusses the "convergence" model in which two-way interactions amongst members of social groups assists in creating and building the implication of an innovation. Information of what cohorts a person participates on also assists in envisaging when a person will begin to use an innovation. This is likely as the social system's rules set behaviour models that describe the extent of acceptable conduct and conduct anticipations for these groups (Rogers, 1995).

The social incidence of opinion leaders also impacts the spread of innovation after the impact of social networks (Rogers, 1995). The standing of innovators in the social framework itself is extremely low and hence, they enact a restricted function in spread and adoption of their innovations. Opinion leaders, on the other hand, especially unofficial leaders, are well-known for their technical skills and possess a higher social ranking. They are frequently the core interpersonal interaction networks and behave as links amongst the networks of varied groups.

According to a survey conducted by Taylor and McQuiggan (2008) teaching academics' training needs must be continuously addressed in E-learning. They further indicated that academic teachers need continuous access to technical support and assistance and colleagues with E-learning experience.

3.3.6.7 Top-down and Bottom-up Approach

Several researches caution against top-down policies that "push" learning technologies (for example De Freitas and Oliver, 2005; Goodyear, 2005; Salmon, 2005) contending that these can backfire and have an adverse impact on the teaching academics (Eynon, 2005). Usually, top-down methods are characterised by the top administration creating an E-learning policy that is anticipated to be accepted by the entire academic staff. On the other hand, several institutional framework discussions in context to the usage and spread of E-learning have focussed on the requirement to resolve the top-down and bottom-up techniques to ensure dedication of the teaching staff. Marshall (2004) assessed the organisational ability to sustain and provide E-learning employing the nine HEIs as cases, and one of the crucial inferences drawn was the lack of an evident association amongst E-learning technologies used by universities and the educational results desired by the teaching academics.

The focus of the literature analysing the top-down and bottom-up methodologies was that there needed to be an identification by leading supervisors that E-learning ventures can begin from an individual academic or a small group that needs adaptable, clear and responsive frameworks that permit for spreading of these ventures to bigger groups (Roffe, 2002). Hence, there is agreement between the E-learning researchers that the top-down and bottom-up methodologies require to be merged. For instance, Clegg et al. (2003, p.51) indicates that there is a "need to keep track of the messiness on the

ground". Thus, it is crucial for researchers to have complete details pertaining to the "cultural configuration" of their organisations and the probable reaction of the teachers to E-learning (Lisewski, 2004). Efficient usage of innovations needs collaboration between those who will use them and those who make strategies without which there is less probability of teachers willing to use E-learning or even use it when they teach (Eynon, 2005).

There have been endeavours to merge the top-down and bottom-up methodologies. For instance, the "Leadership, Academic and Student Ownership and Readiness" (LASO) model, recommended by Uyset al. (2004) encompasses an inside-out facet to deal with the influence of the affective domain of academics, which may result in dread and/or motivate people involved. On the other hand, hierarchical administrative frameworks, bureaucracy, expert spheres, defensiveness and insecurity predominant in all HEIs all obstruct methods that try to merge the top-down and bottom-up methodologies (Middlehurst, 2003).

3.3.6.8 Incentives and Acknowledgment

Salmon (2010) outlines the significance of the influence of E-learning inventions on the development of human resources and observes the identification and awards of E-learning involvement in staff promotion plans as the most preferred organisational modification.

The National University of Ireland, Galway (NUI Galway) and the University of Twente in the Netherlands have undertaken contemporary measures to encourage E-learning inventions by providing fiscal benefits and having communication promotions within universities. According to McLaren (2009), the NUI Galway has described the organizational learning, teaching and evaluation policy to encompass a novel advertising plan. This plan has enhanced the weightage assigned to teaching portfolios and E-learning endeavours in the assessment of teaching academics to highlight the organisational dedication towards educational quality.

3.3.7 Individual Factors

3.3.7.1 Knowledge in Integrating E-learning into Teaching

Teacher aspect is one of the major factors that affect students' attitudes toward E-

learning as an effective learning tool (Liaw et al., 2007; Mahdizadeh et al., 2008).

Smith (2005) examined the competences that should be available in the faculty members, while Alvarez et al. (2009) and Goodyear et al. (2001) discussed the roles of teachers in face-to-face or E-learning.

Smith (2005) identified the instructor's competencies that were necessary to deliver of an effective E-learning program. According to Smith (2005), academics using E-learning faces two challenges regarding E-learning course content and promotion, and development students' communities in virtual environment.

As per Cuban (2001), several teachers fail to comprehend how to include technology in their teaching pattern. Condie and Livingstone (2007) indicated the absence of comprehension related to ICT learning policies to be a chief problem that impacts the efficient amalgamation of online learning. As per Oliver and Herrington (2003), teachers require to have the skills to choose and create suitable content for adaptable, technology-dependent learning. In context of affordances, a study undertaken by Fishman et al. (2001) suggested that designing the merging of technology needs to commence with queries pertaining to how the faculties wants to use the technology while teaching. Clark (1994) recommended that any execution pertaining to technology in a learning set-up is unsuccessful if there is not similar function and usefulness to the learning aims. Bower (2008) has hypothesised that learning planners and faculties need to be backed in their mission to match the learning jobs to learning technology, thus enhancing their comprehension and the successful employment of technology.

Mishra and Koehler (2006) developed a crucial structure for the teacher's knowledge was who indicated that the teachers' knowledge includes three elements: information of the content, information of academics and information of the technology. Based on Shulman's (1986) structure of pedagogical content knowledge (PCK), which is the amalgamation of information amongst education and content; it was suggested by Mishra and Koehler (2006) that teachers fail to consider technology knowledge (TK) to be different from pedagogy knowledge (PK) and content knowledge (CK); yes one needs to be aware that teachers need to have information pertaining to both domains of technological pedagogical knowledge (TPK), technological content knowledge (TCK) and finally technological pedagogical content knowledge (TPACK) as indicated in the

subsequent figure Figure 3-2.

Their research indicated that respondents hesitated from seeing technology, pedagogy, and content to be independent notions.

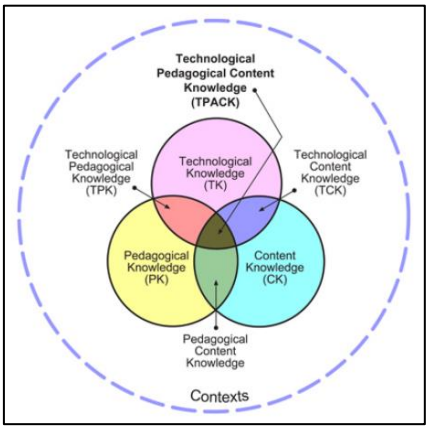

Figure 3-2 TPACK (Mishra & Koehler 2006)

3.3.7.2 Attitudes Towards E-learning

The viewpoint of the faculties on teaching and technology are regarded to be crucial aspects in the choice to use or refuse to use E-learning technology. In this instance, the viewpoint of the teachers pertaining to the comparative benefit in using E-learning compared to the conventional techniques, the suitability of E-learning with their present teaching methods and the effort required for deployment, are the main aspects ascertaining of E-learning will be used (Birch and Burnett, 2009).

Additionally, the commencement of E-learning is identified to introduce stress (Boettcher and Conrad, 2010) as people think they are not capable enough to merge technology in their teaching style (Ertmer, 2005). Such thoughts are frequently created in the initial time of the teaching career (Salmon, 2005). As has been discussed by Albion and Ertmer (2002, p.36), the principles of the teachers pertaining to technology are influenced “during time spent in the classroom either as a teacher or as a student”. The educational beliefs related to the use of technology for teachers are shaped when the teachers attend school as students, or when they commence their teaching career (Osika, 2006). Nasser and Abouchedid (2001) caution against overlooking the approach of the teachers in context to technology, contending that both the teachers approach towards technology and abilities required for adopting E-learning along with their viewpoints or outlooks to employ technology need to be considered.

Few researchers have indicated that E-learning can revitalise studies in context of eagerness or new experiments related to technology to formulate creative teaching and learning methodologies (Smith, 2002; Birch and Burnett, 2009). Furthermore, it is contended that E-learning courses can encourage empowerment for teachers which is not possible in the physical campus (Parker, 2003).

In context of viewpoints, the technology acceptance model (TAM) suggested by Davis (1989) analysed the association amongst three crucial variables – perceived usefulness, ease of use, and attitudes and intentions in context of using the innovation. Liaw et al. (2007) depended on Liaw's (2007) recommended -TUM (three-tier technology use model), to indicate that the independent variables of perceived usefulness and perceived self-efficacy could envisage the teacher's behavioural intent to employ E-learning. In the study conducted by Liaw et al. (2007), perceived E-learning satisfaction was discovered to be a crucial aspect impacting the teacher's cognitive viewpoints, including perceived self-efficacy and perceived usefulness of E-learning.

If we consider the attitudes, teachers with a negative attitude to employ online learning would be unsuccessful while implementing the same. Samarawickrema and Stacey (2007) identified that teachers with an accepting approach to online technologies, were sure of its worth before the execution itself.

Many researchers (e.g. Jamieson-Proctor et al., 2006) have outlined teacher confidence to be crucial for ICT amalgamation. Several teachers are no confident and are scared to admit to their students that their knowledge was limited (BECTA, 2004). In context of principles, Ertmer (2005), discovered a direct link amongst the teachers' educational opinions and employment of technology, as technological capability would not be employed unless they were suiting the teachers educational opinions teachers' (Ertmer, 2005). Ertmer also showed how the teachers' educational views had an overlapping impact on their viewpoint of, and their approach to using technology. As per Ertmer, all teachers filter details related to teaching inventions via their present opinions, which can restrict their possibility to comprehend.

3.3.7.3 Resistance to Change

There are a number of research studies which have been carried out in Sultan Qaboos University (SQU) and which reveal that academics reluctance to use technology is

caused by their resistance to change (Akinyemi and Al Musawi, 2002; Al-Saleem, 2006).

Akinyemi and Al Musawi (2002) state that this resistance may be due to any of the following factors:

- Fear of redundancy. That is, faculty members replacement by technology.
- Complacency of the faculty members about set forms of practice.
- Negative ·beliefs of the faculty members towards using computer technology in teaching and learning.

Al-Saleem (2006) notes that no attempt has so far been made in Oman to explore the faculty members' beliefs about information communication technology (ICT) or to investigate how they (faculty members) make sense of their professional realities, how they influence their classroom practice, or how they mediate upon the interpretation of their teaching tools. Moreover, it is argued by Al-Saleem (2006) that faculty members have been resistant to change due a number of reasons such as heavy working load, lack of technical support from their colleagues and also having negative attitudes towards computers. The other factor which has strengthened this resistance to change is the lack of pressure from the university administration (Al-Saleem, 2006).

3.3.7.4 Autonomy of Teaching

The character of scholastic culture is such that the academics possess autonomy in context to their teaching (Chapman and Nicolet, 2003), and as a result in HE, the teachers employ their individual manner of conducting things, free from the bigger institutional references, motivated by individual urges in this context (Gibbs and Gosper, 2006; Macfarlane, 2011). The start of E-learning has been discovered in few researches to generate dread amongst researchers over their control over teaching, and thus the manner by which they teach, will be eradicated. For instance, Clegg et al. (2003), contend that an essential query for researchers in HE is who is in-charge of the curriculums and the method of teaching? Becher and Trowler (2001, p.12) analysed that researchers were “professionally marginalised” in crucial choices pertaining to if, and how to start and employ learning technology. In his research, Wallace (2002) spoke that researchers were scared that they would lose their standing of quality teachers and become “production workers”. Such doubts related to the loss of domination over the configuration, planning and delivery of the HE curriculum (Lisewski, 2004).

Academics require feeling that they are revered and that they are experts with the knowledge needed to articulate their expert functions (Thompson, 2003).

Few researches have emphasised on the apparent modifications to the way of teaching as the ascertaining aspect in the choice to use E-learning (e.g. Conceicao, 2006; Birch and Burnett, 2009), with proof that one of the crucial aspects that the top administration needs to value when planning E-learning diffusion policies, is the fundamental modification in the teaching ways that would crucially influence the academics who are anticipated to lead the implementation (Conceicao, 2006). The introduction of E-learning in HE tests the basic traditional educational functions, customs and institutional presumptions (Lisewski, 2004), developing scenarios that need a standard transition in how the researchers think about teaching and learning. This change in the function of researchers from providers of data (Boettcher and Conrad, 2010) to instructional planners and communication helpers can be tough for few researchers to attain. The demands on them begin to differ as the function of researchers modifies once E-learning is introduced.

3.4 Theoretical Framework

Diffusion of Innovation (DOI)

Many researchers have evaluated the usage of technology by teachers when they teach (for instance Dewan et al., 2010; Norton and Bass, 1987). In several researches that analyse the usage, the Concerns-Based Adoption Model (Hall and Hord, 1987) and Rogers' Diffusion of Innovations Theory (Rogers, 2003) have been employed to analyse this incidence. While the Diffusion of Innovations Theory (Sherry and Gibson, 2002) includes the usage and spread of an innovation, the Concerns-Based Adoption Model studies the procedure pertaining to using the innovations. The Diffusion of Innovations as a theory is related to the how, why and at what rate innovative notions and technology gain importance. According to Rogers (1995), an innovation is a notion, custom, or object that is considered to be new by the person, and diffusion is the procedure by which the creativity is spread via specific mediums as time progresses between the members belonging to a social system. A theoretic structure for evaluating the technology usage patterns is offered by Rogers' (1995) theory of diffusion.

Rogers (1995), opines that people in a social system fail to use a creative idea simultaneously; while some use the creative notion initially, few of them use it later. Depending on the creativity benchmark, the extent to which is person who comparatively uses the new notion earlier compared to other members of the social system, the spread of different user segments results in a usual, bell-shaped curve that indicates Innovator (2.5%), Early Adopter (13.5%), Early Majority (34%), Late Majority (34%), and Laggards (16%). Rogers (1995), also mentions that relative advantage, compatibility, complexity, trialability and observability affect the choice of a person to use or decline a creative notion. Relative advantage is how enhancement of a creative idea surpasses the earlier generation. Compatibility is the degree to which the creativity needs to be merged into a person's life. Complexity is how likely it is to be adopted by an individual based on how difficult it is to use. If the creative idea or product is very tough to employ, a person will mostly not use it. Trialability ascertains how effortless it is to experiment with the innovation or to use it. Observability is the degree to which others can see the innovation. An innovation that is evident enhances the interaction between the person's peers and individual networks which consequently, result in development of affirmative or adverse responses.

3.5 Summary

The current chapter sumerised earlier published literature and studies pertaining to the research topic. It presented E-learning overall and discussed its definitions, models, and different Learning management systems employed to manage E-learning in HEIs.

It offers a critical analysis of the literature that encompasses E-learning in Higher Education (HE) sector. It comprehensively analyses the current body of literature that relates to E-learning in higher education, Blended learning management system (LMS) use in HE, academics' perceptions that included aspects of E-learning, academics individual factors of E-learning, and institutional factors affecting E-learning.

While there appears to be ample, and sometimes, contradictory studies on factors that hinder academics' adoption of E-learning, they do appear generally to merge around institutional issues, such as lack of IT infrastructure, inadequate training, lack of technical support, etc. Individual barriers in the literature were mostly to do with motivational and awareness issues of E-learning. Exploring these factors to the three

different faculties to determine if any of them are important in influencing adoption for these groups of academics was the focus of this research study. While much of this research gave indications as to factors that constrains instructors' adoption, little research exists on the perceptions of academics on the nature and interactions between these factors. Therefore, the literature review does suggest that, while there is some understanding of the institutional and individual factors that hinder adoption of academics, there remains a gap in the area of the relation of these barriers in Oman higher education institution.

The subsequent chapter outlines the research model and hypotheses underpinning the research and justification of the same.

Chapter 4 Methodology

Researchers are not quantitative, qualitative or mixed methods researchers, rather a researcher may apply the data collection and analysis methods most appropriate for a particular research study
(Mackenzie and Knipe, 2006, p.197)

Communication between humans and technology is becoming increasingly complicated by the rapid evolution of new technologies (Turkle, 2011). The primary purpose of this study was to explore academics' perceptions on the barriers of E-learning adoption. In teaching and learning, the perceptions and assumptions of academics are important because teachers are believed to be the primary models for integrating ICT (Ertmer and Ottenbreit- Leftwich, 2010) and their assumptions and beliefs also influence the way their student interact with technology (Bowers, 1988). More research is required to fully understand teachers' views about ICT (Chen, 2011; Kilbourn and Alvarez, 2008).

The methodology chapter details the research design and approach employed in the current study. This is an endeavour to explain and justify the most appropriate research design for apprehending the research problem, the means used for data collection, and the techniques used for data analysis. As explained by Lee and Lings (2008), this section provides a link between the research problem and the methods selected to analyse the problem .

The chapter starts with restating the research questions which have directed this study in section 4.1 and a description of the research paradigm and research method in sections 4.2 and 4.3 respectively. This if followed by the sample of participants in section 4.4 and the tools used to collect the data in section 4.5. Issues of validity, reliability, and ethicality are in the last sections of the chapter. The chapter closes with a summary of the main topics covered.

4.1 Research Questions

This study aims to answer the following research question and subsequent questions:

Research Question:

How is the adoption of E-learning technologies affected by institutional barriers and the attitude of academics?

Subsequent Questions

Question #1: In the absence of any common university directive for E-learning, to what extent do the three academic faculties at Sultan Qaboos University use LMS in their teaching? And what is the nature of this use?

Question #2: What do academics perceive as the benefits of E-learning to their teaching practice and to students learning?

Question #3: In the absence of an E-learning strategy, how do participants perceive the institutional factors that challenge academics' adoption of E-learning?

Question #4: How do participants perceive the individual factors that inhibit academics' adoption of E-learning?

Question #5: How do participants perceive the factors that inhibit students' adoption of E-learning?

Question #6: How do different E-learning structures and organization at the three faculties affect academics' perceptions of E-learning barriers?

4.2 Research Design Framework

Creswell's (2014) research design framework is used to explore the process of this research. There are three components to Creswell's (2014) framework, including research paradigms (positivist, post-positivist, constructivist, transformative, and pragmatic), research methods (quantitative, qualitative, and mixed methods), and research designs (non-experimental: survey research, experimental, ethnographic, phenomenological, case study, narrative, grounded theory, convergent, and sequential). These components are discussed in the following sections in relation to the current research study and chosen methods.

4.2.1 Research Paradigms

Research is a systematic investigation where data are collected and analysed (Burns, 1997) in aim to "understand, describe, predict or control an educational or psychological phenomenon or to empower individuals in such contexts" (Mertens, 2005, p.2). Research paradigms represent collections of assumptions and general conceptions of individual and social behaviour that determine the used methods and the addressed questions within the research procedures. Moreover, a paradigm determines the criteria according to which one selects and defines problems for inquiry and also, how one approaches them theoretically and methodologically (Punch, 1998; Husen, 1997; Jaeger, 1988). Kuhn (1970) explains that “the study of paradigms … is what mainly prepares the student for membership in the particular scientific community with which he will later practice” (p.10). According to Mackenzie and Knipe (2006) argue that the first step in a research is to choose a paradigm and "without nominating a paradigm as the first step, there is no basis for subsequent choices regarding methodology; methods, literature and research design” (p.193).

According to Habermas (1978), there are three types of interest that drive research: the desire to predict and control (scientific paradigm), the desire to understand (interpretative paradigm), and the desire to change society for the better (critical paradigm). In the same sense Cohen et al. (2007) describes, among others, three paradigms: the normative, the critical perspective and the interpretive. The normative most often used in research that is more comprehensive and large-scale and can tend to be impersonal while the critical perspective is often more politically oriented and could take the form of a campaign in search of evidence to confirm the theory or hypothesis. The interpretive focuses more on the individual and the context.

Mackenzie and Knipe (2006), and Creswell (2014) discuss four paradigms that form the basis of current scientific inquiry, namely positivist (post-positivist), transformative, interpretivist (constructivist), and pragmatic. Apart from the pragmatic paradigm, these research paradigms are discussed by other researchers (Denzin and Lincoln, 2000). The outline and definition of these paradigms discussed in Mackenzie and Knipe (2006) follow.

Post-positivist (Positivist) Paradigm

Sometimes referred to in the literature as 'scientific method' or 'science research', the term positivism was introduced in the nineteenth century by Auguste Comte (Schmaus, 2008). It is "based on the rationalistic, empiricist philosophy" (Mertens, 2005, p.8) and "reflects a deterministic philosophy in which causes probably determine effects or outcomes" (Creswell, 2003, p.7). And "through observation and measurement in order to predict and control forces that surround us" (O'Leary, 2004, p.5), positivists aim to describe an experience or test a theory.

Positivism was replaced by post-positivism after World War II (Mertens, 2005). Post-positivists' assumption is that any piece of research is influenced by well-developed theories in addition to the one being tested (Cook and Campbell, 1979, p.24). For positivist researchers, context simply was not the primary focus, or considered substantially relevant to obtaining knowledge about the world. In effect, researchers operating under the post-positivist paradigm use hypotheses and require that they be tested in the field.

Quantitative methods of data collection and analysis are predominately associated with the post-positivist research

Interpretivist (constructivist) Paradigm

The interpretivist or constructivist paradigm originated from German philosophers' study of interpretive understanding (hermeneutics) like Edmund Husserl and Wilhelm Dilthey (Mertens, 2005, p.12).

This research approach has the intention of understanding "the world of human experience" (Cohen and Manion, 1994, p.36), suggesting that "reality is socially constructed" (Mertens, 2005, p.12). A researcher operating under this paradigm focuses on the unique qualities of individuals and socially constructed experience. The interpretivist researchers rely on the "participants' views of the situation being studied" (Creswell, 2003, p.8) and the impact of their own background and experiences on the research. They "generate or inductively develop a theory or pattern of meanings" (Creswell, 2003, p.9) throughout the research process and do not generally begin with a theory (as with post-positivists).

With a phenomenological approach the world is viewed as socially constructed and subjective. This means that the researcher is then seen as a part of the phenomena observed and that (s)he always has values that affect research. The researcher focuses on the importance of a phenomenon and tries to understand its meaning. Furthermore, (s)he seeks understanding of the world people live and work in, the deep interpretations of texts, documents, symbols, and social phenomena play an important role.

Sandberg and Targama (1998) propose a form of the interpretive approach that focuses on understanding. It is based on a concept that different individuals create an understanding of reality in different ways, and that individual and reality cannot be separated. Sandberg and Targama (1998) explain: “The more accurately we can describe people's understanding of their work, the greater the prospects that we are able of making skills in the work visible” (p.60).

Qualitative data collection methods and analysis or a combination of both qualitative and quantitative methods (mixed methods) of data collection and analysis are associated with the interpretivist research.

Transformative Paradigm

According to Mertens (2005) the transformative paradigm arose during the 1980s and 1990s. Transformative researchers "believe that inquiry needs to be intertwined with politics and a political agenda" (Creswell, 2003, p.9) in the aim "that may change the lives of the participants, the institutions in which individuals work or live, and the researcher's life" (Creswell, 2003, pp.9-10).

The focus of this paradigm is on identifying the constraints placed on people by race, gender, and socioeconomic status in aim to increase awareness of inherent oppression. Although both approaches transformative and interpretivist paradigms focus on subjective concerns, the former approach differs in that it views reality through the lens of power structures.

Qualitative data collection methods and analysis or a combination of both qualitative and quantitative methods (mixed methods) of data collection and analysis are associated with the Transformative research.

Pragmatic Paradigm

As Early pragmatists "rejected the scientific notion that social inquiry was able to access the 'truth' about the real world solely by virtue of a single scientific method" (Mertens, 2005, p.26) pragmatism is seen as the paradigm that is not committed to any one system of philosophy or reality. The 'what' and 'how' of the research problem is the primary focus of pragmatist researchers (Creswell, 2003, p.11). The pragmatic paradigm mostly focuses on the “the research problem" and uses any approaches to understanding the problem (Creswell, 2003, p.11). In this paradigm, reality is viewed as experience dependent, and knowledge is obtained within the context of inquiry

Data collection and analysis methods are chosen as those most likely to provide insights into the question with no philosophical loyalty to any alternative paradigm. Hence, combination of both qualitative and quantitative methods (mixed methods) of data collection and analysis are associated with the pragmatic research.

Table 4-1 below shows the four paradigms outlined by Mackenzie and knipe (2006), the research methods and data collection tools associate with each paradigm.

Table 4-1 Research paradigms, Methods and tools

Paradigm	Methods (primarily)	Data collection tools (examples)
Positivist/ Post-positivist	Quantitative. "Although qualitative methods can be used within this paradigm, quantitative methods tend to be predominant . . ." (Mertens, 2005, p.12)	Experiments Quasi-experiments Tests Scales
Interpretivist/ Constructivist	Qualitative methods predominate although quantitative methods may also be utilised.	Interviews Observations Document reviews Visual data analysis
Transformative	Qualitative methods with quantitative and mixed methods. *Contextual and historical factors described, especially as they relate to oppression* (Mertens, 2005, p.9)	Diverse range of tools - particular need to avoid discrimination. E.g.: sexism, racism, and homophobia.
Pragmatic	Qualitative and/or quantitative methods may be employed. Methods are matched to the specific questions and purpose of the research.	May include tools from both positivist and interpretivist paradigms. E.g. Interviews, observations an d testing and experiments.

(Source: Mackenzie and knipe, 2006)

Exploring and understanding of teachers' perceptions of barriers affecting E-learning in higher education and how these perceptions have influenced practice is central to the

current study. Thus the interpretivist paradigm and approach of understanding and meaning were its starting point.

4.2.2 Research Methods

Research methods refer to "systematic modes, procedures or tools used for collection and analysis of data" (Mackenzie and Knipe, 2006, p.196). Moreover, Creswell (2014) and Wiersma (2000) add that, the choice of appropriate method (quantitative/qualitative/mixed) used in research study depends on the research philosophy (paradigm) and the data collection techniques used. While Mackenzie and Knipe (2006) suggest that it depends on the paradigm and the research question. This section presents the differences between quantitative and qualitative research methods and the rationale for chosen method for this research study.

Patton (2002) argues that one of the biggest differences between qualitative and quantitative studies is the selection. Qualitative research seeks depth and relatively small selection, while quantitative studies however, uses a larger number of cases . Neuman (2006) describes the process of research similarities and differences between the two approaches in view of the process of conducting research. A quantitative study typically begins with a research selecting a topic from a general area of study or issue of professional or personal interest, which is narrowed down to a specific research question addressed in the study. On the other hand, in a qualitative study, researchers begin with reflections about themselves or their situation in society and unlike quantitative approach it does not narrowly focus on a specific question, rather it ponders the theoretical philosophical paradigm in an open ended setting (Neuman, 2006).

Alvesson and Deetz (2000) write that scientists generally see the quantitative method as superficial and see a discrepancy between the quantified empirical and statistical correlations on the one hand and the real practical aspects on the other. They argue further that behavioural research must be based on a specific context. The authors refer to the discussions between quantitative and qualitative supporters; attempt to find a common language between the two camps .

Cohen et al. (2007) believe that it may be unnecessary to create tensions between the two methodologies, qualitative and quantitative, as often happens in the world of research. The authors explain the difference simply by describing the quantitative

method as a way to try to explain something and qualitative methods as a way to try to understand some phenomenon or event. This goes hand in hand with what Mackenzie and Knipe (2006) write that, “researchers are not quantitative, qualitative or mixed methods researchers; rather a researcher may apply the data collection and analysis methods most appropriate for a particular research study” (p.199).

The core of the current study is to exploring teachers' viewpoints, perceptions and practices with reference to the integration of E-learning in higher education some of which may have been new and challenging, was considered a crucial aspect of the current study. So, I'm seeking for the best research method in terms of interpreting and understanding the phenomena and events from a pedagogical perspective which is the focus of the qualitative methodology (Merriam, 1994). Additionally, a quantitative measurement of individuals' opinions and experiences can be difficult if not impossible. Thus the qualitative methodology was considered the most appropriate. Thus, the remaining sections of this chapter describe the qualitative research design and tools used for the study.

Qualitative research methods are concerned with the study of things in "their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them” (Denzin, 2000, p.3). They are characterized by their interpretive practices and by how they focus on meaning-making and on building conceptualizations.

Glesne (2010) note that multiple methods are needed to be used by the researcher in qualitative study in order to understand, describe and make sense of the research. She highlighted the importance of how open should be the qualitative inquiry to enclose participants’ experiences complexity.

According to Creswell (2003, p.198-199), the qualitative method “occurs in natural settings, where human behaviour and events occur; [and is] based on assumptions that are very different from quantitative designs. Theory or hypotheses are not established a priori; the data that emerge from a qualitative study are descriptive. That is, are reported in words (primarily the participant's words) or pictures, rather than numbers; the focus is on participants' perceptions and experiences... on the process that [is] occurring as well as the product or outcome.”

In qualitative method, data is collected by the researcher using research instruments which are less structured and, most of the time; the researcher himself is a tool for data collection. The qualitative method results offer insight into the social, emotional and experimental phenomenon and can make us grasp the hidden nature of behaviour, attitudes and motivation. And researchers in qualitative studies focus on a phenomenon or a small number of phenomena where recent insights were explored through using a sample of smaller size. Its aim is to get an idea, to reach an understanding, to explore the characteristics of different environments and cultures, and to understand the relationship between different processes .

Cohen et al. (2007, p.461) argue that "qualitative data analysis involves organizing, accounting for and explaining the data; in short, making sense of data in terms of the participants' definitions of the situation, noting patterns, themes, categories and regularities…the analysis will also be influenced by the number of data sets and people from whom data have been collected". So, It is interpretive in nature and focuses on words, not numbers, and analyses the data to search for themes, patterns and holistic features .

4.2.3 Qualitative Research Designs

In qualitative research the term "thick description" described by Ponterotto (2006), defines the way a researcher explains and obtains knowledge about social interaction. This predominantly involves observing the opinions, emotions, and whole context of experience to gain a full or comprehensively thorough expression of a context or situation

Different methods use thick description to inquire about phenomena have been established and stabilized over the years that show the diversity and richness of qualitative research. The presentation below illustrates some of the main qualitative research methods that include ethnography, phenomenology, case study, narrative, and grounded theory.

- **Ethnographic:** An approach that seeks to understand the whole cultural group. It requires a direct immersion of the researcher in the middle of the studied group to understand the "lifestyle" of a group and description of the analytical and interpretative reconstruction of culture, forms of life and the social structure of the

group studied. Thus, a family, a school, a class are some examples of social and educational units that can be studied through an ethnographic approach.

- **Phenomenological research:** It is the approach to study human consciousness. It is postulated that below consciousness are reflected on another level, that of intentionality implicit inattentive. Instead of explaining and studying the facts and meanings that subjects give to phenomena, the phenomenological method is essentially descriptive and comprehensive. What differentiates this approach from other qualitative approaches is that it focuses on the experience of the individual and subjective experience. According to Bullington and Karlson (1984), "Phenomenology is the systematic investigation of subjectivity". (p.51).
- **Case studies:** Thomas (2011) defines case studies as: "Analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame—an object—within which the study is conducted and which the case illuminates and explicates". (p.513)
- **Narrative research:** This approach pertains to the narrative analysis of life stories to interpret human motivation, perceptions and behaviour. Several strategies can be used in narrative analysis. The most important are psychological analysis, history event analysis and discourse analysis. From a psychological point of view, the focus is on analysing the story in terms of motivations, expectations and thoughts specific to the individual.
- **Grounded theory:** The insights that grounded theory reveals is the contextual explanations rather than describing what is going on. The purpose of a grounded theory is "to specify the conditions that give rise to specific sets of action or interaction pertaining to a phenomenon and the resulting consequences. It is generalizable to those specific situations only" (Strauss and Corbin 1990, p.251).

According to Yin (2014), "the design is the logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions" (p.18). Furthermore, Yin distinguishes a number of criteria to opt for using case study design over others. He suggests that this design would be the preferred choice in studies where the main research questions are "how" and "why" questions, where a researcher has little or no control over behavioural events and where the focus of the study is a

contemporary phenomenon as opposed to entirely historical (Yin, 2014). The present study met the three criteria for the application of the case study design described by Yin (2014). First, the study sought to understand how the adoption of E-learning affected by institutional barriers and attitude of academics in HE. Second, for this study, no control over behaviour events is required. And third, the study is concerned with barriers of E-learning in current practice. Therefore, a case study design was adopted.

According to Merriam (1994) a qualitative case study focuses on best research method in terms of interpreting and understanding the phenomena and events from a pedagogical perspective. Furthermore, he believes that a qualitative case study is the best starting point for research that focuses on discovery, insight, and understanding the basis of how we, as humans, perceive world. This study's aim was to understand how educators and teachers perceive the use of E-learning tools in teaching and learning. This would be consistent with Merriam description, as well as Cohen et al. (2007), which is of a similar opinion when they write that the purpose of a case study is to explore, describe and interpret the uniqueness of how individuals feel about their local situation.

The type of case study design adopted for the study and Yin (2014) case study typologies are explored in the following section.

4.2.3.1 Case Study Design

Yin (2014) defines case study research as "an empirical inquiry that investigates a contemporary phenomenon in-depth within its real-life context, especially when the boundaries between phenomenon and context are not clear evident" (p.16). Moreover, he provides four types of case study design typologies based on the numbers of cases and units of analysis (figure 4-1) that allows identifying the type of case study design for a particular research. These classifications are: Single-case design with one unit of analysis (type1), single-case design with multiple units of analysis (type2), multiple-case design with single unit of analysis (type3), and multiple-case design with multiple units of analysis (type4) Yin (2014).

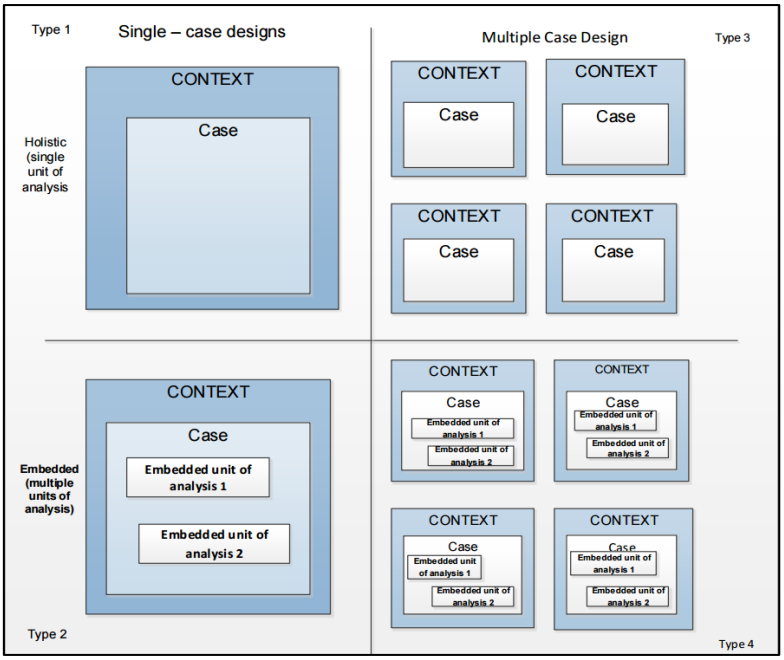

Figure 4-1 Case study design typologies (Yin, 2014)

In a single-case design (type1 and type2) research, one case is investigated, while in a multiple-case design (type3 and type4) research, two or more cases are investigated. A unit of analysis is the phenomenon or population from which information is collected (Yin, 2014), for example, the case design research with a single unit of analysis (type1 and type3) would examine only the overall nature of an organization, whereas the one with multiple units of analysis (type2 and type4) would also look to specific departments or programmes within the organization allowing for fine-grained analysis (Yin, 2014).

Although the use of multiple-case designs would offer the opportunity to make the between case comparisons with either a similar or contrasting case (Yin, 2014), single-case designs offer more invaluable insight. Furthermore, a single-case study goes in depth by capturing the complex and context-aware perceptions and the reader should get a sense of "being there".

In the argument against the limited generalizability of single-case studies, Yin (2014) explains that case studies do not allow generalization to populations and universes but rather to theoretical propositions.

For the current research study, a descriptive single-case design with multiple units of analysis was used due to time and resource constraints and the desire for depth rather than breadth inquiry. Its aim was to explore educators' assumptions about E-learning

adoption. Descriptive, or illustrative, case studies are intended to deeply demonstrate and explore a phenomenon through a common language (Yin, 2014). In the current study, there are three units of analysis in this case study: (1) academic teachers at the Language centre, (2) academic teachers at the college of Science, and (3) academic teachers at the college of education. The methods used to study each case included E-learning system course layout, and a 60-minute, in-depth interview. A total of thirty teachers participated with ten individuals representing each case study.

In total, 30 semi-structured interviews were conducted in 2012-2013 at three teaching faculties at Sultan Qaboos University in Oman. All academics in the three faculties were from the same University and no E-learning strategy was adopted at the university. Hence, a "bottom up" approach where academics had the full autonomy in the design and use of their courses was practiced. Academics' perspectives on the institutional and individual factors that inhibit E-learning adoption and integration were investigated.

4.2.3.2 Semi-structured Interview

An interview, which is basically "a purposive conversation with a person or a group of persons" (Lodico et al., 2006, p.121), is included in most of qualitative research. The semi-structured interview is the most common type of interviews. In this type, which is guided by a set of inquiries to be answered and issues to be explored, the exact wording and the inquiries order are not predetermined (Merriam, 2009).

Merriam (1994) argues that interviews are the main source of empirical data as qualitative case studies are concerned. The most common is a semi-structured interview that is controlled by such themes to be addressed during the interview without a predetermined order or word order. Furthermore, she mentioned the importance of the interaction between the interviewer and respondent and how this affects the quality of the empirical data. The author writes that interviews are a good tool for gathering information when seeking to find out what the respondent thinks.

Patel and Davidson (1991) address the importance of interaction between interviewer and interviewee, which, according to the authors, both are co-creators in conversation qualitative interviews. They agree that a qualitative interview can provide general descriptions as well as unique and specific descriptions of the respondent's experiences and thoughts about the phenomenon or theme.

A qualitative interview generates, in other words, a wide range of information. The authors also stressed on the importance of close, steady preparation for the interviews in terms of content, issues or themes and the actual implementation. It is important to avoid misconceptions and a testing can be done before implementation. Another important aspect of what the implementation is concerned, is that it requires taking notes and recording sound with the interviewees' permission. My interviews, which have been in conversations form on the basis of a thematically guided semi-structured interview, have worked as a support rather than a mandatory template.

Since the current study was principally concerned with understanding how educators are using E-learning in teaching and learning are perceived, I decided that it would be much more useful to focus upon educators and teachers who might currently or recently have been involved in E-learning practice.

4.3 Study Sample

This qualitative case study explored educators' assumptions and ways of thinking about the use of E-learning in teaching practice. Since the participant pool of the study was drawn from the Sultan Qaboos University (SQU) academic staff population, it is worth to mention the characteristics of the total population of the academic staff at SQU first. Academic staff population at SQU are the teaching instructors in the nine colleges and the language centre (LC). Table 2 in chapter 2, section 2.7.1 shows that the academic staff at SQU is male dominated (68%) and almost half of the population are in the assistant professor rank with a percentage of (48%). In the language centre over half of the teaching staff are in the Senior language Instructor rank with a percentage of (57%). There are five science colleges and three humanities colleges.

The targeted colleges for study were those who have more Moodle E-learning and E-assessment activities than others. One college was selected from the scientific colleges and one from the humanities college in addition to the Language centre. Table 4-1 below shows the number of E-learning courses and Moodle E-activities at all colleges and LC at SQU. The Table shows that from the five Scientific colleges (Agriculture (AGR), Engineering (ENG), Medicine (MED), Nursing (NRS), and Science (SCI)), SCI has the highest number of courses in most Moodle activities particularly in Assignment, forum, quizzes, and wiki. And similarly, EDU compared to the other three

humanities colleges (Arts (ART), Commerce (COM), and Law (LAW)) has the highest number of courses in Assignment, forum, quizzes, and wiki activities. The LC E-learning courses with Moodle activities are shown under the column heading "LANC".

Table 4-2 E-learning Moodle activities

College	AGR	ART	COM	EDU	ENG	LAW	MED	NRS	SCI	LANC	Total
Assignment	141	87	99	275	273	19	99	23	519	274	**1809**
Chat	12	9	6	83	2	0	6	18	38	20	**194**
Choice	21	1	9	7	6	1	13	0	17	34	**109**
Forum	150	448	134	543	241	5	155	98	238	391	**2403**
Glossary	5	14	0	17	1	1	2	7	38	52	**137**
Lesson	0	0	0	2	0	0	11	1	5	19	**38**
Quiz	44	50	8	165	92	0	224	15	187	1491	**2276**
Survey	3	1	0	1	4	0	1	0	0	4	**14**
Wiki	11	6	4	168	10	0	33	0	5	36	**273**
Questionnaire	2	2	0	23	7	1	13	1	1	10	**60**
Hotpot	0	0	0	20	0	0	0	0	0	93	**113**
SCORM	0	0	0	132	0	0	0	3	0	868	**1003**
Journal	0	0	0	95	3	0	0	11	0	116	**225**

(Source: CET, 2014)

College of Science, College of Education, and the language centre were the three faculties that the sample population was drawn from. Thirty teaching staff was selected from the three faculties with 10 instructors from each faculty. To preserve anonymity and confidentiality of the 30 participants, pseudo names were used throughout this study to identify the participants. Table 4-2 below shows the sample size, pseudo names, age, nationality, gender, college, and rank of the research study sample population.

Table 4-3 Study Sample Population

	Pseudo name	Age	Om./ Exp.	Gender	College	Rank
1	Nadia	41 - 50	Omani	Female	Science	AsstPro
2	Muna	41 - 50	Omani	Female	Science	AsstPro
3	Harry	41 - 50	Expat.	Male	Science	AsstPro
4	Khulood	41 - 50	Omani	Female	Science	AsocPro
5	Khalil	51 - 60	Expat.	Male	Science	AsocPro
6	Ramzi	41 - 50	Expat.	Male	Science	AsstPro
7	Hadi	31 - 40	Omani	Male	Science	AsstPro
8	Murad	51 - 60	Expat.	Male	Science	AsocPro
9	Ghada	31 - 40	Omani	Female	Science	AsstPro
10	Shaheen	41 - 50	Omani	Male	Science	AsstPro
11	Nisreen	51 - 60	Expat.	Female	EDU	AsocPro
12	Hamad	31 - 40	Omani	Male	EDU	AsstPro
13	Badar	31 - 40	Omani	Male	EDU	AsstPro
14	Linda	51 - 60	Expat.	Female	EDU	AsstPro
15	Mousa	51 - 60	Omani	Male	EDU	AsocPro
16	Wafaa	41 - 50	Omani	Female	EDU	AsstPro
17	Riham	41 - 50	Expat.	Female	EDU	AsstPro
18	Zaki	41 - 50	Expat.	Male	EDU	AsstPro
19	Hadeel	41 - 50	Expat.	Female	EDU	AsstPro

20	Zamzam	41 - 50	Omani	Female	EDU	AsstPro
21	Rahima	31 - 40	Omani	Female	LC	LanInst
22	Gloria	51 - 60	Expat.	Female	LC	SLanInst
23	Ben	Over 60	Expat.	Male	LC	AsstLL
24	Mohamad	31 - 40	Omani	Male	LC	AsstLL
25	Brooke	31 - 40	Expat.	Female	LC	AsstLL
26	Deborah	41 - 50	Expat.	Female	LC	AsstLL
27	Barry	31 - 40	Expat.	Male	LC	SLanInst
28	Sam	51 - 60	Expat.	Male	LC	AsstLL
29	Mathew	41 - 50	Expat.	Male	LC	AsstLL
30	Basma	31 - 40	Omani	Female	LC	SLanInst

All departments of colleges were represented in the sample except the Islamic studies department from the college of Education. As there were no replies received to the invitation e-mails and when four academics contacted through telephone, they said that no E-learning activities are carried out in the department and hence were not interested in participating.

4.4 Data Collection

4.4.1 Conducting Semi-Structured Interviews

The primary data source for this study was the recorded conversations obtained during interviews with 30 teaching faculty members participants. Researcher memos noted through the research process provided valuable insights into all research stages. All participants engaged in a semi-structured interview. This type of interviewing provides some structure for the researcher but supports great opportunity for participants to respond and elaborate on issues that is most important to them (Hesse-Biber and Leavy,

2010; Cohen at al., 2007). The objectives of the interview questions are to provide a framework that guides this research process, allow the researcher to explore and understand academics perceptions, provide structure for the process, and strengthens trustworthiness.

Special features of the interview form are that it is flexible and that emphasis is placed on the interviewee's subjective experiences. The semi-structured interview means that the researcher does not assume the questions in the same way as is usually done in an interview, but the interview is designed more like a conversation, where questions are designed based on different themes to assist the researcher as an interview guide. During the interview, there is an importance of not to stop at the wrong time, which could mean that the order of the main issues must be changed.

Pros of this method is that it gives more freedom to the interviewer because she does not need to follow the questions exactly but instead can use follow-up questions. It is also a flexible way of working; the opportunity is given to the interviewer to immerse herself in what has been said and also to develop further questions.

As for the preparation to the interview, Cohen et al. (2007) writes that preparation is essential, and may be crucial for the outcome. First, the researcher should ask herself what is the purpose of the interviews, and then select the interview, such as semi-structured. Before contacting the academic staff at SQU, two letters were sent to the SQU advisor of academic affairs office in June 2012 to seek approval of requesting Moodle usage data from the CET and approval to conduct interviews with academics of selected colleges and LC at the University. The Approval letter was received via e-mail in the same month. Then the approval letter was forwarded to the CET with request of providing Moodle usage data including e-mails of academics using E-assessment activities through Moodle. This list contained eleven academics from COE, twenty six from COS, and five from the LC with a comment stating that there are over one hundred teachers using E-assessment at LC but could not be listed. The researcher was advised to contact the E-learning coordinator of LC for further information. Also CET commented that the academics listed on the list supplied may not be longer teaching at SQU. The E-learning coordinator at LC was contacted to further suggest twelve academics at LC who are using E-assessment. In addition to the lists suggested by CET and the LC E-learning coordinator more academics from different departments of the

two colleges and the Language centre were contacted via e-mail and phone calls to invite them to participate in the study. Two academics from COE, six academics from COS, and six academics from LC who accepted to participate were from the CET and the LC E-coordinator lists. The other sixteen academics were from the researcher's additional list that represented the different departments of the colleges. After confirming participation, the researcher compiled a list of all academics by faculty, department, and contact lists of all participants. An e-mail was sent to all participants to suggest convenient date and time for the interviews over four weeks starting from middle October 2012. The researcher kept a log of the interview schedule and memos on the interviews. The academics were supplied with the study information sheet to get information on the study and interview procedures prior to conducting the interview. All thirty participants were informed of the purpose of the study, the voluntary participation, the free will to discontinue at any time without penalty, and were asked to sign a consent form. After returning to my office, a backup copy of the interview was created and I wrote some notes and memos of the experience. All interviews were conducted face-to-face at the interviewee office except for two interviews that were done via e-mail as the interviewees missed to attend the interviews on the specified day and time for personal reasons and then a national holiday of one week made it difficult to reschedule. The two interviewees asked for the questions to be e-mailed to them.

Interviewees were also informed that the interview was recorded. The focus of the 60 minutes semi-structured interview was E-learning practices of the instructor participant. The primary questions used for the semi-structured interviews are found in Appendix A. At the end of the interview, the researcher asked for the participant's permission to have access to his/her Moodle E-learning course as a non-editing teacher to view the E-learning and E-assessment activities of the course. All interviews were in English except five interviews from the COE who wished to have the interview in Arabic. The interviewer used the Arabic translation of the interview. Since the interviewer is a native Arabic speaker, the analysis of these five interviews were based on the Arabic transcripts and were not translated to English to avoid misinterpretation and loss of meaning.

I find the material collected as more spontaneous and participants perceived to be more outspoken. Merriam (1994) and Patel and Davidson (1991) look at the interaction

between the interviewer and the interviewee as an important component of the interviews. I experienced myself to act , not as a participant, but mostly as a hearing observer when I did not need to stimulate an already rich and rewarding interview. However, I found it is sometimes quite difficult to keep the conversation because I wanted the respondent to speak as much as possible without my involvement.

The material collected is an interpretation of an experience of the respondent and this is not necessarily correct, thus questioned the empirical material reliability. However, I could see both the similarities in experiences and interpretations among all participants, as well as unique units. The similarities should demonstrate that: although the interpretation of their own experiences or thoughts about the concept or phenomenon is arbitrary, there is a pattern which suggests that these interpretations are shared by multiple individuals. I cannot challenge another individual's experiences but I can, however, make my own interpretation of the information that I receive.

Overall, I am satisfied with my choice of method and believe that I have enough empirical data to work with, although there is room for improvement.

4.5 Data Processing and Analysis

Data analysis, in qualitative research, encompasses a chain of wavers that push and pull the research inquiries constantly and guide theoretical framework(s) (Creswell, 2003).

According to Merriam (2001, p.197), the goal of data analysis is to make data stands to sense. In the current study, I used an inductive analysis approach to conduct data analyses of participants' data, as I was “discovering patterns, themes and categories” in my data (Patton, 2002, p.453), as part of a process, beginning with “specific observations” and “building toward general patterns” (p.56).

I was using a voice recorder during interviews because I wanted to stay focused on the conversation and not on writing notes which would increase the chance of missing something. All notes on the interviews were written within an hour after the completion of the interviews.

The interviews time vary in length because it was very much up to the interviewees to determine both the rate and also the amount of content. The interviewees were, in other words, speak about a point and determine when the theme or the subject was exhausted.

After transcribing the interview audio files, the transcripts were compared while listening to the audio files again to ensure that no meaning information was overlooked. Then content analysis was performed using QDA Miner software to classify the data.

During analysis, I have seen the themes, in favour of the red thread, and categorized them. I've seen both similarities and unique name in the empirical material and make distinctions between them by specifying the frequency of a “IP” (interviewer) to “all IP” to identify any generalities and also uniqueness. In this way, I have assured that I'm not going to miss any information or possible connections and differences. It should be added that the empirical results are a result of my interpretive and although my focus, and is thus not an objective narrated material without a design. Steedman argues that there is nothing but a subject i.e. a phenomenon which does not stand on its own feet without requiring the viewer (or listener) interpretation (Alvesson and Sköldberg, 1994).

Additionally, my work experience as an academic at Sultan Qaboos University gives me a certain pre-understanding for what the interviewees mention. This is an advantage purely empathetic and gives me certainly benefit from a psychosocial perspective when I feel accepted as an equal, while there may a disadvantage also when it makes me less critical.

Patel and Davidson (1991) writes that there probably is an advantage if the interviewer, in a qualitative interview, has a prior knowledge and is well-informed about the phenomenon or context in which the interview takes place, and I feel to be that case in this particular context. Alvesson and Sköldberg (1994) mentions empathy, that is, the ability to empathize with others' situations, as part of the interpretation work. The authors see this as an evolution rather than a compression of data.

Data analysis

Given the type of data chosen and the realism paradigm qualitative data analysis method was perceived to be the most appropriate method. Thematic analysis formed the basis

for analysing the qualitative data from the interview transcripts. Thematic analysis can be viewed as a "contextualise" method underpinned by critical realism theory. Realism perceives individuals being able to interpret and understand their experience within a broader social context both in reflects and unpicking the surface of reality.

Thematic analysis allows searching for certain themes or patterns across an (entire) data set, rather than within a data item, such as an individual interview or interviews from one person. This is an important requirement for this study as it aims to identify and explain phenomena (barriers of adoption and diffusion of E-learning) from a number of perspectives. As the aim of the study is to explore and explain the causal links between phenomena through understanding of the underlying structures and mechanisms The analytic methods adopted were used to construct propositions by two levels of analysis of the data of individual cases and comparison of cases. Analysis at individual level allowed unique themes of each case to emerge and analysis across multiple cases of comparison of themes.

4.6 Validity and Reliability of Selected Methods

Questions and tests of validity in case study research are complex and critical throughout the research process (Yue, 2009). The validation of qualitative research is different from that of quantitative research in a sense that, there are limitations to researchers in qualitative research to use validity and reliability to check stability or consistency of responses as well as generalizability (Creswell, 2003). However, in qualitative study like this, validity is used to suggest whether the findings are accurate from researcher standpoint, the participant or the reader (Creswell and Miller, 2000).

The study's validity means that "it measures what it is intended to be measured" (Stukat, 2005, p.125). According to Kvale (1997), it is the validity of the interview, the reliability of the respondent's answers and the quality of the interview process.

During the interview, one must question the meaning of what is said and check the information as well. Supplementary questions must be asked and the content must be understood. (Kvale, 1997, p.214) To validate is to question. When trying to determine the validity, the questions what and why is answered before the question how: exploration of contents and purpose will precede the method (Kvale, 1997, p.219). To assure reliability and validity, the interview questions were critically evaluated by a

senior experienced academic in the field of E-learning and educational technology who has been involved in this field for more than ten years. The evaluation focused on the clarity, question wording and validity. Additionally, to practice interview technique and to check its clearness, pre-testing of the interviews has been done to check if the questions are being understood in the way intended with two Omani academics from the college of Arts and two expatriate academics from the college of commerce who were not from the study sample population.

When I commenced interviews, I asked questions in a similar manner to all interviewees and I tried to be as clear as possible. When necessary, I asked several follow-up questions because I considered it was important to have a detailed and comprehensive response. Interviewees also were asked to elaborate on their responses when I thought that something was unclear or needed clarification. Interview time slots were determined by the interviewees themselves so that they could feel as relaxed and safe as possible. All the interviews did not exceed the 60 minutes duration except one interview that lasted for 102 minutes. Interviewees were given plenty of time to think and reflect on the issues . One interviewee from the LC asked to have a short pause after each question for her to think and then record her response. Accordingly, I paused the recording after each question and then restarted it when she was ready to respond. Since I was well prepared before the interviews, I believe that I managed to obtain what was the purpose of interviews.

Measuring experiences and thoughts may not be this easy but we can say that the experiences that confirmed by many interviewees have a higher validity than those mentioned by one interviewee. My task was to try to reproduce them in such a way that the reader feels an authenticity in what transpires. I was seeking, without compromising confidentiality, to convey interviewees' thoughts to the reader and thus contribute to validity.

Besides, the validity of this study is addressed by the analysis of multiple evidences gathered from university database documents, Moodle course documents, and interviews.

As for reliability, qualitative research is criticized by many as being too subjective, the result is greatly dependant on who has made the interpretation. One can also argue that reliability (measurement reliability) is often uncertain (Stukat, 2005, p.32).

In the current study, I have heard recordings and read the notes several times to be sure that there is no misinterpretation or misunderstanding. Since I have analysed data several times and come to the same result, I believe that I have assured, as much as I can, the reliability of this study.

Furthermore, qualitative research has been criticized for being dependant on the prior understanding of the person who is going to interpret answers and therefore set the result of the study. (Stukat, 2005, p.32) I have discussed carefully with each interviewee what assessment means and how the concept is interpreted at the beginning of every interview. This reduces the risk of subjectivity in my work. I have also gone through the interview questions with every interviewee, and discussed the importance of each question to be sure that all interviewees have the same understanding.

I did my best to ask questions in the same way to all interviewees and with the same facial expression and I tried to be as precise as practicable in this regards and thus reduced subjectivity.

4.7 Ethical Considerations

Two ethical approvals were sought and granted for this study, the first was from the ethics committee at the University of Strathclyde, and the second was from the office of Vice Chancellor's advisor of academic affairs at SQU. The university of Strathclyde ethics committee was contacted via e-mail through the researcher's supervisor with the study description and information of data collection and procedure. An E-mail was forwarded to the researcher with approval from the ethics committee at the University of Strathclyde. To obtain the approval to interview academic staff members at SQU and to get data related to Moodle usage from the Centre of Educational Technology (CET). A covering letter that included all the details of the study was sent to the office of Vice Chancellor's advisor of academic affairs at SQU.

A consent form had been signed by participant academics before commencing the study (See Appendix C). It embodied an assurance that participants may, at any time,

withdraw their participation. A study Information sheet that embodied details about the purpose of the study, benefits of the research, how the interview would proceed and how the results would be presented was sent to participants. Moreover, academics were informed that anonymity was assured by not using their real names, and that their identities, personal data collected and the signed consent forms will not be disclosed under any circumstances either verbally or in documents.

4.8 Summary

This chapter provided an overview of the methodological approach to data collection and analysis used in this research. Descriptive in its approach, it recognises the importance of providing a clear account of the methods used in this research in evaluating the validity of the subsequent findings in chapter 5.

Chapter 5 Findings

What we find changes who we become.
(Peter Morville; Ambient Findability, 2005)

Through interviews with the academics at the three faculties at the university, this study explored and examined the effect of academics perceptions of the institutional factors and academics attitudes that hinder their adoption of E-learning. In this chapter, the findings of this study are revealed to aim and answer the research questions.

The E-learning use of LMS tools by academics, institutional barriers, and individual barriers to E-learning adoption were the central themes of analysing the data in this study. But in aim to analyse the adoption of E-learning at each faculty it was necessary to investigate the academics perceptions of the existing E-learning support structures and training available to them by the university and by their faculty. This will give more insight and depth in understanding the effects of these structure(s) if any to E-learning adoption. Hence, academics perceptions of these two additional themes will be presented in the findings. Furthermore, the students' individual barriers are also presented as additional theme in the findings.

The findings in this chapter will be presented by the following seven themes for each faculty as a separate case:

1. Perception of academics of the E-learning support structure(s) existing at their faculty.
2. Perception of academics of the E-learning training Support offered by the university and/or their faculty.
3. Extent and nature of use of E-learning LMS by academics at these three faculties.
4. Academics' perceptions of the benefits of E-learning to students and academics.
5. Academics' perceptions of the Institutional barriers of E-learning integration.
6. Academics' perceptions of the Academics' individual barriers of academics' E-learning integration and adoption.

7. Academics' perceptions of the Students' individual barriers of academics' E-learning integration and adoption.

Furthermore, these themes will contribute to drawing inferences on the effect of these barriers on E-learning adoption. And hence, addressing the research questions and achieving the research objectives of this research study. Each unit of analysis was individually described and the data presented within the themes identified in the literature review and used as the basis for interviews. The chapter closes with a summary.

Findings (1): The Language Centre (LC)

The LC academics views on the main themes of the research study are presented in this section.

Theme 1: E-learning Support Structure

It was clear from talking with LC academics that E-learning was considered as a central focus at the centre. It was also clear that E-learning support was perceived as the most influential factor in the wide adoption of E-learning by academics at the centre. LC academics in this study acknowledged that E-learning was an important component of the LC teaching and learning practice. They also confirmed that LC administration support is apparent in the formation of a formal unit called "Faculty Academic Support Unit" (FASU) to support technology integration in teaching and learning, especially E-learning.

The focus of this section is the three subthemes of E-learning at LC. These subthemes are: FASU support, peer support, and CET support. The findings of these subthemes form the organization of this section.

FASU Support

All of the ten LC academics talked about the role of FASU in support E-learning at the centre. Ben, who was the most senior of the interviewed LC academics, but very enthusiastic about technology and E-learning. He pointed out the role of the head of FASU in taking the initiative to persuade not only the LC administration but LC

academics as well in the provision of a unit to support academics and provide them with training in E-learning. He said:

The head of FASU has been able to not only convince the central administration. This was worth doing but also convince the teachers and so, he is responsible for providing teacher training on a periodic basis.

Eight of LC academics were also aware that the head of FASU was the E-learning coordinator at the centre and part of the FASU team. Gloria who is a senior too but seemed the least confident in using E-learning than the other academics. She is certain that the centre provide encouraging environment for supporting the less technology savvy in gaining more confident in its use. She said:

> *We have our E-learning coordinator. And he is someone who is sort of encouraging more and more use of E-learning. I think we have, definitely an environment for encouraging all of us, the older ones or the ones who perhaps need more to build that confidence in this technology. We have that back up and support.*

Brooke, who introduced herself in the interview, as having great interest in using technology in learning and as soon as she joint LC she offered to be part of the E-learning support team. She is also very elaborate in her answers and likes to take her time to get all what she wants to say, on few occasions, she asked to pause recording until she "puts her thoughts together". She stressed on the role of LC administration in making E-learning practice one of the centre's strategic focal point. She said:

> *Yes, I should say that E-learning takes one of the central parts, in overall Language Centre policy. And yes, there are some problems or things that could be improved but I mean, the administration, see E-learning as a kind of strategic point in the life of The Language Centre. Last year I think they established this Academic Support Unit. It mostly deals with E-learning stuff. Yeah, because students need help, but teachers maybe even need it more.*

She also confirmed that the E-learning coordinator is the head of FASU, and talked about the roles of people who are providing support for E-learning as part of FASU.

She also mentioned again that E-learning was part of the centre's overall strategy. Six academics mentioned the word "strategy" and/or "policy" for E-learning at the centre. On the roles of the support team Brooke further explains:

> *E-learning coordinator is part of this unit and we have several people like responsible for different things in this unit. Someone is responsible for webpage stuff and updating and different Moodle-related stuff. Another person is in charge of Turnitin issues. But, of course, all of them can like help. So, E-learning is part of overall strategy.*

Mathew referred to FASU people as the "e-Team" and "e-specialists", whom he said were the technology enthusiasts that provided support for the different areas of technology at the LC. These "e-specialists" were placed at different programmes to ensure that E-learning support is available for the other teachers at the centre. He stated that:

> *We have an E-coordinator. And he's been very informative here and he's in charge of the E-learning. We also have 'the e-team' at one point, where we had different people that represented different areas in the language centre. We try to have at least one sort of e-specialist on each of the programmes. So yeah, so that's how we our basic structure works. Usually, the people that are involved are the people that already have an interest in that area. And you know we all have to know how it works and understand its functions.*

But Sam confessed that due to the fact that these support people were not of formal posts, there were few programmes that do not have an E-learning person in them. He said that:

> *Well, what we've done, really, is to try to get a person involved in E-learning in each of our programmes. Now this hasn't been entirely successful. There are several programmes which don't have any E-learning person. But these are not formal posts of responsibility because there is no provision in the system. It's quite difficult.*

However, like all the LC academics interviewed, the success and influence of the support unit FASU was appreciated by all academic at the centre. Sam gave his concluding remark on the faculty unit support and said:

> *What we do have and what is formal within The Language Centre is what is now called "The Faculty Academic Support Unit".*

Peer Support

A recurring sub-theme throughout this study is peer support, which was perceived to be valuable to eight LC academics. The peer support here is evident as a structured support provided by colleagues who were program or course coordinators who have specific skills in technology and E-learning use. Basma explained that although there were no formal policies to force course coordinators to help their co-teachers in using technology, it is believed that it's the responsibility of the course coordinator to do so. She said that:

> *Here at the LC, the course coordinator takes care of his or her team. I think it may be – it's not really written but it's one of the responsibilities of the team leader, or the coordinator to make sure that teachers know everything and that they are well informed of the course, of its components, any kind of projects, E-learning anything about it. You feel that it's your responsibility.*
>
> *I mean even at the beginning of the course for example, when I run my program meetings, I usually conduct them in labs. I usually book a lab and take all the teachers to the lab and show them the things that we have online. We show them Moodle, we show them the Quizzes, we show them Moodle Readers, I help them register, I give them hand outs, show them Google everything. So it's very important for me to actually show the teachers and encourage them to use technology.*

The same point was confirmed by Deborah on the role of the course coordinator in directing the use of E-learning by other teachers on the team. She commented that:

> *And then also, once you get into your different programmes, there's the course coordinators who show you specific points on Moodle that you*

need to be doing with the students and how to use Moodle.

And so there are some course coordinators who are more technologically capable and so they sit down and they figure it out and they can show the teacher themselves. There are others that, you know, really feel that, you know, they're not… it's not their job to be the IT support.

The role of a program coordinator is similar to a course coordinator in guiding the use of E-learning by the other teachers who are part of that program. According to Mathew, as a program coordinator, he believes that it is a way of as he puts it "pushing teachers gently" to E-learning use. He said that:

I'm a program coordinator now, so I'm doing two jobs, really I have to encourage them… so one of the things I do is I just set things up, I explain to them why we're doing it a certain way. And then I basically tell them we have to do it this way. You know, this way they're sort of forced into that position. And, of course then, you have to offer support for that. And you have to be patient because the first semester everybody's getting used to the new system. They understand the benefits. And it's just encouraging them to do it and sort of forcing them gently.

This role of the course or program coordinator in driving teachers to the use of E-learning was also acknowledged by Sam, as he said:

The program coordinator does force their teachers to some extent, even if there are, you know teachers in the program that will say: 'Well, no, we really don't have to' But the coordinator actually makes sure that all the teachers are involved at least applying this technology.

Gloria also a course coordinator admits to being non technology proficient in E-learning, but due to her content with E-learning she let other teacher in the program to take care of E-learning. She said that:

Personally I'm pretty happy with Moodle. However, I must make it clear

to you that I, as the course coordinator for the program, I wouldn't call myself literate in technology, but I'm not. I don't have a high proficiency. So with all the other things that we have to do, I have basically someone who coordinates the Moodle for me. That's not the case with everybody. Some people do their own Moodle. I have attended many, many workshops but I do small things. My experience with Moodle is not as much as the creator of the actual webpage.

Although peer support in the form of course coordinator and program coordinator the LC was perceived by most of the academics positively, two academic pointed out that there are few course coordinators and program coordinators who can negatively affect the use of technology by other teachers in their team. Mohamed said:

In the Language centre, the course coordinator decides and not the individual teachers. It has positive side, and negative one. If the CC for example or the program coordinator doesn't adopt E-learning approach, you know, then the other teachers would be following the course coordinator, but if we have a course coordinator who believes in E-learning and who thinks that there is time that this can be done and it's useful for the students, then, you will see more teachers doing it.

The same view was acknowledged by Sam, as he put it:

I mean, we still have coordinators on the foundation program – well, at least one, maybe – who is very unenthusiastic about technology, and who, you know, resist it and, in fact not interested at all and who, you know, quietly, politely, you know, turned down all attempts to sort of introduce the technology to other teachers in the team.

CET support

Because the LC has its own support unit, the academics views on CET support was centred most on issues related to EL training. Seven LC academics show positive attitudes towards CET people, but all of the seven raised concerns about the limited CET support provided for E-learning. They all addressed the collaboration with CET and the FASU support unit through regular visits to the centre.

Ben describes the contribution and support a member of the E-learning unit at CET, and the role in setting up some Moodle activities like wikis and journals. He elaborated:

> *Oh yes, definitely and a member of CET comes here regularly and we have already designed the new website for the new Moodle 2. We are just waiting for the server to be able to handle it. She comes periodically and she has also helped us with specific resources, setting up specific resources like for example, the wikis, or the interactive glossaries and all the different things in Moodle. She has had a very important role and she has made a great contribution. (Ben, LC).*

The main issues that the six LC academics were concerned about were the lack of communication between the centre of Information systems (CIS) and CET. CIS is responsible for the computing hardware, software, and networks at SQU. LC academics share the view that, there was some kind of politics going on between the two centres. Academics reported that this was evident in the lack of communication and poor technical support provided at the new teaching computing labs in the new buildings blocks E and F. They said that neither CET nor CIS staff supported EL activities at these blocks and hence academics teaching at these blocks faced a lot of problems such as time delays waiting for the network connections, PCs not working, and on some occasions cancelation of online exams and classes in those labs. Gloria expresses her views on this:

> *There is a bit of an issue in E and F block. We teach in E and F. This is more on the use of technology in the classroom. The technology there is not always working and the rumours are there's some kind of politics going on between CET and CIS. I know teachers have got very frustrated and hence they may not be doing so much of their own E-learning with students. We encourage it all the time but if the equipment doesn't work we cannot do much. (Gloria, LC).*

A senior academic stated that at CET, there are only two or three people responsible for providing EL support across the SQU. He further pointed out that these people are not fully supported by CET administration. He further added that this limited support have resulted not only in the limited training opportunities offered to SQU staff, but also in

the out-dated Moodle version used at the University. He said:

> *You know, I mean, the amounts of support that the E-learning people in CET actually get from their administration, is very limited. And I think in that sense, yes, you might say that there's sort of active problem there. I mean, you know, you have two or three people in E-learning, but they don't receive any support. I mean, where are we now? We're still using a version of Moodle which has been out of date now for three year. (Sam, LC).*

Another senior academic at the centre emphasised that, CET need to reconsider its strategy in approaching the academic colleges at the university in terms of EL support. He said that at present CET waits for colleges or individual academics contacting them for any EL support and training needs. He emphasised the importance of CET contacting the academic colleges to find out their specific EL training needs and provide a tailored training program for these colleges. Another academic further expressed his view on the need of EL centre to accommodate for SQU EL needs. HE said:

> *I think because the programmes or what they can do for you can be tailor-made to your needs and so the needs of different colleges can vary and so yes, there is an infrastructure that everybody can fit into, but I think the best thing is for CET to contact each of the colleges individually, find out what their needs are and then be able to help them more specifically. (Ben, LC).*

Another academic explained that although CET people are supportive, sometimes it was beyond their control as he said that he thinks the SQU lacks more solid infrastructure in terms of EL and technology use in general at the university. In his words Mathew said:

LC academics views on CET support are summarised by the following table:

Table 5-1 LC views on CET support

Positive	Concerns
• Provide support when needed.	• Poor Communication & collaboration with CIS.
• Nice people.	• Don't take initiative of

	support.
• Great contribution	• Insufficient resources for E-learning.

Findings in this study confirm that, all LC academics were aware of the different support for E-learning available at the centre.

Overall, the LC academics were confident in their recognitions of the central role of E-learning and the support structures of E-learning. They saw this support was apparent in FASU unit, its head, and members in supporting E-learning activities at the centre. As illustrated in Figure 5-1 below, they also acknowledged the role of course coordinator (CC) and program coordinator (PC) in making sure that all teachers within their course or program were using the technology in their teaching practice.

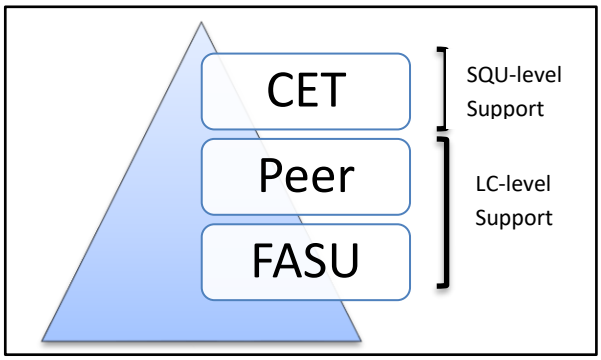

Figure 5-1 LC E-learning Support system

Theme 2: E-learning Training

The second theme to arise from this study is the academics' perceptions on the E-learning training available to aid academics integration of E-learning in their teaching practice. From interviews with the ten LC academics, the support for E-learning in teaching was evident in the In-house training provided by head and members of FASU and the university-level training provided by CET. This section of the chapter is organised by these two categories.

In-house Training (FASU)

As mentioned in the previous section by all LC academics that LC had formed an in-house unit (FASU) to support academics' technology and E-learning use in teaching. They viewed FASU's support through the role played by its head and members who they referred to as the "e-Team", "e-Specialists", and "Moodle people". This support

was in the form of training workshops given by the head of FASU and other members. Deborah and Ben spoke of their experiences with the head of FASU as the one who gave them and all new teachers training in Moodle. They said:

> *When I first came, the Director of the FASU Committee, the Faculty Academic Support Unit, he actually trains all the new teachers on Moodle and how to use it. (Deborah).*

> *We have the head of FASU. We know that he is always there for us. He is there all the time for us and he is of great, great help and he is the one that really opened the door to Moodle for me. If there are problems, he is always there to help us with that and of course, he knows all the nooks and crannies of the Moodle program. So things that you don't normally think of, he can help you with that. (Ben).*

Ben further described the training provided by the head of FASU as being "On-going" and "continuous". He elaborated that the training was available to academics but was not obligatory. In his words, he said:

> *He is responsible for providing teacher training on a periodic basis. On-going continuing basis and of course, then teachers are free to take up these offers more enthusiastically or less enthusiastically depending, but it is there for them.*

Gloria said that the head of FASU played a positive role in encouraging use of E-learning. As she put it:

> *We have head of FASU, who's our E-learning coordinator. Yes, definitely. Oh, and he is someone who is sort of encouraging more and more use of E-learning.*

Basma said that after attending many training workshops at the centre, she started to depend on herself in learning the technology. She said that:

> *I actually started going to training workshops here at the Language Centre because they gave a lot of training workshops on Moodle and how to conduct E-learning and I even created a workshop for myself as*

part of the training because I wanted to teach myself, I love to self-learn.

Barry said that although he already had prior experience in E-learning before he came to SQU, but affirmed that FASU members are the main support system of E-learning at the centre. He said that:

> *Well, when I came I had a lot of experience with E-learning. But yes, individuals from FASU, they kind of looked as the core provider of support for others.*

University-level Training (CET)

The second area of training support reported by all LC participants is that of SQU level administrative support through the E-learning unit at the Centre of Educational Technology (CET). LC academics viewed CET training support through the workshops announced and provided by CET for all academics at SQU. CET support was also acknowledged by many LC academics through the provision of tailored specialised training requested by LC. In particular many LC academics mentioned the contribution of a lady from CET who they believed helped supporting the centre E-learning activities.

Basma explained that some of the workshops given by FASU at the centre were supported by CET. She said that:

> *The workshops that are run by FASU sometimes are organized by CET. So there are workshops here organized by the Language Centre, there are workshops organized by CET for people from the university.*

Ben, being a senior academic at LC and an expert on E-learning explains the continual support and collaboration between CET and LC in designing E-learning activities for the centre. As he put it referring to the lady from CET:

> *Oh yes, definitely and a member of CET comes here regularly and we have already designed the new website for the new Moodle version. We are just waiting for the server to be able to handle it. She comes periodically and she has also helped us with specific resources, setting up specific resources like for example, the wikis, or the interactive*

glossaries and all the different things therefore in the Moodle. She has had a very important role and she has made a great contribution.

Other LC academics also shared their experiences with CET workshops and the role of the lady from CET in their E-learning practice. Gloria and Deborah quotes were:

I have done a few courses with the lady from CET and she was an inspiration. (Gloria)

I attended two of them. Last January and the previous January, I attended CET training courses on Moodle quizzes, how to develop Moodle quizzes. (Deborah).

Nine LC academics concurred on the training provided by the centre's own FASU as the most significant support in the form of training workshops and support by the head and members of FASU who provided assistant with E-learning related problems at the centre. Furthermore, the LC academics affirmed the important role of the course and program coordinator in encouraging and directing the use of E-learning by other teachers in the course or program. Although LC academics seemed to be aware of CET training workshops available to all SQU academics, they appeared to link training mostly to the in-house workshops that are run by FASU. They however realize CET support in collaboration to enhance E-learning at the centre.

Theme 3: E-learning Practice

The focus of this section is the three subthemes of LC academics use and adoption of E-learning in their teaching. These three themes are: academics' perceptions on their reasons for E-learning adoption, the main E-learning activities practiced, and the level of E-learning use is practiced by academics at the college. The findings of these subthemes form the organization of this section.

Academics' Reasons for E-learning Adoption

All the nine academics using E-learning at the LC reported one of the two main reasons for their adoption of E-learning. The first reason was out of interest and enthusiasm for using these technologies in teaching to improve teaching and learning. This reason was given by six academics who were involved in some sort of E-learning responsibilities

at the centre. The second reason given was that E-learning was part of the course requirements and they were expected to do it. Three academics shared this view, who did not seem to mind using the technology but did not have the same enthusiasm for E-learning as their other colleagues.

One of the people who is most involved in E-learning is Sam, described his role in the introduction of E-learning at university level. He put it:

> *Well, I've pretty much been involved in different forms of E-learning since I came here 15 years ago. I was one of the first people to get involved in E-learning in SQU, and helped introduce the WebCT system that we had a few years ago.*

And Brooke explains that even though she had no previous knowledge of E-learning prior to joining the centre, her interest was the major drive for her involvement and wide experience gained. She said that:

> *And at that moment it was absolutely a new thing for me. At that time I didn't have any experience and I didn't know about Moodle. I knew nothing. But I said, 'Yes, I want to know how to do this.' And since that time I've been doing this. And I'm kind of supervising several Moodle courses for several Moodle programmes. I set up courses; I manage them, update them and stuff. Yeah.*

Although Basma and Deborah differ in their E-learning experience, both share the opinion that the main reason for their E-learning practice was that it was one of the requirements in the programmes they are teaching. In their words:

> *It is one of the regulations under the Language Centre in their curriculum unit is that we have to integrate E-learning. There were projects to create courses on Moodle for us. There were projects to create quizzes for each program, for each course and course coordinators had to find people to give them release time, to work on the projects. So it is actually part of the Language Centre idea. (Basma,).*

Every program is expected to have an element of E-learning, it is expected. (Deborah).

Figure 5-2 below show the primary reasons for E-learning by LC academic.

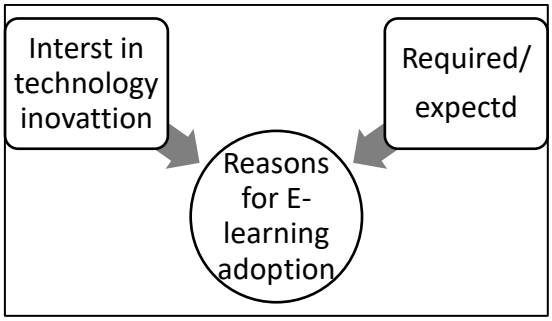

Figure 5-2 LC main reasons for E-learning adoption

LC E-learning Activities

LC academics E-learning practice was mainly facilitated by the university Moodle LMS website in addition to some activities were through external Moodle LMS website. One academic reported that Google activities in one of her courses. Academics further admitted that in addition to providing course materials and resources, the use of E-assessments for both formative and summative purposes were the dominant activities of E-learning at the centre. Some academics did talk about the use of other activities like discussion forums, and only one academic who was teaching adult community courses said that he used other tools like journals and wikis. A summary of E-learning practice at LC is presented in table 5.1 below.

Table 5-2 LC E-learning activities

Activity	Form(s)	Purpose(s)	# Academics
E-content	Resources	Display of course materials and announcements	9
E-assessments	Quizzes	Summative Formative	8
E-multimedia	Audio/Video	Use simulations and videos to enrich learning experience	8
E-collaboration	Forums	Discussions between students and teachers Discussion between students and students	4
E-collaboration	Wikis	Collaboration between students and teachers on team projects	2

The use of E-assessments quizzes was part of almost all courses curriculum at the LC and all academics talked about using quizzes for summative and formative purposes.

Sam talked about how the kind of activities available in a Moodle course at LC. He said that:

> *I think The Language Centre hasn't been very, very varied in the kinds of E-assessments that predominantly are quizzes. But if you look at my course that I'm teaching at the moment, there are forums, there are documents, assignments, quizzes, webpages, and discussion board.*

This was also reported by Gloria as she said that course information, quizzes and discussion boards were used in her course. She said that:

> *We don't use journals at the moment. That might be something to come in next semester. We have quizzes, forums; we have course information and resources.*

Mathew talked about the extensive use of formative assessments at the centre and how he think that hard working students do take these assessments as a form of practice. He said that:

> *Mostly quizzes, like Moodle-type quizzes. For example, in foundation program courses, they have reading quizzes and they also have vocabulary quizzes. As far as the formative is concerned, they get a lot of practice quizzes. And those students that really work hard – and you can see this every-, almost every semester, you see these students that do the practice quizzes 10 times sometimes, before they actually do the final.*

Figure 5-3 below shows the E-learning LMS tools used by LC academics where E-content and E-assessment are

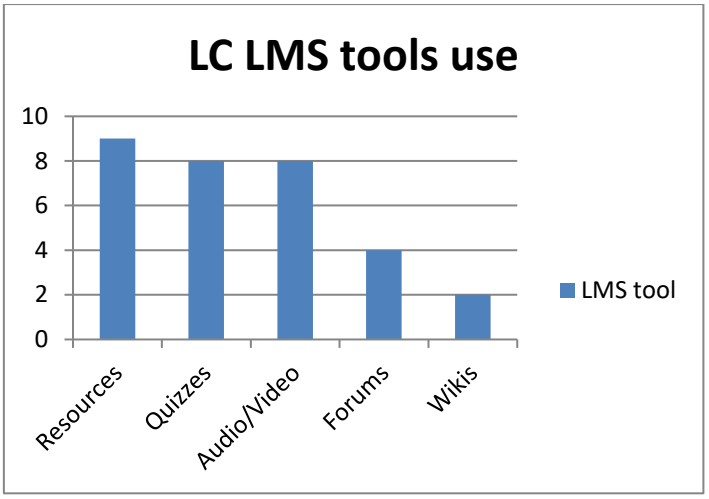

Figure 5-3 LMS tools used by LC academics

Theme 4: Benefits of E-learning

The focus of this section is the two subthemes of E-learning advantages perceived by LC academics. These subthemes are: E-learning benefits to students and E-learning benefits to academics. The findings of these subthemes form the organization of this section.

Benefits to Students

All the ten LC academics shared very positive views towards E-learning benefits to students learning experiences. The most highlighted benefits that were regarded by LC academics were flexibility, motivational, efficiency, and autonomy.

Six LC academics viewed that the most advantage for students was the flexibility of working at their own pace and to patterns that's best suited them rather than the teacher. They concurred that this mode of learning can help them in giving them a sense of achievement that is positive and less stressful and hence improve the way they perceive learning. On these views, Deborah and Sam commented,

> *They can work at their own pace and they can still feel like they've accomplished what they needed to but they didn't feel stressed. (Deborah).*

> *They can take these E-assessments whenever they like, wherever they like. They can work to patterns that suit themselves rather than patterns*

that suit their teachers. They'll find that they can probably do them at a time when they're feeling more positive towards learning and things. (Sam).

Four academics talked about the motivational learning environment E-learning can provide for students. Gloria said that students seemed to be enthusiastic about using technology and computers in her class. She said that:

Students, they are much more enthusiastic about doing things on the computer. They seem more interested as long as the technology works.

Basma and Rahima further viewed that new generation students like to see new ways of interactions in learning and "old classrooms" as Basma referred to them said that "were not interesting to students anymore". Rahima thinks that teachers should meet students' educational needs in using technology. She commented,

Students of this generation, they are different and unless we will be responsive to their needs and education, we will be missing a lot from really utilizing their energy and their natural connection to communication technology.

Broadening student learning and engagement was perceived by one LC academic as an important benefit that E-learning can provide for. Brooke explained:

E-learning gives students more options and more chances to view and understand a bigger picture of things.

Mohamed and Rahima agree with Deborah's view on the "open" learning as he called it in the availability of vast resources not limited to the class or the teacher. Deborah commented,

They get to learn that information doesn't only come from one person in the classroom, that there are other sources of information.

One academic at LC described "autonomy" as a students' benefits of E-learning. They perceive that E-learning can help students to take responsibility of their learning and learn independently instead of relying merely on the teacher. As Deborah put it:

It helps the students to learn autonomy, that they can't always look outside of themselves for the answer that sometimes they have to look inside themselves to find the answer.

Figure 5-4 below shows LC academics perceptions on the benefits of E-learning to students in Higher education.

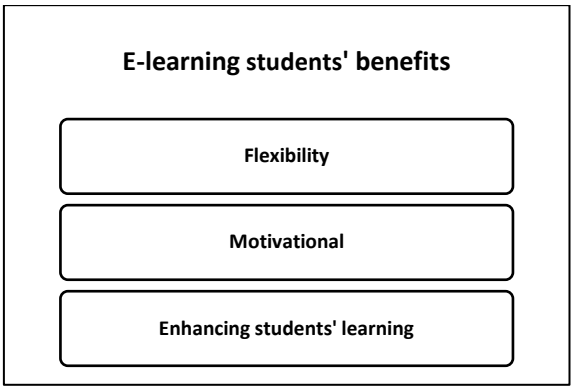

Figure 5-4 LC perceptions on E-learning students' benefits

Benefits to academics

Nine of all of the academics at LC shared the views of the advantages of E-learning to teacher's practice in its feedback capabilities of monitoring students' progress, its higher technological efficiency, and in reducing teachers' workload. Other views expressed by LC academics benefits of E-learning in teachers' professional and self-development (shown in Figure 5-5 below).

Academics explained that the use of E-learning and E-assessments feedback provided teachers with information on how their students were doing and the different levels of capabilities of their students. They further agreed that this allowed teachers not only to find the problematic areas that students are facing, but also helped teachers to adjust and make changes to their teaching to help students overcome these problems. These views were expressed by seven academics including Sam, Brooke, and Deborah who said:

E-assessments can provide you with more insight, can provide you with different kinds of insight into what students are capable of. It's another source of information about the level of their students. (Sam).

Another thing that is good is its feedback facility. It's like a gate to much more facilities. (Brooke).

It allows the teacher to help guide the different levels of students to activities that will stimulate or help them as they need. (Deborah).

The second benefit of E-learning to teachers' practice was most highlighted by six LC academics was its ability to provide more rich learning materials that were not possible in normal classroom setting. They explained that this capability adds and cater for different range of students' learning styles. These views were expressed by eight academics as well as Barry and Sam who said:

There are a lot of advantages that a technology-rich environment can provide, you have the ability to manipulate the audio and visual that you do not have in a classroom. With a little bit of preparation, you can prepare materials, create materials or adapt other materials from other places to reach students. (Barry).

You can incorporate different media, different styles and things... , it adds range to all the things you could do. (Sam).

Barry further describes how through E-learning students can experience real demonstration of how different activities are carried out. He said:

they can actually watch us do research, they can actually watch us search for information, navigating these information channels and now they actually see how it's done and they never had this model, they never had this demonstration. (Barry).

The third most benefits realised by LC academics was that E-learning provide student-centre learning environment where, learning is directed and controlled by students and less by teachers. Four academics believe that this contributes in reducing teachers' load to some extent. Also, they expressed the reduction in workload in the practice of E-assessments automated marking and preparations of subsequent assessments. These views are expressed in the following quotes:

Teachers are no longer the centre of the classroom, that when the

students are online, it's just the teacher's job to guide them. (Deborah).

I think the main important advantage is reducing workload. Time factor is very important because now teachers do not have to prepare quizzes, they don't waste class time. (Basma).

Two academics mentioned the benefit of E-learning experience in teachers' self and professional development. They perceive that this can help teachers pursue official E-learning certification.

Figure 5-5 below shows LC academics perceptions on teachers' benefits of using E-learning.

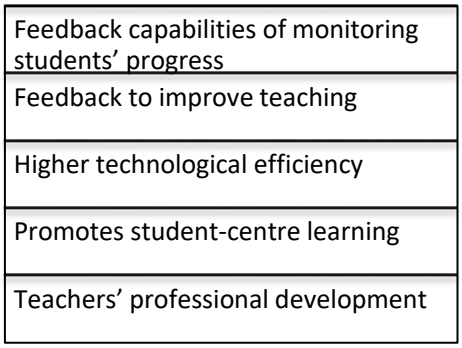

Figure 5-5 LC perceptions on E-learning teachers' benefits

Theme 5: Institutional Barriers

LC academics perceive the two main institutional factors that hinder teachers' adoption and integration of E-learning at the university are the lack of appropriate training and poor existing IT infrastructure. Other factors highlighted by some academics were the lack of management support for CET E-learning Unit and the absence of E-learning strategy at the university level. These factors are detailed in the following sections.

Ineffective Training

Seven LC academics perceived issues related to E-learning training at the university as the most hindering factors to E-learning adoption. Five of them explained that it is not the lack of training available, but more of the type of E-learning training offered through CET to academics at the colleges as ineffective. They explained that it is very general and does not cater for the different levels and needs of academics E-learning practices. Furthermore, three of these academics stated that this kind of general training

can be frustrated when teachers go to training but do not need those skills for their teaching. Whereas, they said that at the LC, training was directed to specific E-learning skills and academics needs. Another issue raised by two of LC academics related to training is the lack of university support for formal certified E-learning training by academics.

Ben, a senior at the LC expressed his concern that the training the academics at the other colleges get is not related to the specific activities and resources offered by the available E-learning system nor does it give academics insights on how to develop E-learning outcomes. According to him, this latter task is not easy and needs specific training and without thus type of training teachers will not appreciate what E-learning can offer and hence will not be encouraged to change their methodologies in teaching. He went further to offer LC support in helping academics at other colleges to provide this type of training. Ben's view is expressed in his words as:

> *I don't want to sound arrogant but in that sense, I think the colleges really have to think their programmes, rethink their programmes to start including E-learning components*
>
> *We would be more than willing to help them train their teachers, give them training on how to turn learning outcomes into actual tasks, E-learning tasks which is not an easy thing. I mean, it's not something that comes intuitively. You have to be trained, you have to know what's there for you, you have to know what activities are there, what resources are there and that requires training and when you are well familiarized with what Moodle can offer you, then you are in the position to change your methodology but if you are not familiar with what Moodle has to offer you, there is no way that you can make those changes.*

LC academics also remarked that CET should approach the different colleges for training needs instead of expecting the colleges to ask for such training. This was also highlighted in Ben's quote:

> *I think the best thing is for CET to contact each of the colleges individually, find out what their needs are and then be able to help them more specifically.*

Sam further adds that for training to work, it has to be targeted to academics with common needs and takes into account their views on the kind of training program to take. He said that:

> *Really, if you want training to work, then yes, the best thing that you can do is to target workgroups where people have common needs and you consult with them and you, you know, you work out a program and then you deliver the program.*

He also gave an example of how general training at the college level failed at the college of science (SCI). He said that the training started well for all the college's academics, but then later got stuck as he said because it could not accommodate for different levels and requirements of the six departments at the college. He puts it:

> *Because like at The College of Science, it started, you know, this training, at the college, but then it just got stuck. There were too many different people at different levels, different people with different requirements and things. No, you have to move, I think, probably to a departmental level.*

Deborah and Brooke share the view of the need for teachers to acquire certified E-learning training. They said that the current training offered by CET and the training available at the LC is unofficial and does not have accreditation or certification associated with it. They believe that many teachers at the language centre are interested in obtaining official recognised training in E-learning but due to the cost of such programmes many have not taken it. They also said that those teachers from the LC who took certified training had to pay for it themselves, but Deborah thinks that the university should cover these expenses for academics. She said that:

> *But there's no official documentation that goes with it. So it's very informal in that I've never had any formal training program or coursework with a certificate. There are programmes available for this but those take time and money. I mean, it could cost as much as, I don't know, 500 Rials and the university won't pay for that, so it would have to come out of the teacher's own money.*

Poor IT infrastructure (Resources, Maintenance, and Technical Support)

All the ten LC academics interviewed complained about the lack of IT infrastructure to support E-learning. Their concerns were mostly related to the limited available resources, poor maintenance of computers, and the shortage of available technical support in the computers lab, and three of them reported that sometimes no one comes to deal with the problem. Academics expressed their frustration especially during exams when they had to wait for a long time before someone comes and solve the problem. Three academics reported that on some occasions no one came to deal with the problem. They also raised the issue of the absence of technical support after 2:30 pm, working hours, while classes and exams are run until 6:00 pm. They said that after 2:30 pm there is one to call for support.

Five academics at LC felt that CIS as the provider of technical support as well as computer equipment and software should allocate more technical staff to support students and teachers in the computer labs. Also they believe that computer maintenance should be carried out regularly to all teaching labs. five academics suggested having a university E-learning centre that support all technical and other issues related to E-learning including Gloria, Basma, and Mathew whose quotes are given below:

> *I know teachers have got very frustrated and hence they may not be doing so much of their own E-learning with students. We encourage it all the time but if the equipment doesn't work we cannot do much. (Gloria).*

> *Yes, so this is the problem is that again technology is not reliable. We need to have on-going support; on-going maintenance and we had that also in exams. You know, before exams, sometimes, computers problems where teachers will go to the class and then the computer is locked and then calling them takes about even half an hour for them to come and fix it, sometimes they never come and fix. (Basma).*

> *And I don't think they have enough staff because sometimes I call CIS and there is only the secretary and she says, no one is here. I am the only person here. I can't do anything. So I think we need more staff, we*

need support. I think we need to have some kind of a centre or a unit or a department for E-learning. (Basma).

We really need to have a more solid infrastructure. And I know the guys over there and I know the guys in CET, and they're nice people, they mean well, and they're doing the best they can. But it's just the lack of the infrastructure. (Mathew).

Six academics also mentioned that this lack of resources also affects the student's use of E-learning. They said that students complain that they cannot get access to computer labs at the university.

Half of the LC academics talked about the problems of communication and collaboration between the two units that provide the technical and training support in relation to E-learning, CIS and CER respectively. Academics perceive that there is some kind of tension and sense of disorganization between these two nits which they feel affects the E-learning services provided by both units. As Gloria put it:

There is a bit of an issue in E and F block. We teach in E and F. This is more on the use of technology in the classroom. The technology there is not always working and the rumours are there's some kind of politics going on between CET and CIS.

Insufficient Management Support

Four academics attributed the limited support provided by E-learning unit at CET to the lack of management support the unit received from SQU administration. These academics viewed this poor management support in the limited number of people working at the E-learning unit, the delay in upgrading the version of LMS used for many years, and in the failure to provide adequate and proper training. Sam, a senior at LC and very much involved in E-learning for over 20 years explain these issues as follow:

You know, I mean, the amounts of support that the E-learning people in CET actually get from their administration, is very limited.

And I think in that sense, yes, you might say that there's sort of active

problem there. I mean, you know, you have two or three people in E-learning, but they don't receive any support. I mean, where are we now? We're still using a version of Moodle which has been out of date now for three year.

They haven't upgraded the systems. CET has been trying-, the people in CET have been trying to get administration to approve this and they haven't. So simple things like that. And the fact that, you know, CET people could be doing training all across the university, whereas in fact, I mean, they do very few sessions and, you know, very limited way

Lack of E-learning Strategy

In response to the question on their views on the need for E-learning strategy or policy to govern the use of E-learning across the university, nine LC academics agree on implementing a strategy to encourage the use of E-learning but not to force academics into practice. Five of these academics further stressed that before setting such a policy, problems related to the infrastructure and training issues should be resolved. They also recommend that a university strategy for E-learning should be to motivate academics and raise awareness of E-learning practice and not to force academics into practice. All nine academics agree that E-learning should be left at teacher's discretion. Some of these views are depicted in the following quotes:

Well, I think we should be encouraged. But I think if they had a policy, it would be sort of forcing people to do something that might not fit into their practice. (Mathew).

There is no sense in saying that there must be an E-learning component to the program if there is nobody qualified to see it through. (Ben)

I would say I probably would hope that there would be some type of requirements across the program levels but that it's left to teacher discretion to decide to what level or how in depth they're going to use their E-learning. (Deborah, LC)

Only one LC academics who felt that a more formal strategy of E-learning that will act as a formal document to govern the use of E-learning and set the guidelines for its use.

Basma expresses her view as:

> *Yes we need policies. We need to have something written. E-learning is one of the basic components of the learning environment at SQU. We need to put that in writing. (Basma, LC)*

The views of LC academics on E-learning policy are summarized in the following table.

Table 5-3 LC E-Policy Responses

Response	Rational/Aims	Case
Yes, important.	• Formal and binding	Basma
Encouraging and not enforcing	• Improve resources • Train teachers • Plan of action towards gradual improvement • Encourage people • Enhance motivation • Raise awareness • Might not be practical	Ben Deborah Brooke Sam Mathew Barry Gloria Rahima Mohamad

Theme 6: Academics' Individual Barriers

LC academics perceive the individual academics barriers that affect teachers' use and adoption of E-learning are, lack of time, resistance to change, academics' lack of IT skills, and students' lack of E-learning and IT skills.

Lack of Time (Needed to learn and integrate E-learning)

According to seven of LC academics, the issue of lack of time as a constraint to E-learning adoption was most related to the time needed to plan and develop E-learning content and materials. Nevertheless, almost all of these teachers appreciate that although developing E-learning materials take time at the beginning, but they admit that eventually it actually save them a lot of time. They said that they would like to be able to further develop further E-learning skills and use other tools but due to their current workload and the lack of time on hand they couldn't do so.

Deborah elaborated that teaching load is taking so much of academics that they have no time to be involved in other activities like E-learning. She said:

> *There are times where teachers might be teaching three or four different courses with three or four different preps and they just don't have the*

time to focus on anything beyond the basic curriculum in the classroom.

Sam furthermore talked about the difference in preparing traditional courses and E-learning courses in terms of the time needed to plan beforehand. As he explained that unlike traditional courses, E-learning courses must be prepared prior and cannot be changed as the course go along. He said:

> *If you want to invest in good courses, you have to invest time in good courses. And whereas it's possible, I think, to write good lecture delivery courses as you go along, it's not possible to write good E-learning courses as you go along. There has to be a much more significant element of planning going into them.*

LC academics feel that the university should acknowledge this time spent by teachers in developing E-learning content as part of the teachers' workload as well as face-to-face contact hours. They stress that to move forward in using new methods of technology and E-learning in education the university as an institution must appreciate and acknowledge the contributions made by teachers in developing and implementing such methods. Sam further explains it:

> *If you're going to use E-learning, then you are not necessarily going to be standing in front of a class. You'd probably be as often as not working with smaller groups of people, maybe for shorter periods of time you'd be probably adopting more seminar-types of approach, you'd probably be using asynchronous communication a lot. And those contributions, those times that you spend doing that have to be acknowledged as part of your work. And if you don't acknowledge those, then we won't make very much progress. And so there's a structural problem there that we are wedded to a model of education which is essentially conservative and old, and does not take account of modern methods.*

Change resistance

More than half of the LC academics identify the attitude of resistance to change as one of the most factors affecting other academics adoption because it is very slow to change. three of them stated that academics who have not used E-learning or E-assessments

when they were students or seen it working are usually the ones who resist the use of these technologies and are not comfortable around them. They said that usually these academics do not believe in the benefits of E-learning. Mohamed said:

> *Some of our teachers, they don't feel comfortable because they didn't use it when they were learning, when they were at school or at college and this is why they don't feel comfortable. This is why they resist technology.*

Academics' Lack of technological skills

Six academics at LC perceive that academics individual barriers relate to lack of training and technological skills. Brooke, Ben, and Basma mentioned that some teachers feel inhibited by certain technological aspects and the lack of general computer literacy. Basma shared her experience while in class and faced with technological problems with students and how other teachers were panicking because she said they did not know what to do. Basma put it:

> *Some teachers if they take students to the lab and something goes wrong or there is no network, they panic. They don't know what to do.*

Theme 7: Students' Related Barriers

Five LC Academics shared the view that they spend far more time on training students not only in how to use E-learning but also how to use computers. They strongly consider that students' lack of E-learning and computer literacy in general a barrier to academics' adoption of E-learning. three academics mentioned that some students have not touched a computer before and noted that their typing skills were holding them back compared to others. Sam said that:

> *The overall level of computer literacy of the students has to be a barrier, particularly for us.*

Basma and Mathew describe how students come with no skills in E-learning LMS and hence teachers find themselves spending extra time in giving training for students at the beginning of the course. Mathew said:

> *I think that one of the biggest barriers is that a lot of students come with*

little knowledge about E-learning and technology. We're sort of training the students to get used to using Moodle and this takes a lot of time at the beginning of every course.

Academics said that students who use computers not necessarily have the technological computer skills required for learning and lack formal training in IT. And normally teachers find out this barrier with students later and then have to give them training themselves.

Incentives for E-learning

When asked about their perceptions of the incentives to adopt E-learning, the general view held by nine of the ten LC academics was that the most effective incentives was to raise the academics' awareness of the benefits of E-learning. They said that when academics are convinced of the benefits of E-learning and what it can offer to improve teaching and learning that academics will be motivated to use these technologies. They recommended that the university should invest in improve training and self-development programmes for academics. Five academics also suggested giving some rewards and acknowledgments for academics who are involved in promoting E-learning activities and practices. Two academics suggested other forms of incentives, like making basic E-learning skills a job requirement for academics applying for academics posts at the university. None of the LC academics thought that tying E-learning to promotion was a good approach as they raised their concerns that promotion regulations were complicated enough at the university and also thought that such practice would be unfair in E-learning courses as the nature of E-learning content is modular and shared by many.

Deborah and Mohamed strongly stressed that giving time for training and technical support is very important to encourage academics that are less technologically capable in E-learning. They further mentioned that if these academics feel they do not have the time to do such training, they will not be motivated to attend the training.

Ben said that academics at SQU should view use of E-learning as an opportunity to acquire additional skills and promotional resources in their career. He said:

I think the incentive is at the professional level where you know that you

are crossing a barrier professionally; you are learning something new that is going to contribute to your own training, to your own professional development.

Sam stressed on the importance of making E-learning perceived by individual teachers as easy to use. He also suggested that time spent by academics on E-learning activities must be acknowledged as teaching load of the teacher as well as the face-to-face contact hours. He further identified three main steps that SQU administration should adopts towards encouraging the use of E-learning. These steps are:

1. Encourage the production of E-learning content materials
2. Make E-learning materials widely known to SQU academics across the university
3. Making these content materials easy for academics to integrate into their courses.

In Sam's words:

We need an infrastructure which firstly encourages production of this kind of materials. Secondly, make them widely known, so that people know that they're available, and can see that they're available, and can say, 'Oh, yeah. That would do good. I could use that next week.' And then make it easy for them to integrate them into their courses.

Barry and Basma felt that technology skill in general and E-learning should be a job requirement qualification for academics joining SQU across all teaching colleges and centres.

They further suggested that E-learning training should be made obligatory for all academics and not optional. They said that because training is optional, only those who are enthusiastic about technology attend training. Barry said:

You know, I'm of the opinion that the only kind of incentive that can be used that makes any kind of sense is "These are the official requirements of your position. You have to qualify in them or you do not have a job anymore". This should be across the board, for everybody, and I think

it's the only fair way to do it. You know, this is what The Language Centre or the university requires and it needs to be established before we get new faculty in. There has to be a way to do that, perhaps like an international computer driver's license.

Deborah, Rahima, and Mohamed shared the view that acknowledging the academics by giving awards or certificates of achievement like what the language centre is doing can be adopted by all SQU colleges. Both of them also suggested giving academics involved in E-learning activities more free time and less teaching load as effective incentives.

Deborah warned that acknowledging people in a very public manner can be demoralising to others. She stressed that for example associating a person's name to E-learning activities like assessments can be unfair and unpractical. The reasons she gave were, firstly that the person might be no longer at SQU and hence the other academics do not the person to be acknowledged. Secondly she said the curriculum might change and hence the assessment the person developed need to be changed and the person's name will be changed consequently. Also she said even if that person done a good job, but other academics aren't happy with that person's work then the person will get complaint directed at them. She concluded that a balance in public manner acknowledgment in E-learning is hard to strike. And as she puts it: "*So it's really hard to try and find a way in a very public manner to make everyone aware of the accomplishments of this person*."

Mathew thinks it is important to give some appreciation to academics who invest a lot of their time in E-learning. He added that although he is using E-learning and E-assessments out of interest, he invested a lot of time and energy when he was involved in making the change from WebCT to Moodle. And although he said that he did not receive any compensation for that time spent at the time, but he is happy that he did got promoted later. So, he thinks that in the long run he was promoted for recognition of his work.

Eight LC academics appreciate what the centre is doing as a form of incentive and acknowledging academics achievement in E-learning. They said that the LC annually organizes a retreat in which certificates of achievement and appreciation are distributed

for efforts as appreciation for their work in E-learning. They agree that this sort of acknowledgment is well deserved for academics that spent a lot of their time in producing E-learning materials outside class. Some of them feel that other colleges should make similar gestures for their academics. Deborah said:

> *Last spring, when we had our LC retreat at the Millennium Resort in Musannah, different teachers were recognized for their different efforts and they were given a gift card with 20 rials or 25 rials. So I know that they do try to recognize teachers with certificates of appreciation and with some type of gift as a thank you for your hard work.*

A summary of main findings from LC is given in table Table 5-4 below

Table 5-4 Summary of LC findings

Theme		Language Centre (LC)		
E-learning Structure and support		E-learning coordinator	FASU CET	Peer (Course/program coordinator)
E-learning training support		University-level training (CET)	Centre-level specialised training (FASU)	
E-learning adoption	Reason for adoption	Interest in innovation	Required/expected	
	E-learning tools	E-content E-multimedia	E-assessments	E-collaboration
	Reasons for LMS tools	Interest in innovation	Discipline (ESL)	Required/expected
Benefits to students		Flexibility	Motivational	Enhancing Learning
Benefits to academics		Higher Efficiency	Monitoring students' progress Promoting student-centred learning	Teacher's professional development
Institutional Barriers		Insufficient management support Lack of support for CET E-learning unit	Lack of focused and specialised training Lack of reliable infrastructure	Lack of formal certified E-learning professional development
Academics' Barriers		Lack of time needed to learn and develop Intensity of workload	Lack of awareness of E-learning benefits Change resistance	Lack of technological and pedagogical skills
Students' Barriers		Lack of technical skills	Lack of E-learning skills	Lack of confidence in E-learning
Incentives		Motivation Raise awareness of E-learning benefits	Professional development	Rewards and acknowledgment

Findings (2): The College of Science (SCI)

The college of Science (SCI) is one of the major science colleges at Sultan Qaboos University (SQU) with six departments. The language of instruction at all of the departments at SCI is in English language. New students register in any of the departments usually after they complete and pass their foundation program in English, mathematics, and IT. Students also have to take further English classes while they are studying at the college.

Like all University courses, traditional face-to-face is the mode of teaching at the SCI. But almost all of the large students' populated courses with multi sections at SCI have E-learning components to them. Like the other colleges at the university, promotion for SCI academics is based on three criteria: Teaching, Professional service, and scholarly achievements.

The SCI academics views on the main themes of the research study are presented in this section.

Theme 1: E-learning Support Structure

Nine SCI academics were aware of the use of E-learning and E-assessments especially with the large populated courses across the college. The academics spoke about three forms of support for E-learning, CET support, peer support, and the E-learning committee role in the past. These three forms of support of E-learning at SCI are presented as the subthemes and the organisation of this section.

CET support

Eight out of the ten SCI academics acknowledged the role of CET people in providing E-learning support for them when asked. Three of them said that on few occasions CET members came to their offices to give them support and show them how things worked. In Muna's words, she said:

> *They were very good. I mean, one of them on a couple of times came to my office to show me, 'Okay, this is how you set the up the quiz.*

Ghada said that CET were very cooperative and assisted the department in some E-learning project and organized few workshops for the academics in that department.

She said:

> *The support is really brilliant from the CET and when I told them about this project, they were really thrilled and keen and they were like you know, we are really supportive on anything that you need and we are looking for people who were trying to encourage this E-learning experience in their courses. They gave workshops with my colleagues about setting your course on Moodle and uploading your resources, different type of resources and then how to do quizzes.*

In spite of the efforts that CET members and the great support they offer for E-learning, six academics at SCI perceive that this support is limited due to lack of resources available for CET people. Hadi said referring to CET members that:

> *They are supportive, but one of the problems is sometime the support isn't available when you really need it. (Hadi, SCI).*

Three SCI academics raised the issue the lack of support available during online quizzes. Harry said that it's mostly support during exams that is absent. He put it:

> *I would like to be able to tell the CET that I'm having online exam now and I need help, but that's the kind of support you can't get.*

Five academics also pointed out that E-learning support is part of other CET responsibilities at the university and hence there aren't enough people in CET to deal with E-learning for all the colleges. Khulood also pointed out the lack of resources available for E-learning. She said:

> *I think that the problem with CET is that they have many involvements beside E-learning and they cannot deal with it all. When we have online quizzes, we have a lot of problems with the network due to the large use. We need a dedicated server to support E-learning activities*

Ghada elaborated on the timing constraints of CET support. She explained that because of the E-learning team at CET are supporting many projects across the university, if the project does not finish within their time schedule they will leave to help other projects. In her words, she said:

The only constraint I find is that the timing issue. So sometimes, if we didn't finish the project on the deadline that was set, sometimes it's really difficult for me and for them to do because they have other projects with other colleges and other instructors too as well.

All academics of SCI appreciate the E-learning technical support provided by one member of CET staff used to be available at the college, and pointed out that this kind of support is needed to be strengthened to provide better E-learning services. Four academics were keen on having a separate E-learning unit dedicated for the college needs that works in collaboration with CET to provide support for the different department at the college.

So it was very handy to have somebody located within the college itself. (Hadi, SCI).

What will be more convenient I think for people if we have some kind of a unit within the college itself that is facilitating the usage of the E-learning and the E-Assessment which is also conducts workshops on a regular basis, in organization with the CET. (Ghada, SCI).

The concerns that SCI academics have on CET support were centred on three main issues, lack of commitment, limited resources capacity, and website content management of E-learning. They said that although the CET staff are ready to help, they have limited time to spare for some long projects as they always emphasis on the other projects they are committed to elsewhere at the University. This lack of commitment is perceived by the SCI academics as restrictive and inconvenient. The academics also were clear that the CET with its existing resources is not able to provide the adequate support for all the colleges and centres at the University. And although at many times when called for help is responded, academics experienced that at many other times especially during online exams or quizzes this help is not available. The slow server that causes network problems during exams no longer can cope with the increasing use of E- learning across SQU. Two academics emphasised the need for a dedicated server to accommodate and solve these kinds of network technical problems. The other issue that was raised by SCI academics, was the management of the courses on the E-learning website. Problems like having multiple online courses for the same

academic course created by academics who no longer teach at SQU or no longer teaches the course. These numbers of unused courses also gives wrong statistics on the use of E-learning by the departments and colleges at the university. According to the academics, CET should provide better management and organization of the online courses existing at the E-learning website.

One senior academic felt that, CET support not as efficient as it used to be in the past. All academics of SCI appreciate the E-learning technical support provided by one CET staff available at the college, and pointed out that this kind of support is needed to be strengthened to provide better E-learning services. Four academics were keen on having a separate E-learning unit dedicated for the college needs that works in collaboration with CET to provide support for the different department at the college

SCI academics views on CET support are summarised by the following table:

Table 5-5 LC views on CET support

Positive	Concerns
• Ready to help	• Lack of commitment.
• Reachable	• Limited resources.
• Occasional will come to help in department	• Organization of E-learning courses.
	• More support for colleges is needed

Peer support

At SCI, eight out of the ten respondents said that they were inspired by some colleagues in encouraging them to use E-learning and E-assessment in their teaching. Five of them were motivated by their fellow teachers from the same department and the other three said that they were encouraged by a colleague from the college, a colleague from CET, and by a visiting academic from Australian University to the department. Hadi said that his inspiration comes from conversing with enthusiasts and not to the technology resistant people.

Five academics also recognize the role of course coordinators at the college of Science in encourage their team members in the same department to use E-learning in their teaching. As in multi-section courses, teachers would normally follow the same

guidelines as the course coordinator in terms of E-learning practice. Murad explained:

So they knew my way, my policy, and they followed me, being the course coordinator. You see we have different teams. Every semester we then change teams. Every team follow the course coordinator. There is collaboration amongst team members done mostly by the course coordinator. The course coordinator of my team introduced me to the use of E-learning

Muna said that she was inspired by seeing how her colleague at the department was practicing E-assessment in his courses. She also was inspired through collaboration with colleagues from other departments in the college. She explains:

> *When I started with E-assessment, I got help from my colleague at the department as I saw things that worked with him and I did the same. I also was collaborating with other two colleagues from other departments in the college.*

SCI E-learning Committee

Four SCI academics talked about the college E-learning committee consisting of members representing the college's six departments and its role in the past in encouraging academics to E-learning practice. They said that the committee in the past was successful and accomplished raising awareness of E-learning and providing training for all academics at the college. One of the two academics who were not sure of E-learning support at the college said that it was his first year at SQU and yet have not been involved nor updated of any E-learning activities. And the other one said that was her second year at the college and was not aware of any E-learning support either.

Khalil attributed the large number of E-learning courses at SCI to the support and guidance of the committee in the past. He said that when the committee was active, all the departments were encouraged to put their courses materials and information online as a minimum requirement.

> *There is a committee at the college. They encouraged all people to at least put their course materials in the main platform, Moodle platform.*

They also recognized that the committee in the past through its departments' members

reached many people in the college and introduced them to the benefits of E-learning to support teaching through the different workshops. Khulood said:

> *At the beginning, the instructors were not at all for the E-learning environment because they thought it will replace them completely and they will have to leave the university. The committee succeeded in changing this idea, by giving workshops to the different departments at the college. These workshops were voluntarily given by two members of the committee (one member no longer at SQU).*

SCI academics reported that although the committee is still in presence but is currently inactive and not dealing with the different issues faced by academics at the different departments at the college. Four academics expressed their concerns with these issues and reported that some departments are more organized than others at the college and are dealing with E-learning issues and support individually.

Shaheen said that there should be an 'E-coordinator' present to help with E-assessment during exams, just like there are technical staff who have rounds during exams to make sure that there are no technical problems arise. Shaheen suggested allocation of E-learning coordinator to support academics in E-learning and E-assessments problems. He said:

> *Need to assign a dedicated person, an E-Coordinator that can help give hand to the instructor in order to go in this direction or do it to improve the use of E-learning because to be frank with you, there are a number of issues that we face in this E-learning and E-assessments.*

Ghada and Murad agree that support is needed but on a department level as they think that E-learning committee is not enough and there should be 'department E-learning Committee' for each department. Murad further announces that the Department of Mathematics and Statistics (DOMAS) at the college has actually formed its own E-learning committee to resolve the following problems related to E-learning at the department:

- E-courses design should be standardized and unified across the department.

- E-courses should be updated for different semesters or different instructors and not have different web pages for the same course.
- E-courses copyright should be SQU owned and not instructor owned.

In his words, he said:

> *The other thing is that we have so many web pages for the same course, and it should not be like that. It should be either per folder, for one course, or I think in my opinion it's better to just update the same page. That is better.*

He further elaborated:

> *But the problem here is when we update the course, we have to contact previous course coordinator or instructor and get their permission to make some changes, because there is some copyrights issues. So that's a very sensitive part. Some people do not want to give permission, because they say 'Maybe after three years I will come back to my course and then everything will be changed.' So they don't like it. No, but someone was telling me that this should be a resource for the college, not for a teacher, for example. In my opinion, we are employee of university and the university has a right to do and say should we do these changes or not. Because it's not my own, personally. We are getting salary and the university is the owner, not I. So copyrights should belong to university, not to me.*

Many academics spoke of the college role in promoting E-learning over the past 15 years and acquiring CET E-learning technician cited at the SCI to support E-learning activities by academics. But they said that this technician post at the college has been vacant for many years and not been replaced. Hadi describes the importance of having E-learning support within the college. He said:

> *So it was very handy to have somebody located within the college itself.*

The two existing forms of E-learning support at SCI are shown in Figure 5-6 below.

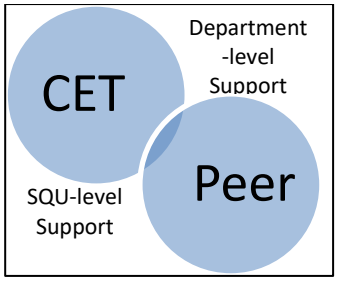

Figure 5-6 SCI E-learning Support system

Theme 2: E-learning Training

Seven out of the ten SCI academics reported that have attended E-learning training through CET workshops offered across the university. Only one academic reported that she has also received some specific training in E-learning organized by her department through CET. Four of them reported that they only attended these workshops in the past and the other four said that they attend workshop but not regularly.

University-level Training

In the interviews, Khalil, Shaheen, Hadi, and Khulood said that they attended CET training very long time ago, when they started E-learning with WebCT. These four academics with the most E-learning experience relied on self-learning in using new tools. Khalil said:

> *I attended training sometimes in the past when we started with E-learning and that was long time ago.*

Similarly Shaheen feels that he has enough experience to self-learn in E-learning. He said:

> *For my background I normally don't need to attend these workshops. I attended few in the past but I myself felt I can easily learn these things on my own.*

Nadia who was not as experienced as her four colleagues said that for her all she need to learn how to use new tools in Moodle is to find some resources and read through them. Other three academics including Muna said that she attended a couple of workshop at the beginning of the semester. She said:

At the beginning of September this year I attended two workshops. One of them was on forums through CET, and it opened my eyes to another possibility for using forums.

Four SCI academics suggested having E-learning and E-assessment training through a unit within the college or college and conducted by CET. They think that would be more beneficial for the academics. Ghada said:

What will be more convenient I think for people if we have some kind of a unit within the college itself that is facilitating the usage of the E-learning and the E-assessments which is also conducts workshops on a regular basis, in organization with the CET.

Especially that one of the departments at SCI is doing the same for its academics.

One academic suggested that providing video recordings of CET workshops would prove to be more time saving as they would be accessed by academics whenever needed. Ramzi said:

And by the way of workshops, CET should video record them and make them available so people can go run them and this will surly save time.

Theme 3: E-learning Practice

The focus of this section is the two subthemes of SCI academics use and adoption of E-learning in their teaching. These two themes are: academics' perceptions on their reasons for E-learning adoption, the most E-learning activities practiced by academics at the college. The findings of these subthemes form the organization of this section.

Academics' Reasons for E-learning Adoption

Seven of the academics at the SCI mentioned that coordinating and managing courses with large number of students was the main reason for their adoption of E-learning. They said that using E-learning courses helped them in saving a lot of time on grading quizzes and course preparations. This was evident with all academics who in the past taught or currently teaching large multi sections courses. In addition, three of these academics said that even their small size courses have E-earning components to them because they became interested in the use of technology. Another reason given by the

other three SCI academics were to cope with the E-directions and help students to gain better knowledge and skills.

Shaheen describes how originally the decision of using E-learning and E-assessments was based on the large number of students registered for the courses. He said:

> *The main reason for going for E-learning and E-Assessment are basically at that time, we had a large number of students interested in taking the courses. So we ended up with about 146 students in one course and sometimes it got up to 250. The challenge that we faced was that there was no way for one instructor to mark all the quizzes, final exam, Test 1, and Test 2. So at that time, we said, okay the solution is in E-assessment. And that is how we managed to continue dealing with large number of students in a course with one instructor. So we continued that and then after that, when they decided to move from WebCT to Moodle, also we carried it on with Moodle and till now.*

Muna also shared her experience on her stat with E-learning courses as a solution for the discrepancies students in different sections of the same course complained about. She said:

> *The reason I developed E-learning courses was due to the feedback from students who felt that they were not given the same information as students in other sections of the same course. And the class size was very big for this course, 360 students, and now it went up to 420. So I thought that the best way was to develop a Moodle site, and to give all students in the course access to the same information and resources.*

SCI E-learning Activities

Seven SCI academics reported that most of the E-learning activities were mainly through SQU Moodle E-learning website. And only one academic reported that she was using other E-learning website than Moodle but related to the subject field of her courses. In addition to posting course resources and materials, SCI academics who were using E-learning courses reported that E-assessments for summative purposes were the dominant activities of E-learning at the college. Only two academic talked about the

use of discussion forums in their courses. Three academics said that they were using audio and video simulation related to the area of their field of study. A summary of E-learning practice at SCI is presented in Table 5-6 below.

Table 5-6 SCI E-learning activities

Activity	Form(s)	Purpose(s)	# Academics
E-content	Resources	Display of course materials and announcements	8
E-assessments	Quizzes	Summative	6
E-multimedia	Audio/Video	Use simulations and videos to enrich learning experience	3
E-collaboration	Forums	Discussions between students and teachers Discussion between students and students	2

The use of E-assessments quizzes was part of almost all large multi courses curriculum at the SCI and all academics talked about using Moodle quizzes for summative purposes only. They said that this saved them a lot of time usually wasted on grading. They also mentioned that they use Moodle for posting assignment to students and uploading submitted students' assignment files. Shaheen talked about how he was using quizzes continuously for his courses. He said that:

> *I am using online quizzes every semester for every course continuously.*

Khulood talked about her practice of using assessment in her E-learning courses with assessments, She said that she didn't use discussion forum due to lack of time. she is said:

> *I am using E-learning in all my courses by providing students with course contents. I don't have any discussions in the courses because there is no time, but I give them two online quizzes in the semester.*

On the other hand Hadi said that he was using E-learning courses with discussion forums in all his courses, but with no E-assessments

> *Every course I teach has E-learning component to it with course materials, announcements, discussion forums, and assignments, but I do not have any E-assessments.*

Figure 5-5 below shows the E-learning LMS tools used by SCI academics where E-content and E-assessment are most used tools.

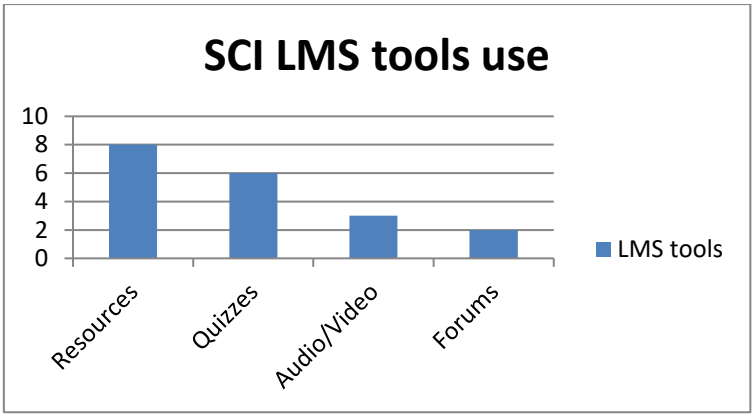

Figure 5-7 SCI tools used by LC academics

Theme 4: Benefits of E-learning

The focus of this section is the two subthemes of E-learning advantages perceived by SCI academics. These subthemes are: E-learning benefits to students and E-learning benefits to academics. The findings of these subthemes form the organization of this section.

Benefits to Students

All ten SCI academics shared positive views towards E-learning benefits to students learning experiences. The most highlighted benefits that were regarded by SCI academics were flexibility and higher efficiency. Other students' benefits mentioned by academics were motivational environment, and intellectual capabilities.

Seven of SCI academics thought that flexibility was the most advantage for students in using E-learning. Five of these academics reported the flexibility in regards to online exams practices. They said that students could do these practices anywhere and at any time when they are ready to do them. In this group Muna who was giving formative E-assessments extensively in her courses, expressed her views in this regard as follows:

> *Putting a practice assessment homework means the students can go in there and learn how to use it themselves whenever and wherever they like.*

On the same lines, Ghada added:

> *Even during the holidays, they could just log on to Moodle, take a test. their knowledge after studying a certain chapter and in the comfort of*

their homes.

The second most reported benefits to students by academic was the higher efficiency of E-learning in providing different tools and resources like videos to widen students learning experiences. This benefit was highlighted by four academics. Ghada talked about the E-learning project that she was working on with her team for next semester to add multimedia sources in connecting chapters of a course. She said:

> *Overviews videos are really helpful for the student to have these connections between different chapters and between the whole goals of the whole course.*

Two SCI academics thought that E-learning provides enthusiastic environment for students to learn as they expect to see new ways of learning involving technology. They also said that students expect teachers to change their old ways of teaching. On this benefit Nadia said:

> *Students of this new generation are different and have natural connection to communication to technology. We as teachers need to meet their needs and education instead of running old ways of teaching.*

One academic perceived the use of E-learning help students to improve their knowledge through new skills and approaches to solving problems. In Ramzi's words, he said:

> *It enriches his intellectual capabilities to build some skills and to think in scientific way of approaching a problem.*

Table 5-7 below summarizes SCI academics response on students' benefits of E-learning.

Table 5-7 SCI perceptions on E-learning students' benefits

Benefit Category	# Occurrences	Academics
FX (flexibility)	7	Ghada, Hadi, Khulood, Muna, Nadia, Khalil, Shaheen
HE (Higher efficiency)	4	Ghada, Hadi, Murad, Harry
ME (Motivational Environment)	2	Nadia, Ramzi
IC (intellectual	1	Ramzi

Capabilities)		

Benefits to Academics

Eight academics at SCI highlighted the advantage of E-learning in saving academics' time especially grading quizzes and course materials preparation. They acknowledged that extra time was invested in preparing resources for the first time, but then it proved to saving them time in the following semesters, teaching the same course. They also explained that this saving was also obvious in resources such as paper, they said that in the past they used to print and distribute course learning materials for all students but now students read these resources online on Moodle website and academics do not distribute hand-outs to students. Everything is available online. These views are supported in the following quotes:

> *I felt using this system saved me a lot of my time. (Nadia).*
>
> *Time saving - simple objective questions can be marked electronically which saves time for the instructor.(Hadi).*
>
> *because I am dealing with large number of students putting feedback for the questions, you do it once but obviously when you do it on-line, take more time to do it on paper but the nice thing after that then automatically it would be given to the students.(Shaheen).*

The second most reported advantage of E-learning and E-assessments by SCI academics was the capability of the analysis tool in Moodle system. This advantage was highlighted by six academics. They said that this helped them in viewing statistical data on students' use of the system and the level of participation. They also mentioned the value of this tool in changing academics teaching methodology based on feedback and students achievements. In this regard, Muna said:

You can go in and look at what the students have done and reassess where you need to change your methodology

Shaheen added that he used this tool to analyse and evaluate questions based on their difficulty level. In his words he said:

> *You can create database of questions, you can do some statistical*

analysis, like from time to time when you compare the questions by how easy, how difficult, how clear, and so on.

Khulood pointed out the advantage of using analysis data for research purposes on E-learning. She said:

Because of that we can get a lot of data that will help instructors not only as instructors but as research as well.

Only one academic pointed out that she was using it to monitor students' progress in her courses. Table 5-8 below summarizes SCI academics response on academics' benefits of E-learning.

Table 5-8 SCI perceptions on E-learning academics' benefits

Benefit Category	# Occurrences	Academics
SV (Savings)	8	Ghada, Hadi, Harry, Murad, Nadia, Shaheen, Khulood
AN (Analysis)	6	Khalil, Muna, Nadia, Ramzi, Shaheen Khulood
PM (Progress monitoring)	1	Nadia

Theme 5: Institutional Barriers

SCI academics perceive that the three main institutional factors that hinder teachers' adoption and integration of E-learning at the university are the lack of E-learning reliability, poor existing IT infrastructure, and Lack of appropriate training. Other factors highlighted by some academics were the lack of administration support of E-learning and bureaucracy. These factors are detailed in the following sections.

Lack of E-learning Reliability

Six SCI academic perceived that the lack of trust in E-learning was the most hindering institutional factor for academic's adoption. All of these six academics related the lack of trust to the poor internet and network connections. They talked about their experiences in the computer labs conducting E-assessments and then due to poor connection or server problems, the system would freeze and as Hadi explains that

results in not only losing the exam but causes frustration to both academics and students. Hadi said:

> *The negative side of E-learning is the things that go wrong when having online quizzes, which is a general practice of my courses, is when in the middle of the quiz , you lose internet connection. All of our work in E-learning depends on this, on having good internet connections. And because it is out of my control and even the lab's technicians control, on many occasions I had to cancel the exam which is really frustrating.*

Harry also adds:

> *When you are having a quiz and the system freezes that would certainly make you angry and loose trust in E-learning.*

Poor IT infrastructure (Resources and Technical Support)

Five SCI academics highlighted the lack of IT infrastructure to support E-learning. Their concerns were mostly related to the limited available resources and the shortage of available E-learning technical support in the computers lab and at the college. Three suggested that there should E-learning technical support in the department or college level. They said that it is very difficult that every time they need help with E-learning technical problems, they had to contact and wait for CET people. Ghada explains:

> *We don't have human resources to support E-learning at the department or even the college level. It is not convenient that we have to contact people in CET and wait for them. We should have some kind of support available to us*

Murad also adds that for managing E-learning courses, there should be someone who have some support who can help from the college level instead of asking CET people who are most of the times busy.

> *Our department is working on managing the department E-learning courses and it was very difficult not having some E-learning technician inside the college who could help us. We had to communicate and collaborate with CET people and takes very long time.*

Lack of Relevant Training

Five SCI academics perceived issues related to E-learning training at the university as the most hindering factors to E-learning adoption. All of these academics said that the general topics workshops that CET is offering were not appealing to them. They further added that these workshops should be separated to suit special purposes for academic training needs. Khalil said in this regard:

> *It is better if they segregate these workshops to suite better purpose. I mean, with a single objective, for example, creating exams or quizzes, an managing scores in Moodle*

Nadia shared her vies on department based training:

> *I would prefer to have training specific for the department, because we have similar focus and would be interested in applications in our subject field of E-learning courses.*

Hadi felt that although he was aware of the training workshops, he didn't think that they were relevant. He said:

> *We have training, and many have been done lately, but I haven't attended because I didn't think it was related.*

lack of administration support of E-learning and bureaucracy

Two academics felt that without university administration support for E-learning, efforts for wide adoption of the technology will be difficult. They said that to have E-learning succeed university management should assign dedicated teams for this purpose. Shaheen said:

> *Normally if you want to bring something to reality, you have to create a team that is working dedicatedly for this task. So maybe that's what we are missing here at SQU.*

Shaheen also talked about his experience in the past trying to follow up on E-assessment software to be used as a trial basis in the college first before used across the university. He said that the project did not see light because of the time and effort in trying to get

approvals and being referred from one person to another. He said:

> *I don't want to use the word bureaucracy there but whenever you are part of a big organization, getting approval for a project would take time because you send it to this guy and this guy, he needs to get the opinion from the other specialized department and then they have to check with the finance, and so on … You put the suggestion forward but you will not have the time to continuously trace it to get it to reality because you have other stuff that is your own responsibility*

Lack of E-learning Strategy

In response to the question on their views on the need for E-learning strategy or policy to govern the use of E-learning across the university, five SCI academics agree on implementing a strategy to encourage the use of E-learning but not to force academics into practice. They believe that E-learning is a tool like other tools that academics choose to use to improve teaching and learning and hence adoption of these tools should be left at the teacher's discretion. Other two academics felt that E-learning strategy is important in setting minimum requirements for E-learning adoption across the university. While other two academics felt strongly that the strategy will push people to think seriously about E-learning and without enforcing will not be adopted.

Ghada and Khulood share the later opinion about E-learning strategy as they said:

> *Policies will start people to think seriously about their Moodle courses. (Ghada, SCI)*

> *You need to push people to do E-learning; otherwise they will say we have no time.(khulood, SCI)*

Khulood further justifies her view with the practice at the college, she added:

> *once you leave it to the teachers they will not do it, only few of them will and this is the case at the college now.*

Murad ans Shaheen feel that SQU academics should at least have one E-learning course as eplaind by Murad:

By default each of us should have at least one E-learning component. (Murad, COS).

Half of the SCI academics feel that E-strategy should be encouraging adoption and not forcing it, as their quotes explain below:

E-learning is a tool to improve learning, but not the only method to do that (Harry, SCI)

Encourage people rather than force them. (Hadi,SCI)

I'm not in favour of forcing things upon people, because different people have different teaching methodologies and at the end of the day you want the student to get the best of that person, whether they use the board, Power Point, or E-learning. (Muna, SCI).

Five of these academics further stressed that before setting such a policy, problems related to the infrastructure and training issues should be resolved. They also recommend that a university strategy for E-learning should be to motivate academics and raise awareness of E-learning practice and not to force academics into practice. All nine academics agree that E-learning should be left at teacher's discretion. Some of these views are depicted in the following quotes:

The views of SCI academics on E-learning policy are summarized in the following table.

Table 5-9 SCI E-Policy Responses

Response	Rational/Aims	Case
Yes, important.	• Legalization • Sets requirements • Directs teachers • Teachers will only do it unless they have to.	Murad Shaheen Ghada Khulood
Encouraging and not enforcing	• Encourage people • Enhance motivation • Raise awareness • Technology may not be suitable for all courses or with all students	Hadi Khalil Muna Nadia Harry

Theme 6: Academics' Individual Barriers

SCI academics perceive the individual academics barriers that affect teachers' use and adoption of E-learning are, lack of time, resistance to change, academics' lack of IT skills, and loss of student face-to-face contact.

Lack of time (needed to learn and develop)

According to seven of SCI academics, the issue of lack of time as a constraint to E-learning adoption was most related to the time needed to learn and develop E-learning content and materials. Three of them do not think of the time needed as a disadvantage but rather a requirement for the technology. Two academics feel that because other academics don't have the time to learn it, they may not adopt E-learning even if they are convinced of its benefits. The other two academics feel that with the heavy load of teaching and research, academics might not adopt E-learning simply because they don't have the extra time to spend.

Ghada feels that the heavy load and the amount of time needed to invest in learning is a hassle to academics. She said:

> *there is too much involved to learn and it's a hassle you know. If I am really involved in teaching and research and I don't have an extra time, so from where am I going to get this extra time to learn this stuff?*

Muna thinks that lack of time is a concern in spite of E-learning benefits. She said:

> *a lot of us sometimes feel we're pressured with many other things, but you don't have the time to learn it*

Change resistance

Four of SCI academics believe that resistance to change is a major factor affecting other academics adoption because it is a natural reaction. These academics feel that with this attitude that many other academics do not take the intuitive to even try the technology and hence resist it. Murad feels that academics should not fear change especially if technology will improve their life.

Lack of academics' IT skills

Only one academic felt that everyday practice of sending email and browsing the

internet is not enough skills for E-learning adoption. Academics need to acquire more technical skills. He said:

> *if a person who used a computer only just to type text, send emails and browsing internet, they would need more technical skills for E-learning innovation.*

Lack of face-to-face interactions with students

One academic mentioned that due to the dependency on having most of the course materials and activities online, academics might feel that with E-learning they are not able to motivate students to learning like how they would in a traditional face-to-face setting. In her own words, Nadia said:

> *Knowing student face-to-face sometimes helps in driving them. Maybe academics feel they would lose that a bit when everything is online.*

Theme 7: Students' related Barriers

Four SCI academics highlighted three students related barriers that affect academics' adoption, lack of E-learning skills, lack of motivation, and E-assessment phobia. Two academics felt that due to the students' lack of technology in general and E-learning in particular, students are reluctant to deal with any technical problems when using the system. Another academic said that students go on do the activates online because there are grades associated with them. If these were not graded students doesn't have the drive to use E-learning. Muna said:

> *The drawback is many of our students need the incentive of grade in order to go and do something*

Shaheen commented on students' E-assessment phobia and said:

> *They have like phobia from online exams... not maybe exactly technophobia. I think because they haven't done them before.*

Incentives for E-learning

Six out of the ten SCI academics, were opposed to giving incentives to academics for EL use. As the four academics in the EDU justification above, SCI

academics agree that the use of EL is just a tool and when teachers see the benefits of using this tool in their teaching, they will be motivated to do so. Muna said that it is true that at the beginning time is needed to learn and use the technology, but it will eventually reduce their load. And if teachers realize that, sure they will use it. On the risk of giving incentives or acknowledging to teachers who use the technology, the majority of SCI academics feel that it can make people use it for the wrong reasons and not for improving teaching. Nadia said that promotion and privileges at SQU should be given to all. And Murad felt giving incentive to some academics can be unfair especially in a multi sections courses with multi teachers that some teachers will be rewarded and others won't.

> *You have to give that privilege to all. If you are promoting, promote all. (Nadia).*

> *To give them real incentives, would force people to think of the incentives as something everyone wants. (Hadi).*

> *I would like to see the university get behind the people that are teaching, whatever method they're using, I guess. (Harry).*

The four SCI academics that were in favour of giving incentives to academics gave similar suggestions of the forms of incentives as their colleagues in EDU above. Khulood who seemed the most enthusiastic of this group suggested that promotion and awards will encourage more academics to use EL. Although Ramzi said that saving time is an incentive in itself if academics are aware of it, he also suggested the same form of financial incentive as Zaki in EDU above. He said that the University should allow academics to offer open online courses where payments can be partly shared by the academic and the institution. This payment given to the academic can be added to salary and cover other costs like research, or travel. He thinks that this will encourage use of Moodle and EL activities. Shaheen also supported the financial inventive approach and gave example of Kingdom of Saudi Arabia, where academics who are in charge of developing online content for their courses get paid for their online work. He further added that after they are paid these academics will sign a form that will give the institution full ownership of the online content developed. Ghada also agree with Ramzi that saving time is an incentive, but also adds that academics can be encouraged if some

reduced teaching time is giving for academics involved in EL materials development.

A summary of main findings from SCI is given in Table 5-10 below.

Table 5-10 Summary of SCI findings

Theme		College of Science (SCI)		
E-learning Structure and support			CET	Peer (Course coordinator/ Colleagues)
E-learning training support			University-level training (CET)	
E-learning adoption	Reason for adoption	Interest in innovation	Large size courses	
	E-learning tools	E-content E-multimedia	E-assessments	E-collaboration
	Reasons for LMS tools	Interest in innovation	Discipline (SCI)	Required/expected
Benefits to students		Flexibility	Motivational	Tech capabilities
Benefits to academics		Analysis		Savings
Institutional Barriers		Lack of reliable infrastructure Lack of focused and specialised training	Lack of technical support at the college level	Lack of E-learning strategy
Academics' Barriers		Time needed to learn and develop	Change resistance	Lack of technological skills
Students' related Barriers		Lack of Motivation	Lack of E-learning skills	Lack of confidence in E-learning
Incentives		Motivation	Rewards and acknowledgment	

Findings (3): The College of Education (EDU)

The college of Education (EDU) is one of the major humanities colleges at Sultan Qaboos University (SQU) with six departments. The language of instruction at most of the departments at EDU is in Arabic language. New students register in any of the departments usually after they complete and pass their foundation program in English, mathematics, and IT. Students may have to take further English classes while they are studying at English language disciplines.

Like all University courses, traditional face-to-face is the mode of teaching at EDU and E-learning practice at EDU is varied and depends on the teacher's level of adoption of the technology. Like the other colleges at the university, promotion for EDU academics is based on three criteria: Teaching, Professional service, and scholarly achievements.

The EDU academics views on the main themes of the research study are presented in this section.

Theme 1: E-learning Support Structure

More than half of the academics interviewed at EDU were not aware or did not know that there is E-learning structured support at the college in any form. Only four academics reported that there is an E-learning coordinator representing the college but they were not sure of the responsibilities of this coordinator nor the nature of support provided through the coordinator. Most of the EDU academics recognized CET support in addressing their E-learning practice as the only form of support available for E-learning.

This section is organised into two subthemes: CET support and E-learning coordinator support.

CET Support

All EDU academics who are using E-learning or have used it at some stage in their teaching acknowledged that support through contacting CET members was the main of E-learning support available. Most of them gave very positive views on the kind of support provided by CET members. They said that this support is usually provided after workshops and training sessions at CET. They all mentioned the form of contact made to CET for support was through telephone calls. Badar, Nisreen, and Riham said:

I do call them very frequently, and in fact, you know, they're very helpful. So even during the continuous assessment or the formative assessment, they are doing great. (Badar).

Honestly, CET people are great. They always answer my telephone or even mobile calls and are always helpful. (Nisreen).

No, CET people are very good, even after the workshop they give us their contact numbers to call them if we have any problems. (Riham).

Two academics expressed some concerns related to CET support in terms of slow of communicating as Hamad put it:

I sit with them once and then we did everything at that point. It was difficult at the beginning because it was really communication with the CET was really slow. But now, since I know everything, I don't need them anymore. (Hamad).

And in the centre's lack of administrative support which in his opinion affects the effectiveness of E-learning support provided. Mousa, a senior at EDU said:

The centre thankfully is doing some E-learning workshops. If you ask about their effectiveness, I'm doubtful; I think they need more administrative support. (Mousa).

EDU E-learning Coordinator

Most of EDU academics were unaware of E-learning structure at the college. When asked about the E-learning coordinator, some said that the college did not pass them any information on an E-learning coordinator and others said that they were aware of availability of technicians in the labs for computer problems but not for E-learning support. Some of these views were expressed bellow:

No information was given to us about any E-learning coordinator in the college. (Zamzam).

I am not sure, but I think maybe there is EL coordinator, but have not tried to find out who is in charge of this task. (Zaki)

There is only technical support for when we have problems with the computer we get the technicians. (Nisreen).

Two academics were aware of E-learning coordinator but they said that E-learning coordinator without college or university support cannot do much in isolation. Mousa said:

Yes but what the College coordinator can do on their own without any support or communication with other colleges at SQU level. (Mousa, EDU)

One academic said that there should be support available at college or department level to support academics in E-learning courses instead of contacting CET for support. Riham said:

I wish there is a coordinator in every college and in every department to deal with E-learning issues. So that if I need help with my Moodle courses I can contact this person at the college to help me instead of asking CET. (Riham).

Theme 2: E-learning Training

All EDU academics reported that the training available for them was the CET workshops offered across the university. The most experienced academics said that they depend on themselves on learning new skills in E-learning.

University-level Training

Like their colleagues at SCI, most of the EDU academics that were using E-learning extensively attended training only in the past when they first stated. Some stated that they attended workshops when E-learning was first introduced in 2004 when WebCt was in use and then took few workshops when Moodle replaced WebCt. Bader said that he has not attended any E-learning workshops and was relying on self-learning. He said:

I know there are a lot of workshops, but I'm completely relying on self-learning.

Several academics raised their concerns that E-learning training should discipline based and training should be planned and designed for different discipline according to different teaching methodologies. Lind commented on the issue and said:

> *I stress that E-learning environments need to be constructive thoughtfully using best practices implemented with sound teaching methodologies with people who – if they don't have experience in the E-learning environment are provided opportunities for training in the E-learning environment because it is not a direct translation*

Another senior EDU academic pointed out that although workshops are offered through CET, the problem is that no support is available when these training is put into implementation and many academics attend training but stop at that.

Theme 3: E-learning Practice

The focus of this section is the three subthemes of EDU academics use and adoption of E-learning in their teaching. These three themes are: academics' perceptions on their reasons for E-learning adoption, the main E-learning activities practiced, and the level of E-learning use is practiced by academics at the college. The findings of these subthemes form the organization of this section.

Academics' Reasons for E-learning Adoption

All the eight EDU academics who were using E-learning said that the main reasons for adopting E-learning courses was for communication purposes. By having course materials and announcements online, hey said that students who were absent can locate the information without having to come to ask the teacher. They reported that they needed a way of contacting students outside office hours and E-learning gave them that opportunity. They also said that many students were more responsive online and shared their views better than in class meetings.

Zamzam said that Moodle helped her a lot in reaching her students in times that she was not available to answer their questions. In her word, she said:

> *Before Moodle, it was very difficult to meet my students and give them feedback on their work because I was busy in meetings or other work.*

So, I decided to use E-learning to have all course descriptions available online and communicate with my students through forum discussions. They get feedback from me and from other students in the course. I took E-assessments workshop at CET but I haven't used them yet in any of my courses.

Wafaa also gave similar reason to Zamzam, she said:

My main purpose for using E-learning was delivering course content and materials and making them easily available and even easily circulate among my students. (Wafa).

EDU E-learning Activities

All EDU academics reported that most of the E-learning activities were mainly through SQU Moodle E-learning website. Only one academic reported that he was using non Moodle E-learning activities related to the field of his courses. In addition to posting course resources and materials, all EDU academics who are using E-learning courses reported that using discussion forums were the most E-learning activities practiced. One academic who is the most active EDU academics in E-learning reported that he is using most of the activities in Moodle. A summary of E-learning practice at EDU is presented in table 5.3 below. Out of all eight EDU academics using E-learning Only two academic talked about the use of E-assessments in their courses.

Table 5-11 EDU E-learning activities

Activity	Form(s)	Purpose(s)	# Academics
E-content	Resources	Display of course materials and announcements	8
E-collaboration	Forums	Discussions between students and teachers Discussion between students and students	6
E-collaboration	Quizzes	Collaboration between students and teachers on team projects	1
E-assessments	Wikis	Summative	1
E-multimedia	Audio/Video	Use simulations and videos to enrich learning experience	1

The use of E-learning activities at EDU was all based on academics decisions to use the technology. The two EDU academics that were mostly enthusiastic and active in E-learning were using E-assessments and other activities as well as forums. But all the

other academics were mostly using forums only in their practice. They said that participation in these discussion forums were graded to encourage students to participate. One academic who said that he was using non-Moodle activities reported that he send emails to students through Moodle with inks to E-activities websites.

> *I use quizzes, forums, wikis, assignments, for uploading assignments, web pages for displaying certain materials. What else? A glossary. What else? Yeah, that's pretty much it. Journals. I do use journals with the reflection and teaching practice. Yeah, that's it. (Badar).*

Figure 5-5 below shows the E-learning LMS tools used by SCI academics where E-content and E-assessment are most used ones.

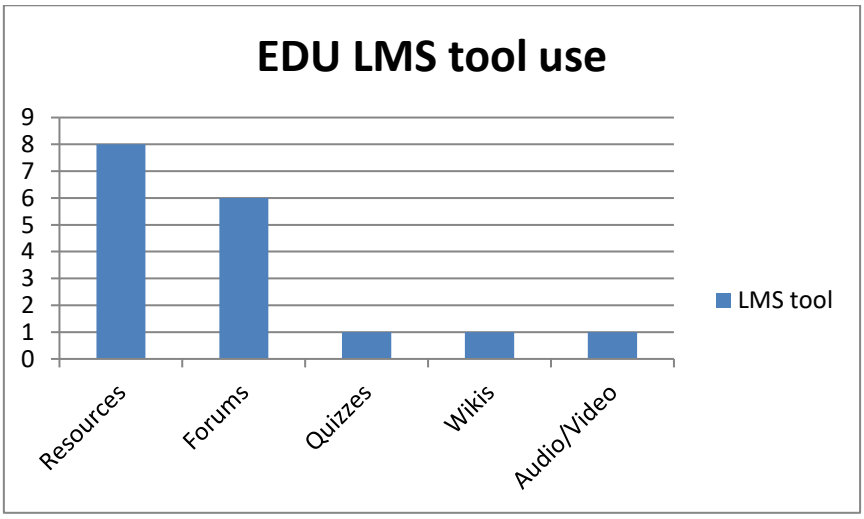

Figure 5-8 EDU LMS tool use

Theme 4: Benefits of E-learning

EDU Academics' opinions on the advantages of E-learning to both students and academics are presented in the following sections.

Benefits to Students

All ten EDU academics shared positive views towards E-learning benefits to students learning experiences. The most highlighted benefits that were regarded by EDU academics were collaborative environment, progress monitoring, informative environment, and higher efficiency. Other students' benefits mentioned by academics were technical capabilities, saving time, and enthusiastic environment.

Eight of EDU academics perceived the most advantage for students in using E-learning was the collaborative environment that is provided. Three of them said that it makes the students more cooperative and helpful with each other particularly those in one forum group. Other two academics said that using E-learning extends communication between the students and the teacher beyond the class time through online discussions. Two other academics said that using E-learning gives opportunity for those shy students to express themselves online through the online course discussions. One academic believe that E-learning makes students more collaborative and connected to their academic institution and environment through online discussions. These views are echoed in the following quotes:

> *Student can see how other students activities and get to know them. I feel that they become more collaborative through E-learning. (Nisreen, EDU).*

> *I think it allows opportunities for students to utilise what they are very good at and that is in the E-learning environment.(Hamad, EDU).*

Six academics realized students' benefits using E-learning in its higher efficiency of helping students becoming more independent as self-learners. In addition they think that E-learning give students more active engagement with learning materials. Sharing these views, Mousa said:

> *An effective and optimal environment. I think it would be very useful. E-learning itself will bring our students to be self-learners, independent, and this by itself if it is attainable by our education institutions, then that by itself is a very invaluable role that we manage.*

Another advantage highlighted by six academics was the facility of providing students with information on their progress in the course. They added that this will give students information on how much more efforts they need to put in the course. Riham said that students through E-learning and E-assessments can check their level of achievement in the course which is very important. She said:

> *Taking practice quizzes online is very important to students in my opinion, as students can answer them and evaluates his/her*

performance.

On the same lines, Linda said:

> *it can provide information about the students and what they already know.*

Six academics said that with E-learning there is no limit to the information environment available to students. And furthermore these resources of information are available to them whenever they seek it. Zaki said that it is like students got libraries moving with them wherever they go where as they cannot have that in traditional classes. He said:

> *The size of information students are now able to carry with them online is huge. It is like having a whole library inside Moodle at their dispose.*

Four academics pointed out the technical capabilities of E-learning to students that they acquire through editing and designing different types of learning. Bader said that these technological skills that the students acquire will help them in their career when they graduate. In his words he said:

> *They see the technological benefits and they'll be dealing with IT somehow when they finish.*

Other students' advantage two academics perceived was that students become very enthusiastic and motivated to learn through E-learning. Nisreen explained that even though at the beginning of the course students ask a lot of questions on E-learning, but after they get used to the environment they become very much involved and motivated. Wafaa said:

> *Students find E-learning very much interesting. It gives them especially the new generations the passion to learn and keep them motivated*

Table 5-12 below summarizes SCI academics response on students' benefits of E-learning.

Table 5-12 EDU perceptions on E-learning students' benefits

Benefit Category	# Occurrences	Academics

CE (Collaboration Environment)	8	Badar, Hamad, Nisreen, Zaki, Mousa, Wafaa, Riham
HE (Higher efficiency)	6	Mousa, Riham, Badar, Nisreen, Linda, Wafaa
PM (Progress monitoring	6	Badar, Linda, Nisreen, Zaki, Wafaa, Mousa
IE (Informative environment)	6	Hamad, Wafaa, Zaki, Zamzam, Hadeel, Riham
TC (technical capabilities)	4	Badar, Nisreen, Linda, Wafaa
EE (Enthusiastic environment)	2	Nisreen, Riham,
ST (Saving time)	2	Zaki, Zamzam

Benefits to Academics

Seven EDU academics highlighted the advantage of E-learning in saving academics' time. They acknowledged that not only academics' time will be saved but also other resources like paper and effort. In his words Mousa pointed out that:

> *any technology based tool will be a cost effective in terms of time, efforts and money. They will save on books, they will save on paper, they will save on time.*

The second most reported advantage of E-learning and E-assessments by EDU academics was the higher efficiency capabilities of E-learning. This advantage was highlighted by six academics. They said that this helped them in using well illustrated multimedia resources for their students in little time and efforts. Nisreen pointed out that now she can upload learning resources from whatever location she is in. She doesn't have to go to her office or home to do that. She said:

> *Before if I am outside, I had to go back home or back to the office to put the learning materials for class. But now with E-learning resources are available online and I can put them for my students online as well.*

Five academics believe that through E-learning and E-assessment academics can have an advantage of motivating students to learning. And they said that students become more active in the course. Linda explained this effect of formative E-assessments in her courses in motivating students:

> *Formative assessment allows us to highlight and to model to our*

students that the process of an activity of an assignment is important, that it doesn't, that the end product is not the only value to it. Formative assessment allows an opportunity to motivate your students

Another advantage to academics perceived by four EDU academics was the electronic archiving of the E-learning courses. They said that this is useful for academics who are teaching the same course over different semesters. They explained that all is needed is doing some updating to the course. And also they said that this way your course resources and materials will be more rich every time. In this regards, Bader also said that:

you keep the resources where you can go to every now and then

Badar also thinks that E-learn allow academics to learn from collaborating with their student, analysing teaching situation and as he puts it:

Without the E-learning, there is a disconnection between them (students) and me

Table 5-13 below summarizes SCI academics response on academics' benefits of E-learning.

Table 5-13 EDU perceptions on E-learning academics' benefits

Benefit Category	# Occurrences	Academics
SV (Savings)	7	Hamad, Mousa, Riham, Zamzam, Linda, Zaki, Hadeel,
HE (Higher efficiency)	6	Badar, Linda, Nisreen, Zaki, Mousa, Wafaa
MS (Motivating students)	5	Hadeel, Linda, , Badar, Nisreen, Wafaa
EA (Electronic archiving)	4	Badar, Nisreen, Mousa, Wafaa

Theme 5: Institutional Barriers

EDU academics perceive that there are three main institutional factors that hinder teachers' adoption and integration of E-learning at the university are lack of appropriate training , poor existing IT infrastructure and support, and lack of department/college collaboration. These factors are detailed in the following sections.

Lack of Appropriate Training

E-learning training was perceived by four EDU academics as a barrier to E-learning adoption. Three of these academics said that CET workshops timings were inconvenient of whom one complained that she hadn't been to any of these workshops because they clashed with her teaching and other responsibilities at the department. The other academic said that she find the topics of the workshops unsuitable for her level. She suggested to have department level tailored training, which according to her will be more beneficial and more suited and may be encouraging for her colleagues to attend. The following quotes depicts these views:

> *I did not attend any training because of the timing of the workshops. It overlaps with my lecture times. Training should be available continuously at different intervals of the semesters and repeated. (Hadeel, EDU).*

> *I see the e-mails for workshops in Moodle during semester, but really the timings of these workshops were not convenient for me. CET should give these workshops outside teaching time. (Wafaa, EDU).*

> *I prefer department workshops so everyone in my department can attend and it will be specific to our level too. (Riham, EDU).*

Poor IT infrastructure and Support (Resources)

Three EDU academics highlighted the lack of infrastructure at the college to support E-learning in terms of poor computer labs, poor internet and network connections, and lack of E-learning support and management. On the status of the computer labs at the college, Nisreen reported that the she was appalled by the state of neglected, unequipped, and unsupervised labs. In her words she said:

> *Teaching labs at our college are not enough, sometime we would use students' labs which are in terrible state. She said you find food and drinks lying on the computer desks, which of course can be damaging to the machine. There should be supervision where no food or drink are allowed inside the labs. Even teacher's PC at the labs, sometimes get locked by students. This is very restricting for all teachers and students.*

Lack of department/college collaboration

This factor was highlighted by five academics at five different departments at EDU. Zamzam and Riham were certain that they were the only ones in their departments using E-learning. Zamzam is still active and use it in all her courses, but Riham as she explained that she set up a course one semester as a trial but then stopped. She said:

> *Unfortunately, no one in our department uses E-learning. I tried it before because I wanted to experiment with it, but then half way I stopped. (Riham, EDU).*

Zaki on the other hand, was not aware of any colleagues in the department using E-learning. He thinks maybe because of the subject he is teaching which is practical and hands in nature. He also share the facts that his integration and practice of E-learning is in isolation of others. He said:

> *I don't know anyone in our department who is using E-learning, maybe because teaching at our department is very practical based and more of hands on teaching. Also, I don't like to rely on anyone else I even don't like building my courses on other people's previous work. Maybe it is a problem with me. I check the manuals and try. (Zaki, EDU).*

Another academic Mouse, who is the most senior of all EDU participants and very experienced explains that this lack of collaboration is almost inexistence at the humanities colleges. Furthermore, he claims that due to the fact the academics at these colleges were mostly of Arab origin, that this culture of working and doing research in isolation from others at the department and college. He elaborated that:

> *We don't have collaborative or share ability culture. We lack this. We are so individualistic, so isolated in our academic work especially in the Arab world. The culture in the humanities colleges like education and Arts that everything should be closed and academics usually do not share thoughts or ideas about on-going research work. At the Science colleges like Medicine and Science it is very different to the case here. (Mousa, EDU).*

Badar, gave somewhat contradicting view to Mouse. Being very active and with the

most experience in technology use, he said that he shares with other colleagues E-learning experiences and knowledge. In his words he said:

> *So I, myself, basically, I was inspired by and learned from my colleagues through visiting them in their offices or hearing from certain initiatives people are doing, etc. So I can, basically, not only learn from my practice with Moodle or learning on my own, so create things with others. (Badar, EDU).*

Lack of E-learning Strategy

In response to the question on their views on the need for E-learning strategy or policy to govern the use of E-learning across the university, all ten SCI academics agree on implementing a strategy to encourage the use of E-learning but not to force academics into practice. They feel that E-learning integration should be totally teacher's decision and should not be forced on teacher nor students alike. However they suggested an E-learning strategy that will raise awareness and encourage wide adoption. Sharing the same view, Linda said:

> *I think we allow and respect that there is – for some people, these new technologies are not a good fit and I don't think it ever should be forced whether it's on a faculty member or on a student. (Linda, EDU)*

Only one academic stressed on the importance of a strategy to legalise the practice and deal with all related issues like privacy and copy wrights. In this regard, Mouse said:

> *So, because there are no laws, no policy, so whether you give me webCT or Moodle at the end of the day you didn't legalize it for me, you didn't give me the laws how to use it and on what basis. There should be a policy written, strategy written to deal with things like privacy, copyright, design issues, and all these kinds of things.(Mousa, EDU).*

EDU academics views on E-learning policy are summarized in the following table.

Table 5-14 EDU E-Policy Responses

Response	Rational/Aims	Case
Yes, important.	• Legalization	Mousa

Encouraging and not enforcing	• Encourage people • Enhance motivation • Raise awareness • Technology may not be suitable for all courses or with all students • Totally teacher's decision	Hamad, Riham, Zamzam, Linda, Zaki, Hadeel, Badar, Nisreen, Wafaa,

Theme 6: Academics' Individual Barriers

EDU academics perceive the individual academics barriers that affect teachers' integration and adoption of E-learning are, academics' lack of IT skills, lack of time, and resistance to change.

Lack of IT skills

Seven EDU academics reported lack of IT skills in general and E-learning in particular as a main barrier to academics' adoption. They further believe that their knowledge of E-learning is limited to the activities they are familiar with and when anything doesn't work they realize their lack of knowledge to deal with it. These views are depicted in the following quotes :

> *I have the telephone beside me. If I have any problem with technology I only pick the handset and dial, that much I know of technology. (Hadeel, EDU).*

> *One of the impediment to the teacher is the lack of knowledge in E-learning. I only know very limited things, basically what I use in my courses that's all. (Zaki, EDU).*

> *One of the impediments or barriers with teachers, is lack of technology skills. They are not technology advocates, they are not technology aware, they have all sorts of resistance methods.(Mousa, EDU).*

Lack of Time (needed to integrate)

Lack of time was the second main barrier to academics' adoption viewed by four EDU academics. Two academics said that because it is a new technology, academics view it in terms of all the time needed to prepare, to download, upload, or put question. And

the other two said that academics have a misconceptions that using computers will take a lot of their time due to all the activities they have to provide online. They don't think of the time they would save instead. Riham said in this regard:

> *My own perception is a barrier to my adoption. I think that using E-learning and computers will cause me delay in other responsibilities. When I think of all the things I have to do for the E-learning course, from marking assignment, answering students' questions online*

Wafaa also said:

> *Because there is huge demand on the academics' time, so anything that would take time away from them is not welcomed.*

Change Resistance

Three EDU academics report that as human beings, change is something people fear and consequently don't like. They further said that as human beings our first reaction would be to resist change.

Theme 7: Students' Related Barriers

Five EDU academics highlighted three main students' related barriers that affect academics' adoption, lack of E-learning skills, lack of motivation, student's laziness, and lack of responsibility. EDU academics viewed the lack of E-learning skill affects academics adoption in that they have to spend time and effort in introducing and training students to the technology. Riham said that was one of the most difficult tasks she had to deal with when she was using E-learning. She said:

> *I had to show students how to use Moodle and how to log on to the course. That wasn't easy.*

EDU academics viewed students as lazy and are not willing to learn and use the technology. They refer that to another barrier lack of responsibility. They also said that they don't want to take responsibility for that learning. Hamad, Zamzam, and Zaki shared this view. Hamad said:

> *Students are simply lazy and are not willing to use E-learning.*

Incentives for E-learning

Two thirds of the college of education academics emphasised the importance of encouraging EL use by providing incentives to academics. The most suggested forms of incentives highlighted in this group were financial rewards. Linda, who is a senior academic at the college, felt that participation in EL activities should be recognised as part of the promotion process at SQU. She also encouraged the practice of giving academics payment on online and EL involvement. Another senior academic Mouse, agree that financial remuneration should be awarded to academics for their EL and online activities. He also added two other forms of incentives namely teaching time release and enforcing copyright laws for academics publishing online content at SQU. He also insisted that if teaching time load is not reduced then SQU should provide human resources to assist academics in developing EL content materials. Hadeel emphasised that the use of EL involves time that is difficult to find and said that "Time is a major issue with academics, look at my table full of work that is pending. I don't have enough time. "Nisreen suggested that SQU should have EL recognition award similar to the "best teacher award". EDU academics were confident that these incentives will acknowledge technology users without penalising the non-users. Two senior academics pointed out that incentives can also improve E-research activities at SQU.

> *There could be recognition during promotion of taking part in this. So when you take part in the workshop and you are actually signed off on the workshops where not only did you just attend, but you actually took part in something, creating curriculum. People have been earning payment through let's say creating a blended environment for the class, converting it and some universities pay to convert your course into an online course offering grants that encourage E-Research or research using the E-Environment or the blended environment. (Linda, EDU).*

The other four EDU academics concurred that the use of EL should be compelled by self-motivation and the need to improve own teaching skills. They said that the use of EL is like a tool such as the use of a whiteboard and teacher need to explore new tools for helping them improve their teaching methods. This group of academics also agree on that the problem is that the teachers are not aware of the benefits of EL and were sure that if they were convinced then they will be more motivated to use it. Hamad and

Riham strongly felt that SQU is doing enough by providing EL training and including the use of EL in the teacher's appraisal form. They further think that SQU need not do any more as they say that it is teacher's responsibility and not SQU.

> *It is enough that the university is providing training. Academics have to deal with time themselves. They should be self-motivated to improve their skills in teaching. If they reduce time load, there will be no one left to teach.(Riham, EDU).*

A summary of main findings from EDU is given in Table 5-15 below.

Table 5-15 Summary of EDU findings

Theme		**College of Education (EDU)**		
E-learning Structure and support			CET	
E-learning training support			University-level training (CET)	
E-learning adoption	Reason for adoption		Interest in innovation	
	E-learning tools	E-content E-multimedia	E-assessments	E-collaboration
	Reasons for LMS tools		Interest in innovation	
Benefits to students		Collaborative environment Higher efficiency	Progress monitoring Informative environment Saving time	Technical capabilities Enthusiastic environment
Benefits to academics		CE (Collaboration Environment) PM (Progress monitoring	HE (Higher efficiency) TC (technical capabilities) EE (Enthusiastic environment)	IE (Informative environment) ST (Saving time)
Institutional Barriers		Lack of reliable infrastructure Lack of focused and specialised training	Lack of technical support at the college level Lack of system management	Lack of E-learning strategy Insufficient E-learning infrastructure
Academics' Barriers		Time needed to learn and develop workload	Lack of awareness of E-learning benefits Change resistance	Lack of technological and pedagogical skills
Students' related Barriers		Lack of Motivation Laziness Lack of	Lack of E-learning skills Lack of cultural independence Student disappointment	Lack of confidence in E-learning

	responsibility	
Incentives	Motivation	Rewards and acknowledgment

5.1 Summary

This chapter has presented the findings in seeking to answer the main research questions. It has offered an insight into the perceptions of academics' barriers from three different faculties over the adoption of E-learning and practice. It has achieved this by examining the institutional factors and academics' individual factors that affect E-learning adoption. The following chapter aims to discuss the implications of these findings for E-learning adoption research and evaluate the validity of the findings.

Chapter 6 Discussion

The explorer who will not come back or send back his ships to tell his tale is not an explorer, only an adventurer; and his sons are born in exile.
(Ursula K. Le Guin; The Dispossessed, 1974)

This study focused on understanding the hindering factors perceived by academics that affect the adoption of E-learning in Higher education. This chapter discusses the findings of the study as they relate to the research questions posed highlighting the meanings and implications of these findings in view of the literature.

Due to the exploratory nature of this research, this thesis has concentrated on gathering data that provides an insight into the effects of the barriers that hinder the adoption of E-learning from the perspective of the academics. Having analysed the data gathered from a sample of academics at three SQU faculties, this chapter aims to discuss the implications of the findings.

The chapter begins by discussing the attitudes of academics at SQU towards E-learning in section 6.1, followed by discussing the findings on the nature of LMS by SQU academics in section 6.2. Then the effect of institutional, academics, and students' related barriers to E-learning adoption are discussed in sections 6.3, 6.4, and 6.5 respectively. And finally, the chapter concludes with a brief summary.

6.1 Attitudes of E-learning

The findings support of general positive attitudes towards E-learning perceived by all interviewed academics in the three faculties including the discontinued users or non-users. This was most evident in academics beliefs on the high efficiency of E-learning to both students and teachers in providing students with multimedia interactions that would be very difficult in face-to-face class setting. Academics believed that these varieties of interactions gave students a chance to view learning from different perspectives. Furthermore, academics viewed that E-learning gave access flexibility of Learning to the students. This chance of accessing course materials when convenient and where convenient could help in making the students more positive towards learning in general. Academics also believed that E-learning through the use of E-assessment

save the instructor's time and workload that otherwise would be spent on grading or preparation. Findings also show that there was a general consensus amongst all interviewed SQU academics that E-learning can provide a motivational and enthusiastic environment for learning.

Academics' perceptions on using technology in teaching are widely recognized to be an important factor in the decision to adopt or reject EL technology. From the data, it can be seen that the majority of academics at SQU within the three faculties was in favour of E-learning and believed in its benefits to teachers, institution, and students. Participants believed particularly strongly in E-learning's potential to facilitate better acquisition of new knowledge and to enhance the learning experience. These findings align with the findings of other studies including a study conducted in India by Suri and Sharma (2013), a study conducted in the Gulf region by Al-Doub et al. (2008), and a Saudi Arabian study reported by ALHussain (2011).

Most significantly, however, the findings draw attention to the non-users perceptions in that all the academics who were not using the technology also showed positive attitudes towards E-learning but reported to experience some anxiety after training particularly when attempting to put their training in practice. They felt that without one to one support they were not confident enough to use it. They said that used e-mails for communications with their students. This finding was confirmed by Boettcher and Conrad (2010) who observed that the introduction of eLearning is known to induce feelings of anxiety and explained by Ertmer (2005) due to their incompetence in using the technology. Also Salmon (2005) indicated that these feelings are developed in the early stages of their career. But this finding is in contrast to the view suggested by researcher such as Davis et al. (1989) and McPhail and McDonald (2004) that academics positive attitudes and perceptions of its advantage over current methods, compatibility with current practices, usefulness and ease of use are main factors for technology adoption. Findings show that academics who were not using the technology did believe in its advantage over traditional methods and usefulness, but blamed other factors like heavy workload and lack of time.

6.2 LMS Use and practice

There is a general agreement among researchers that LMS continues to be underutilized

by academics in HEIs and that only few functions of LMS are used (Woods et al., 2004; Nicholson et al., 2014; Eldridge, 2014). These studies found that the primary utilization of the system by faculty was to make course documents available to students, manage course grades, post announcements, and send emails to students. And the most unused activities by academics were assessments (quizzes), communication and collaboration (forums), Wikis, blogs, and journals. In contrast to these studies, the findings show that E-collaboration use of "forums" was the most utilized LMS tool by academics in this study. This is also supported by CET documents (2014) highlighting that all the 436 E-learning courses at the university have "forums".

Moreover, the findings show that E-assessment using "quiz" tool was extensively used by almost all academics at LC and SCI. Whereas the tool was scarcely used by EDU academics. At the university level usage, documentation indicate that only 12% of all university courses use "quiz" tool. The findings suggests that the use of such tool may be related to the ESL and Science disciplines. This finding is reflected in the studies by Li (2004), Kofler (2005), and Jarrahi (2010) reporting that discipline of the courses as a reason of the different uses of LMS by academics. Another finding that this study is in concurrence with the large university use of LMS is that "wikis", and "journals" are amongst the least used tools by academics at SQU.

Another finding relating to the use of E-learning is that there was a general consensus amongst LC academics that the level of E-learning use at the centre was higher than the academic colleges at the university as a whole. While most of the EDU believed that E-learning use at the college was very low compared to other faculties at the university.

6.3 Institutional-related Barriers

This section will explore the institutional barriers as were expressed by academics to hinder the E-learning adoption, comparing and contrasting these findings with the literature.

6.3.1 Lack of institutional E-learning Strategy and adoption

All interviewed academics highlighted the absence of SQU institutional E-learning strategy as one of the main factors hindering the adoption of E-learning. This finding reflect the view of Smith (2002), who reported that the lack of institutional E-learning

strategies as one of the factors that hinders widespread adoption of eLearning by academic staff. This lack of a clear and well communicated vision of E-learning at SQU has resulted in scattered and isolated adoption of the technology evident at the two colleges' adoption, SCI and EDU. This finding was echoed in the literature by McLean (2005) and Stiles and Yorke (2007) who observed that the presence of a clear and well-communicated strategy can help to avoid scattered and small pockets of adoption.

Findings also showed that in the absence of institutional level resulted in colleges and departments initiatives to have their own E-learning strategy and direction like the LC and the department of Mathematics and statistics at SCI. these initiatives were supported by their senior administrations at the centre level for the case of LC, and at the head of department for the case of the department of mathematics and statistics.

These findings add support to studies by scholars such as Maguire (2005) and McLean (2005) who indicated that senior management must define a clear overall strategy for eLearning that provides a vision of a common goal. But few academics who were somewhat experienced in E-learning were not using the technology because they did not view it as important by SQU. In the context of that point, reference was made to the work of McLean (2005) who further observed that without the communication of a clear vision, academics are likely to be reluctant in taking any eLearning activities regardless of their level of individual interest.

Most significantly, however, the findings draw attention to the concerns that academics have on an institutional strategy that will affect the academics autonomy over E-learning practice. Academics consider an institutional strategy towards motivating and encouraging both academics to more E-learning acceptance and adoption to be of critical importance.

6.3.2 E-learning Approach and adoption

The research findings of this study support the presence of relationship between the E-learning structure approach present at the three faculties and the level of adoption of the academics at these faculties. While, at the University level, there were no clear strategy for E-learning practice, it was apparent that decision to use and adopt E-learning technologies was solely up to the individual academic i.e bottom-up approach.

However, at the LC a combined E-learning approach of top-down and bottom-up was apparent in the academics commitment towards the use of E-learning as part of the requirements set by the course coordinator and/or program coordinator. This sense of commitment towards E-learning was not shared by the SCI and EDU academics where no college-level support nor approach was apparent. These findings is supported in the literature by studies such as Palloff and Pratt (2001), Roffe (2002), Smith (2002), and Marshall (2004), which focused on the need to combine top-bottom and bottom-up to improve E-learning adoption. Suggesting that this approach can result in more committed adoption by academics.

6.3.3 Need for Specialised Training

Findings show that training awareness and availability was acknowledged by all academics at the three faculty, but the concerns that were raised by most of the academics were concerning the type of training offered. LC academics were focused and specialized training was offered through their owns support unit, were very confident that the same should applied to the other academics at the colleges. SCI and EDU academics were also concerned at the type of training offered by CET.

6.3.4 Incoherent E-learning Technological Infrastructure

In this study, almost all academics recognized the role and efforts of the E-learning Unit at the centre of educational technology (CET) at the university in managing E-learning services and providing E-learning training. However, they also concur on the lack of communication with CET, and the lack of collaboration between CET and CIS, and absence of in-college E-learning support as barriers to E-learning adoption at the university. They felt that although the CET staffs were ready to help, they had limited time to spare and other commitments elsewhere at the University. Moreover, due to its limited staff CET was unable to approach academic faculties with specialised training needs, but expected the faculties to approach CET instead. Academics in this study felt that CET should reconsider its strategy in approaching the academic colleges at the university in terms of EL support.

There was a general feeling amongst academics that despite the friendly and helpful

staff of CET staff, there was an obvious communications problem between CET and academics. Another communication problem was reported by academics that exist between CET and CIS the network and computing facilities provider at the university. The finding of this study confirm that the lack of coordination between the two centres make E-learning and E-assessments less reliable for academics and students at the university. For example, the slow server that causes network problems during online exams no longer can cope with the increasing use of E- learning across SQU.

Most of the EDU and SCI academics stressed the need for in-college specialised support for students and academics particularly new learners. Some of them suggested a separate centre for E-learning at the university and others preferred separate units for each academic faculty at the university. This latter recommendation was already available at the language centre through FASU to support its academics in E-learning and technology needs. All academics at the language centre had positive attitudes towards FASU team and its head in this regard. They further pointed out that through the FASU dedicated team; they know whom to call to get help with E-learning.

6.3.5 Lack of Time and Heavy Workload

In this study, the issue of lack of time was highlighted by most of the academics as a key barrier to the adoption of E-learning. This is consistent with previous studies that revealed that lack of time was major inhibitor to the development of E-learning environments (Schifter, 2000; Moser, 2007; O'Quinn and Corry, 2002; Birch and Burnett, 2009; Boettcher and Conrad, 2010; Al-Shammari and Higgins, 2015; King and Boyatt, 2014) and the most cited barrier to E-learning (Palloff and Pratt, 2001; Pirani, 2004; Schoepp, 2005). But academics' perceptions on this inhibitor were further analysed to note that academics find the effects of this barrier are mostly related to three concerns, lack of time needed to learn and integrate E-learning, absence of time relief given by university to further support E-learning, and lack of acknowledging of time spent on E-learning development as part of workload.

This study found that the amount of time required to learn, develop, and integrate E-learning in teaching is highly demanding particularly when academics are required to fit such demands on top of their responsibilities and workload. This concern is consistent with the findings of Wallace (2002) study which found that this may result

in intensification of workload and hence difficulties for academics to cope with other tasks related to administration and students.

As for the academics in the two colleges concerns, the workload of full academics involve teaching, research, and community service on top of other administrative tasks they have to do. This heavy workload and giving priorities to what is important to academic responsibilities could impede E-learning adoption. Birch and Burnett (2009) also confirm this by concluding that with some academics this issue may be more of a matter of priorities of what is important to academics rather than lack of time .

Academics perceived the other two concerned related to lack of time to be associated with institutional support and top management in not offering time release to further improve E-learning and not considering time spent by academics in the development of E-learning as part of the workload .

The first concern is in concurrence with O'Quinn and Corry (2002) results that academics required to engage in E-learning activities on top of their existing responsibilities without any extra restitution are likely to be unfavourable to adopt E-learning. The second concern was evidence in Eynon's (2005) case study that showed the problem of E-learning preparation time and delivery was unrecognized by top management.

6.3.6 Lack of Rewards and Incentives

The findings of this study confirm the academics views on the role and nature of rewards and incentives as motivators to E-learning adoption. The general agreement amongst academics is the recognition of the influential role of incentives and rewards on academics motivation to use E-learning rather than on the adoption of E-learning. The majority of them feel that the use of E-learning as a tool to improve teaching and learning and hence the university should consider any incentives or rewards as encouraging academics to improving teaching and learning. Some other academics suggested financial incentives and very few others recommended E-learning to be requirements for promotion at the university. These suggestions were not accepted by the mainstream of academics participants as they contested that these measures could motivate academics to use E-learning for other purposes than improving teaching and could also they highlighted this practice as unfair to the non-adopters.

6.4 Academics-related Barriers

The individual factors that were largely to impede the academics' adoptions of E-learning were the lack of time, resistance to change, lack of awareness of E-learning benefits, and lack E-learning competence. The key academic individual inhibiting factors are described in the following section.

Resistance to Change

The third most prominent barrier to E-learning found in this study was the resistance or fear of change of academics towards use of technology and E-learning. The reasons academics agree on in relation to this barrier are the nature of humans to resist change initially and the lack of interactions with technology since schooling. This is supported by Birch and Burnett (2009) where fear of change was perceived to be a major barrier to adoption. However, other studies like (McGee and Diaz, 2007; Zhao and Frank, 2003) where this barrier of resistance to change was not identifies a strong barrier..

Lack of Awareness of E-learning Benefits

From the data, it can be seen that the majority of academics at SQU within the three faculties was in favour of E-learning and believed in its benefits to both teachers and students. Participants believed particularly strongly in E-learning's potential to facilitate better acquisition of new knowledge and to enhance the learning experience. Moreover, the lack of such awareness of technology and E-learning advantages was perceived by almost all academics in the three faculties as a major impeding individual factor on academic's adoption of E-learning. This factor was referred to as the source of the misconceptions by academics surrounding E-learning. This aligns with the literature in the academics' attitudes toward technology in terms of their perceptions of its relative advantage over current methods, compatibility with current practices, usefulness and ease of use as primary determinants of whether a technology will be adopted (Davis et al., 1989; McPhail and McDonald, 2004; Rogers, 1995; Alkharang and Ghinea, 2013). Furthermore, Lack of awareness was also highlighted by Birch and Burnett (2009) study as a major barrier to E-learning use.

Academics suggest that the university should raise the awareness of the advantages of E-learning use in different discipline through seminars directed to academics can have a positive effect on their motivation to adoption.

Lack of E-learning Competence and Self-efficacy.

Despite their positive attitudes towards the benefits of E-learning use, the non-adapters academics confided that they stopped continue using the technology at the early stages of adoption specifically after the initial training. They said that they were not confident that they have the necessary skills to carry on with their experiences.

This is not surprising as according to Boettcher and Conrad (2010), the introduction of E-learning is known to induce feelings of anxiety as individuals may feel that they are incompetent in using the technology (Ertmer, 2005). Al-Busaidi and Al-Shehi (2012 p.35) confirm that anxiety have negative effect of on academics intention to adopt E-learning (Al-alak and Alnawas, 2011). And Salmon (2005) further suggest that such beliefs are often developed early in the academics career. These non-adapters' academics believe that without a more specialized dedicated one to one support they were not confident enough to use E-learning on their own.

Some researchers link these feelings of anxiety to the lack of computer knowledge as Al-alak and Alnawas (2011) justify that if academics have the computer knowledge then it will overcome any difficulties they face in using E-learning. The findings of this research are in contrast to such position as the non-adapter academics confirmed that they do have general computing knowledge and use computers in their work and at home but using E-learning requires specific skills in the use of LMS that they don't have.

Another obvious contributor to this negative effect can be the absence of follow up E-learning support for the new staff or new trainees using E-learning and hence loss of knowledge gained. Some of these academics asked their peers for support with the technology, but then felt uncomfortable to ask any further.

6.5 Students-related Barriers

The individual factors that were largely perceived by academics to impede student' adoptions of E-learning were the lack of technological and E-learning skills, student laziness, bad time management, lack of culture independence, and online exam phobia. These key hindering factors are described in the following section in line with the related literature.

The findings of this study show that academics perceive the main barriers of student' adoption of E-learning as lack of E-learning skills, lack of responsibility towards learning, lack of technology infrastructure support, and lack of motivation.

The language centre and college of science academics agree that the barriers to student' acceptance of E-learning are mostly due to the lack of E-learning knowledge and skills and the limited technology resources and support they are provided with at the university. They also identified these barriers to affect the instructor as students expect the instructor to give them the necessary training in E-learning which of course cost instructor time. The lack of technology support according to academic is evident in the lack of availability of sufficient computer labs and the loss of internet connections while taking a quiz or finding online resources. Academics feel that these technology barriers will also have negative effects on students' motivation towards E-learning.

College of education's academics perceive students' barriers to be related to students themselves and their behaviour towards learning in general. They believe that students are irresponsible, lazy, and lack time management skills. They also agree that students at SQU lack the motivation to E-learning.

These differences of academics' perceptions of the main students' barriers could be due to the level of technology that new students have when they first start their university studies. All students entering the university must pass the English language foundation program run by the language centre. The college of education also receives new students since apart from technology in education program, all other programmes are studies in Arabic and hence no English language requirement for these programmes. The college of science on the other hand receives students who have at least spent a year doing English, IT, and mathematics foundation program prior to joining any of the college's programmes of study. Hence many of the students starting at the language centre and college of education might be less technology aware and expect the teacher dependent learning attitudes adopted at K-12 school system.

The language centre academics expect as part of their teaching and learning practice to give time to train students in using technology and E-learning. But the academics at the college of education think that this time is not instructor's responsibility and students should take more control of their learning and manage time well towards that learning.

Table 6-1 below, depicts a summary of the findings of this study.

Table 6-1 E-learning support structure, use, and barriers

Theme		Units of Analysis		
		Language Centre (LC)	**College of Science (SCI)**	**College of Education (EDU)**
E-learning Structure and support		E-learning coordinator FASU CET Course/program coordinator	CET	Interest in innovation
E-learning training support		Centre-level specialised training University-level training	University-level training	University-level training
E-learning adoption	Reason for adoption	Interest in innovation Required/expected	Class size	
	E-learning tools	E-content E-assessments E-collaboration E-multimedia	E-content E-assessments	E-content E-collaboration
	Reasons for LMS tools	Interest in innovation Discipline (ESL) Required/expected	Interest in innovation Discipline (Science) Class size	Interest in innovation
	Level of adoption	Almost all course	All multi-sections large courses	low E-learning adoption
Benefits to students		Flexibility Motivational Tech capabilities	Flexibility Motivational High Efficiency	Flexibility Collaboration Progress Informative
Benefits to academics		Efficiency Saving time		Efficiency Motivating students Saving time
Institutional Barriers		Lack of E-learning strategy Lack of technical support at the college level Lack of focused and specialised training Time needed to learn and develop Workload Incoherent E-learning infrastructure		
Academics' Barriers		Lack of time Intensity of workload Lack of awareness of E-learning benefits Change resistance Lack of technological skills		
Students' Barriers		Lack of technical skills Lack of E-learning skills Lack of confidence in E-learning	Lack of technical skills Lack of E-learning skills Lack of confidence in E-learning Lack of motivation	Lack of technical skills Lack of E-learning skills Lack of responsibility Teacher-dependent culture Bad time management skills Lack of motivation Lack of academics' motivation
Incentives		Motivation Professional development		

6.6 Summary

This chapter set out to discuss the implications of the findings from this research. It has drawn attention to the institutional and individual barriers that hinder academic's adoption of E-learning and the support these findings offer to the existing studies of E-learning adoption and integration. The following chapter concludes this thesis by discussing the significance of these findings, and by offering an insight into areas for future research.

Chapter 7 Conclusion

Great is the art of beginning, but greater is the art of ending.
(Henry Wadsworth Longfellow, 1902, p.464)

With the advancement of information and communication technology, ELearning has become more widespread with great potentials in Higher education. The three main stakeholders of the teaching and learning in higher education are institutions, academics, and students. And in order to maximize its adoption and use, these three stakeholders concerns must be addressed and overcome. As the creator and designer of the eLearning content, academics play a major role in the adoption process of eLearning in higher education institutions and therefore academics' perceptions of the main barriers that hinder their adoption of the learning technologies is vital. And in spite of the large investments that many higher education institutions make, the level of adoption by academics is low worldwide and is disappointing in developing countries. Hence, institutions need to understand the barriers and obstacles that academics face in the adoption process of eLearning in their institutions and support them in overcoming such barriers.

The findings from this study addressed the adoption of E-learning examining the relations between the individual (intrinsic) and institutional (extrinsic) barriers. The most striking aspect of this study was the degree to which all participant faculty members agree on the benefits of E-learning and the impact of institutional factors in hindering the use of E-learning by academics. Although these academics perceive E-learning technology as useful for both academics and students at the University, they agree that without adequate University support, the adoption rate by academics will not be influenced.

Furthermore this study highlighted the importance of addressing both the institutional and the individual factors in research to investigate the barriers of E-learning adoption by academics. These are important considerations when understanding the role academics play in the developing area of E-learning and in the increasingly large role that institutions play in academics adoption of E-learning in higher education. Thus,

this study adds to the body of knowledge in E-learning adoption and provides context for further study in this domain.

Moreover, the identification of barriers that affect E-learning practice by academics in three different teaching faculties at the University as the three units of analysis offered more insight and depth to this study. As these three units have key differences in E-learning practice, organization, support structures and application of E-learning activities, to inform the design of more directed staff development programmes and policy documents. In addition it provides a framework for strategic recruitment, training, and development of faculty within this sector and may allow Higher education institutions to contribute more effectively toward the education of their students.

The chapter starts by revisiting the research aim and questions that driven the study in section 7.1. Then the key findings of this research study are summarised in section 7.2, followed by the recommendations and implications of this research in section 7.3. Section 7.4 presents The limitations of the study, followed by the future research directions in section 7.5. Finally, research benefits are presented in Section 7.6.

7.1 Research Aim and Questions

The goal of this research was to explore and examine the challenges that are related to academic's adoption of E-learning in higher education in general and in Oman in particular. In order to address the purpose of this research, the following research question and subsequent questions were examined:

Research Question:

How is the adoption of E-learning technologies affected by institutional barriers and the attitude of academics?

Subsequent Questions

Question #1: In the absence of any common university directive for E-learning, to what extent do the three academic faculties at Sultan Qaboos University use LMS in their teaching? And what is the nature of this use?

Question #2: What do academics perceive as the benefits of E-learning to their

teaching practice and to students learning?

Question #3: In the absence of an E-learning strategy, how do participants perceive the institutional factors that challenges academics' adoption of E-learning?

Question #4: How do participants perceive the individual factors that inhibit academics' adoption of E-learning?

Question #5: How do participants perceive the factors that inhibit students' adoption of E-learning?

Question #6: How do different E-learning structures and organization at the three faculties affect academics' perceptions of E-learning barriers?

A qualitative study composed of semi-structured interviews was conducted with academics in the main and only public university in Oman to seek the answers to the research questions and attain its objective.

7.2 Key Findings

The findings show that the use and integration of E-learning at SQU is diverse from well-structured and supported adoption to isolated and unsupported adoption by the two at the University. Consequently, the level of use and the type of LMS tools integrated in academics ' teaching have yield a more diverted practice. This study targeted academics who have previous experience in the use of E-learning, however findings show that there are one or two academics in each faculty who used the technologies in the past but discontinued. Their perceptions added more understanding and depth to the study .

On the divers E-learning practice of E-learning, findings reveal two types of E-learning adoption approaches, one that is centrally supported, managed, and directed at faculty level like the case of the Languages centre (LC). And the other approach where adoption is at the individual academic level where E-learning is supported and managed by the Centre for Educational technology (CET) as the case of the two colleges. Findings show that academics the Language centre in general have more experience and a wider adoption level of E-learning than the two colleges. In addition, academics at LC reveal that the major barrier that academics at the two colleges should address is

the ineffective general training they are offered. They believe that providing more specific and focused E-learning on integrating learning objectives is more effective.

On the use of E-learning LMS, findings show that all participants showed positive attitudes both towards E-learning and the LMS used at SQU. Findings reveal that the three main motives of use of E-learning at SQU are firstly academics interest in using innovation in teaching and learning, secondly academics obligation as course requirements and expectations. And thirdly, the large classes that involve heavy tasks of marking quizzes and managing multi section courses. Moreover the type of LMS tools adopted by academics are also in relation to either the interest of academics in technological innovation in their teaching practice or the nature of discipline of teaching. English teaching and Science teaching academics use more of E-assessments tools while Education academics at the university used more E-collaboration tools in the form of discussion forums. Science academics tend to less discussion forums as they said would require more time for managing these discussions.

As to SQU students use and acceptance of E-learning, findings show that academics find SQU students only using E-learning if there is grades involved in these activities. All academics believe that without giving some grades to E-assessments and activities, these activities would be totally ignore by most of these students. Furthermore, findings show that College of education academics contribute students' laziness and lack of responsibility as the most hindering factors affecting E-learning adoption. Whereas, there is a general consent that the most hindering students' factor is their lack of technology and E-learning knowledge. Findings reveal that this factor affects academics as it adds more to their responsibilities of have to train these students to learn the technology. This particular barrier was raised by one of the academics at the college of education who said that was very difficult for her. She is one of the academics who discontinue use of E-learning. This imply that students and in particular all new students should have E-learning training prior to start of their academic year. Findings also shows that the Language Centre academics similarly complained of this factor of training students in E-learning. Academics at the Centre are the first to teach the new student for the Foundation English courses .

Study findings reveal that after over a decade of E-learning use, institutional barriers of lack of administration support and ineffective training are yet remain major barriers to

E-learning adoption at SQU. Al-Senaidi et al. (2009), also reported same barriers. these findings suggest that administration at SQU should introduce major forward actions towards E-learning practice from institutional level at academics. Findings also show that academics look up to the institution for clear vision and direction of E-learning practice and without a strategic plan or policy, E-learning adoption will not advance like other Universities in the region and internationally. The use of technology in education is moving forward and introducing new advancement and need institutional level support to have a chance of success. Based on the findings, academics at SQU in general are seeking a strategy that takes all the concerns of academics into account institutional and individual concerns alike .

On the individual barriers that hinder academics' adoption, academics concur that lack of awareness of E-learning pedagogical benefits, time needed to learn and develop E-learning, and resistance to change are the most factors affecting adoption. Well planned professional development programmes that not only focus on the technical aspects of E-learning, but the pedagogical and learning aspects would encourage non user to adopt the technology. Furthermore, human resources should be available at the college level to provide academics with assistance in implementing E-learning materials and tools. These also must be seen at the institution level or college level. Findings report that although academics across the three faculties appreciate and are aware of CET efforts, they believe that the support needed for E-learning is beyond the capabilities and resources of the small unit consisting of three to four personnel at the E-learning unit at the centre.

7.3 Limitations and Recommendations for Future Studies

As in the case of many research thesis and papers, some Limitations are presented in this research due to several aspects.

The first limitation of this study is that being a qualitative methods study, this research has all the weaknesses associated with such a design. In aim to seek insight and in-depth understanding of the study phenomenon, an exploratory qualitative method was the best suited choice for this study. For future research a qualitative approach or a mixed method is recommended to further validate and extend the findings of this study.

The second limitation is that the study is limited to three faculties out of ten teaching

faculties at a single university, perhaps limiting the extent of the generalisation of findings made here; they may be case-specific. This is reinforced by the fact that different universities provide different E-learning courses in terms of the resources available; hence surveying various cases would have been the better option if one of the study aims was the generalisation of results. It is recommended that future research should select a representative sample from all teaching faculties at SQU population, and extend to other universities and colleges in Oman and Arab countries to verify and compare these findings.

The third limitation is that this study has only considered academics perceptions of the barriers of E-learning adoption. Future studies could benefit from a more diverse sample of SQU academics by including academics representing the ten teaching faculties at the university in order to gather information on a more broad range of E-learning experiences.

The results of this exploratory study can be used to help inform future research on how to minimize the barriers as well as to further explore the patterns and nature of E-learning adoption and use of LMS tools. Because this study identified institutional and individual barriers to E-learning adoption, future research can include pedagogical and social barriers.

7.4 Recommendations

This section provides recommendations to senior administration staff and E-learning management at the university to widen and improve the adoption of E-learning by academics. These recommendations are based on the findings from this study and are relevant for Omani higher education institutions as well as Sultan Qaboos University where the study was conducted.

This study emphasise the need for an institutional E-learning strategy/policy that provide staff with a clear direction for E-learning practice and the commitment of the university administration towards E-learning. The strategy must also set all professional development and training needs for academics, departments, and colleges as well as students. Different colleges and departments have diverse E-learning needs and training must be tailored to meet these specific varied needs. General and one fit all E-learning training at the university is not only ineffective, but also unfavourable by academics.

Furthermore, training should focus on how to integrate E-learning with course outcomes and objectives as well as technological E-learning skill. In addition, the E-learning strategy should include an incentive reward system that encourages and motivates academics towards successful integration of E-learning.

The implementation of E-learning strategy must be supported by the provision of reliable and consistent resources. The study stresses the need to develop and improve the institutional technical infrastructure and human resources to support E-learning adaption at the university. A more effective and well equipped E-learning unit or centre need to be established to accommodate the teaching colleagues and department needs of E-learning and E-assessments activities.

In spite of the academics' wide recognition of E-learning benefits to teaching and learning at SQU, there is a general lack of E-learning collaboration between the colleges. The university needs to raise the awareness of E-learning use and encourages further developers of teacher's practice by promoting colleges to share and communicate what is working and what isn't in E-learning.

The role of higher education institution and its administration does not end at the provision and maintenance of the E-learning technology offered to academics staff and students. Its role is continuous and extends to putting strategies and necessary infra-structure and resources to support the use of E-learning.

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Appendix A

Interview Questions

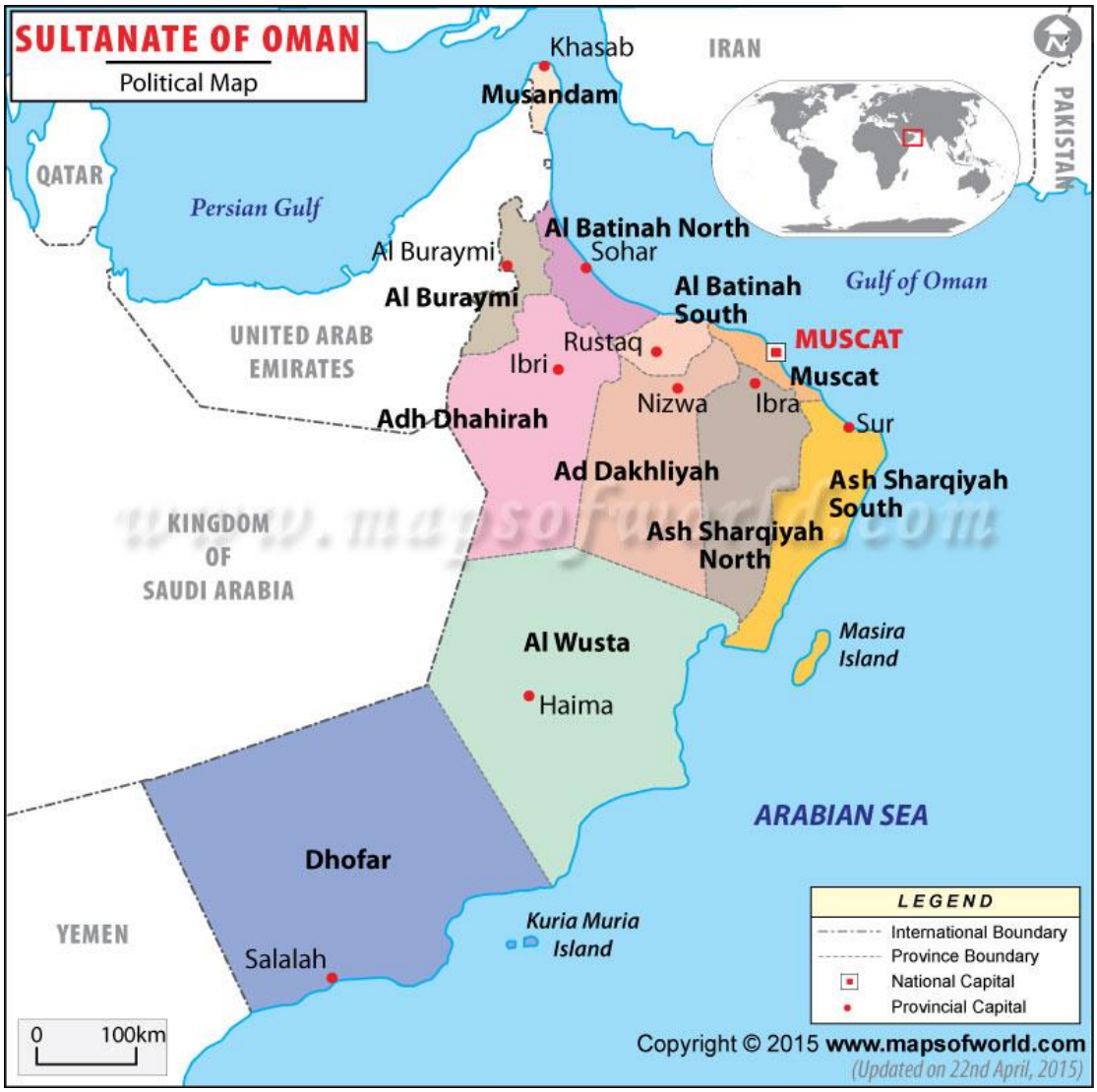
1. Tell me about your E-learning teaching experiences.
2. How many years have you been teaching at SQU?
3. How long have you been using E-learning in your teaching practice?
4. How many of your courses that you normally teach per semester are E-learning courses?
5. What Moodle tools that use in your E-learning course? Why?
6. What do you see as the benefits to you as a teacher from using E-learning as part of your courses?
7. What do you see the benefits for your students from using E-learning?
8. What do you think the institutional barriers of adopting E-learning by academics at SQU are?
9. What do you think are the teacher's individual or personal barriers of adopting E-learning?
10. What do you think are the student's barriers that affect academics adopting E-learning?
11. How do you feel on support and training offered by CET on E-learning?
12. How do you feel about the support from your dept./college/colleagues in your E-learning practice?
13. How do you see the support from SQU in E-learning to improve teaching and learning?
14. What do you think of the incentives that would encourage academics to integrate E-leaning in their teaching
15. Do you think and E-learning strategy at SQU would make academics use E-learning? Why?

16. What do you see has helped you be effective in using E-learning to teach?

17. Is there any think else you would like to share on the subject of E-learning?

Appendix B

Map of the Sultanate of Oman



Appendix C

Consent Form

Name of department: Computer and Information Sciences
Title of the study: Institutional and individual Barriers of E-learning adoption in Higher Education in Oman: Academics' perspectives.

- I confirm that I have read and understood the information sheet for the above project and the researcher has answered any queries to my satisfaction.
- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, without having to give a reason and without any consequences.
- I understand that I can withdraw my data from the study at any time.
- I understand that any information recorded in the investigation will remain confidential and no information that identifies me will be made publicly available.
- I consent to being a participant in the project
- I consent to being audio recorded as part of the project Yes/ No

(PRINT NAME)	Hereby agree to take part in the above project
Signature of Participant:	Date