Online instruction in Saudi Arabian universities: Attitudes and satisfaction towards e-learning systems

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

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Statement of Originality

I hereby certify that the work in this thesis is the result of original data and research. To my best of my knowledge and belief, the work in this thesis does not contain any material which has been submitted for the award of other degree in any university or previously published by anyone, except the references have been sited in the text.

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Eiad Altaf
Dedication

I gratefully dedicate this thesis to my father and mother for their boundless care, support and prayers through my studies including my PhD.

To my wife for her devotion, patience, and encouragement during times of my study.

To my children, Layaan, Jannat and Abdulaziz, for their patience, understanding and willingness to adjust family priorities to allow the pursuit of Dad’s PhD to be such a part of our lives.

To my sisters and family members who encouraged me throughout.

To any person supported me.
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*In the Name of Allah, the Most Beneficent, the Most Merciful*

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Glossary

CITC Communications and Information Technology Commission
EL E-learning
EMES E-learning Management Electronic System
ICT Information and Communication Technology
UCLMS University C Learning Management System
LMS Learning Management System
NCEL The National Center for E-learning and Distance Learning
SDL Saudi Digital Library
Abstract

To provide a more flexible learning environment giving greater opportunities for participation in formal education, Saudi Arabian universities were encouraged to develop e-learning from 2003 when the Saudi Arabian National ICT plan was released by King Abdullah Ben Abdulaziz. This study first aimed to investigate e-learning at Saudi Arabian universities by providing background information about the current situation of e-learning at Saudi universities. Secondly, it investigated potential facilitation and opposition to the adoption of e-learning by examining academic staff and student attitudes towards e-learning in general and their satisfaction towards specific platforms and tools. Gender, institutional identification, teaching or study experience and IT experience were also investigated in relation to attitudes and satisfaction.

Data were collected from the university websites and other governmental organisations involved in providing e-learning. These data indicated the need to provide e-learning at Saudi universities in order to increase opportunities for students to attend higher education, provide quality and flexible learning and to cover the shortage of female instructors in higher education. The national ICT plan established the National Center for E-learning and Distance Learning NCEL, The Saudi Digital Library (SDL), the E-learning & Training Resources Center.

Almost all universities in the Kingdom of Saudi Arabia provide e-learning and continue to improve their e-learning services. Universities also provide support for academic staff and students to facilitate their use of e-learning. Different e-learning platforms are provided at each university such as Blackboard, EMES, Jusur, UCLMS and Moodle. Universities also offer face-to-face and online training sessions at different times in the year to assist academic staff and student use of e-learning.

In the light of this information, four major universities were selected for further study. The study sample included academic staff and students and males and females from all four universities, except that participants from University D were all males as the university is for males only.
E-learning attitudes and satisfaction with platforms available for their use were investigated through the application of separate but linked questionnaires for the selected staff and students of these four universities, focussing on their experience, use and attitudes and satisfaction with tools. Six scales were developed to measure e-learning attitudes for staff and students. The scales were: Acceptance, Anxiety, Confidence, Liking, Opportunity and Productivity. Finally a regression analysis model was designed to explore the effects of the demographic variables and experiences (as explanatory variables) on each of the EL attitudes (as outcome variables).

The analyses indicated that, while both academic staff and students had generally positive attitudes towards e-learning, staff had more positive attitudes than students. The study found that gender had significant and different relationships with EL attitudes and satisfaction with e-learning tools for staff and students. Male academic staff clearly had more positive attitudes towards EL (EL Anxiety, EL Confidence, and EL Liking). For students, female students were found to have more positive attitudes towards e-learning (EL Acceptance), than male students.

Higher experience with IT and e-learning was related positively with attitudes and satisfaction for academic staff and only with attitudes for students. Institutional differences indicated that academic staff at University A and students at University C had the highest positive attitudes towards e-learning compared with the other universities. Study experience had a positive relationship with student attitudes and satisfaction with e-learning. Finally, high levels of satisfaction towards the four major EL platforms, namely Blackboard, Jusur, Moodle and WebCT had positive relationships with student attitudes towards e-learning.
Chapter 1
An introduction to the study

1.1 Introduction

The increasing use of Information and Communication Technology (ICT) in education has a variety of causes, including the provision of more flexible learning environments. In particular, the adoption of e-learning through the use of learning management systems (LMS) has expanded remarkably in higher education institutions (Mlitwa, 2007). In this context, e-learning has been defined as “a wide set of applications and processes allied to training and learning that include computer-based learning, online learning, virtual classrooms and digital collaboration” (Homan & Macpherson, 2005, p.76). These same authors go on to state that “These services can be delivered by a variety of electronic media, including the intranet, internet, interactive TV and satellite”. Many colleges and universities are currently offering online courses and others are developing plans to do so.

In Saudi Arabia, in order to provide the growing population with quality, accessible, and abundant educational opportunities, both the government and the private sector are eager to develop alternative programs and delivery methods including e-learning and distance learning. Alenazi, Abdulkarim and Veloo (2010) stated that “the Saudi Arabian E-learning industry is projected to reach USD 125 million and is set to grow at a compound annual rate of 33 per cent over the next five years” (p. 22). This projected increase suggests that e-learning will play a crucial part in Saudi Arabian tertiary education. However, the OECD reported that “tertiary education institutions generally feel that e-learning has a broadly positive effect on the quality of teaching and learning, although few have been able to offer detailed evidence” (2005, p. 4).

Investigating students’ perceptions is considered to be an important aspect in implementing e-learning in higher education. Changchit and Klaus (2008) argued that “since students have perceptions about online courses that influence their subsequent decisions whether or not to take online courses, it is important to understand the factors that surround perceptions of benefit towards an online course setting” (p.34). They argued that this understanding helps educators and courses designers to create better
online courses which contain online tools and curricula meeting learners’ needs.
Mitchell and Geva-May (2009) emphasised the importance of attitudes to influence
online learning implementation. Al-Khalidi and Al-Jabri (1998), concerned about
attitude towards the use of computers in education, stated that “the attitudes of students
toward computers are significant determinants of behaviour that may influence
computer utilization” (p. 23).

Satisfaction is also one of the most important foundations of successful implementation
of e-learning in higher education. Hermans, Haytko and Mott-Stenerson (2009) argued
that “student satisfaction is an important part of the effort to successfully market higher
education. This is especially true given the rapid increase in on-line course offerings”
(p. 1). Bolliger and Wasilik (2009) also stated that “faculty satisfaction is considered an
important factor of quality in online courses” (p.103).

The present study provided first an overview about e-learning in general and e-learning
in Saudi Arabian higher education institutions. It subsequently investigated academic
staff and student attitudes in Saudi universities in relation to their use of e-learning and
their levels of satisfaction and its relationship with demographic and experience factors.
This chapter sets out the background to the study, the significance of the study,
statement of the problem, research objectives, the definitions of the key terms, and the
structure of the thesis.

1.2 Background to the study
One of the most essential aspects that can improve our understanding of e-learning is
the way that educators see e-learning and its role in higher education. A number of
researchers have discussed the role of e-learning in higher education and what e-
learning can add to learning and teaching. For example, Mirza (2007) argued that well-
designed instructional software is more effective than instruction with no use of ICT.
The author argued that computers can be used as an additional tool not as a substitute
for other activities, such that the student can have the advantages of e-learning activities
in addition to the traditional activities. These activities may perhaps include writing,
reading, games, tutorial, drill and practice, and simulations. Other studies have found
that students who experienced online instruction gained better working knowledge (Al-Mosaa, 2002; Al-Sharhan, 2003).

Further, other researchers have argued that appropriate implementation of e-learning can save money and effort or can give greater advantage in learning with the same cost. Homan and Macpherson (2005) declared that the advantages of e-learning are based around two main ideas – the cost advantages and flexibility in delivery. Sekgwelela (2004) emphasised the opportunity to eliminate time and place barriers when integrating e-learning with traditional styles of teaching and learning. These are two of the main advantages that all types of e-learning can potentially provide in different degrees depending on the situation of each system and context. Using ICT in education can make the time and place issues easier to manage and this may lead to savings in cost and effort.

Additionally, one of the most important advantages of e-learning, especially in Saudi Arabia, is that e-learning can increase the opportunities for students to participate in higher education. While providing an overview of e-learning in the USA, Holstead, Spradlin and Plucker (2008) stated that the primary reason for applying e-learning in the USA is to expand the opportunity for more students to access education. In a quite different context, Abdel-Wahab (2008) argued that e-learning is becoming dominant in Egyptian higher education because of the high increase in students enrolling in universities. Further in the Saudi context, the rapid increase in population, rapid obsolescence of existing knowledge, and the rapid technological advances are challenging the Saudi Arabian education system to provide additional educational opportunities for Saudi students. According to the reports of King Abdul-Aziz City of Science and Technology (KACST, 2008), over 50 % of the Kingdom of Saudi Arabia population is under the age of 20, and it has one of the highest national birth rates in the world. Consequently, Saudi Arabian higher education institutions have been facing a growing demand for enrolment with the increasing numbers of young people who wish to attend higher education. The Saudi Arabian education system is under pressure to provide additional educational opportunities not only for an increasing population, but because of a desire to increase the literacy rate. But the capacity growth rate of existing Saudi educational institutes does not match the current growth rate in enrolment demand. This has resulted in overcrowding with a consequent reduction in the quality
of learning. In writing about Saudi education, Al-Fahad (2009) stated that “due to the rapid development of technology, courses using a variety of media are being delivered to students in various locations in an effort to serve the educational needs of growing population” (p. 1). It is therefore important to study how to implement e-learning successfully in Saudi higher education. Saudi schools at various levels are also facing the same problem but on a much smaller scale.

Other Saudi studies have focused on the problem of the shortage of female instructors and refer to the need for e-learning for female students to address this problem. Saudi students are studying in a gender-based segregated environment, so male teachers cannot teach females face-to-face and vice versa. Moreover, because of some traditional and cultural background, the opportunities for females to study in higher education is still lower than for males. Consequently the number of female lecturers is lower than male lecturers. Mirza (2007) discussed the problem of the shortage of female instructors in Saudi higher education institutions and the associated problems caused by the segregation of students by gender. The author suggested that e-learning can be one of the effective solutions for this problem in Saudi Arabia. The approach suggested in that study was a combination of ICT and traditional methods.

1.3 Significance of the study
In Saudi Arabia, public access to the internet was allowed in April 1997 with a slow start for a few years followed by rapid growth. Al-Fahad (2009) reported that recently all major network providers have announced commercial packages offering internet connection at economical prices. This has the potential for the number of internet users to increase rapidly. Moreover, the competition between the different providers will benefit the user by providing competitive services and prices. Online instruction also has been changing considerably over the past 20 years in tertiary education. Al-Sharhan (2003) emphasised the strong relationship between the development of communication technologies and the development of educational technology and e-learning.
Traditionally, e-learning programs were considered useful for adults who missed higher education, or those who were not able to attend traditional face-to-face classes such as workers and mothers. However, anyone with access to a computer can now use e-learning technology for instructional purposes (Al-Fahad, 2009). Universities today,
including those in Saudi Arabia, can choose from a diversity of online educational platforms and services available in the market place. Currently most of the Saudi universities are either initiating e-learning or extending their use of e-learning. In other words, some Saudi universities already have used e-learning systems for a few years and some of them have not. According to the university websites, most Saudi universities are planning to improve and increase their use of e-learning. The other Saudi universities which do not currently use e-learning systems are planning to do it in an effective way to fit with their needs and their students’ needs.

There is some evidence of the increasing role of e-learning in Saudi Arabia. For example, the number of Saudi universities that use e-learning is increasing which is obvious from the university websites. Moreover, there are currently some Arabic Object Management Systems, such as the Jusur e-learning system, which are designed to help students and academic staff in Saudi Arabian higher education institutions, especially universities. In addition, deanships of e-learning and distance learning are being created in each university, provided by increasing budgets of each university governmental support through the Higher Education Ministry. In this way, educators in Saudi Arabia appear to have the intent of employing and developing successful e-learning in Saudi universities. In view of that, as the use of e-learning in Saudi universities is growing rapidly with numerous changes over a short period in recent years, the government is encouraging the Saudi higher education institutions to apply e-learning in the most effective way to give all people the chance for higher education.

At this stage, educators need more information about the use of e-learning in Saudi universities, especially users’ perceptions about their needs, the advantages of e-learning, and the limitations of its use in the Saudi context. Although some researchers have studied e-learning in some Saudi universities they have emphasised the need for further research (Nehari-Talet, 2007). By making comparisons between different e-learning experiments in Saudi Arabia, educators may become able to recognise the characteristics and features of e-learning that makes its use more effective in different contexts. This also will help educators and decision makers in the different educational institutions to choose and adapt the best system for their institutions.
A further potential problem is that, according to Al-Shehri (2010) “there were no clear organizational links or reports to ensure coordination and collaboration among different bodies involved in E-learning” (p. 149). For example, the National Center for E-learning and Distance Learning, and The E-learning & Training Resources Center were providing e-learning platforms (with different brands) and online communication technologies to higher education institutions. The major difference was that e-learning in the technical colleges was offered by one provider which was the E-learning & Training Resources Center. On the other hand, e-learning systems in universities were provided by different providers including the National Center for E-learning and Distance Learning. For example, effort for developing one e-learning system for the technical colleges distributed in more than 20 cities was focused on one system while universities needed to make a similar effort to develop e-learning for use in a single university. In addition, updating and fixing faults for multi-campus institutions through one provider saves time and money while doing that for each university with a different provider costs more and takes a longer time. Al-Shehri (2010) argued that “giving freedom to different organizations to adopt E-learning in their own way may present opportunities for more innovations and independence. However, there is the risk of waste of resources and disintegration of the whole process of E-learning” (p. 149).

With proper organisation and management, technical support and infrastructure required by different organisations would be easier to identify and thereby improve the efficiency and effectiveness of the pursuit of the national objective appropriate in e-learning in Saudi Arabia. Policy makers at the Saudi Arabian Higher Education Ministry need updated information about the use of e-learning in higher education institutions to assist them in making the right decisions about integrating e-learning. Al-Shehri (2010) suggested two main issues in order to implement e-learning in Saudi Arabian higher education. The first was to develop organisational vision and strategic planning for e-learning and the second was to identify e-learners. The present research study will contribute by providing valuable information about the attitude of academic staff and students towards e-learning and their use of e-learning in Saudi Arabian universities.

Appropriate planning is one of the most important factors that educators should consider when integrating e-learning with any of their learning strategies. Lack of pre-planning can limit the benefits of e-learning utilisation. Al-Sharhan (2003) argued that there are some educational approaches have been applied in Saudi universities without
pre-study and planning. Consequently, students were not benefiting from e-learning as intended by educators and leaders. For that reason, through examining and comparing different e-learning platforms used in Saudi universities, educators can better understand the factors that affect the success of e-learning in the Saudi context. This understanding will shed some light for educators and decision makers in Saudi higher education institutions for the purposes of planning, designing, evaluating, developing and implementing e-learning platforms.

1.4 Statement of the problem

E-learning and modern educational modes have been integrated into many courses provided by higher education institutions. For that reason, educators and researchers such as Mlitwa (2007) have referred to the growing body of literature which argues that the technology enhances teaching and learning processes in higher education. The claimed positive role of computing and ICT in education is the main objective of e-learning and distance learning. According to that, learners are expected to have the maximum benefits of implementing computer, ICT and online technologies to achieve the goals of the learning process. Teaching staff also should benefit from these technologies to achieve their teaching goals.

There are a number of studies that have investigated the attitudes towards the use of computer and information and communication technologies (ICT) in higher education (Abdel-Wahab, 2008; Al-Khalidi & Al-Jabri, 1998; Anderson & Hornby, 1996; Christensen & Knezek 2009; Doolen, Porter, & Hoag, 2003; Francis, 1993, 1994; Francis, Katz, & Jones, 2000; Kadijevich, 2008; Loyd & Gressard 1986; Rosen & Weil, 1995; Sang, Valcke, Braak, & Tondeur, 2009; Selwyn, 1997; Uzunboylu, 2007; Woodrow, 1990). There has been general agreement that, in general, having positive attitudes significantly affects the use of computers, ICT and online technologies in education. Some of these studies also emphasised other factors that have the potential to affect user attitude, including gender, teaching experience, computer experience, and internet experience. The attitudes measured in these studies have included anxiety, confidence, liking, acceptance and productivity. These studies will be described and discussed in Chapter 2. The present study used some of these variables and adapted attitude scales to evaluate attitude towards the use of e-learning in Saudi universities.
Nehari-Talet (2007) also stated that students’ satisfaction was one of the variables that affect the successful implementation of educational technology. Other research studies have focused on user satisfaction towards some particular e-learning platforms used in different universities. Results of research that has been done in Saudi Arabia have not been consistent in relation to satisfaction towards online courses, with some studies pointing out positive satisfaction and others pointing to negative satisfaction (dissatisfaction) towards particular online courses. Al-Jarf (2007) for example pointed out that her online English course was unsuccessful in terms of students’ satisfaction level. Some researchers have found that while e-learning is still in its infancy in the Saudi higher educational system, public perception does not favour e-learning over traditional classroom-based education (Al-Jarf, 2005a, 2005b, 2007; Nehari-Talet, 2007). On the other hand, Mirza (2007) stated that Saudi students were favourably disposed to the modern course approach, and that the greater barrier to participation had more to do with the technology rather than other personal characteristics such as gender. Consequently, the present study also investigated user satisfaction towards particular e-learning platforms used in Saudi universities. This is an important issue because the use of e-learning in Saudi Arabia is increasing rapidly and the perceptions towards e-learning can be changed as well.

According to Al-Jarf (2005a) “thousands of students and instructors are using Online course Management Systems like Blackboard, WebCT, Online Learning, eCollege, Moodle, Manhattan Virtual Classroom and Nicenet and many others to teach all kinds of courses” (p. 1). In other words, Saudi universities are using different e-learning Object Management Systems (OMS) or e-learning platforms. Some of them are using well-known systems such as WebCT and Blackboard, which are English-based. Others are using Arabic systems such as Jusur and others which have been designed locally in their universities. However, the suitability of these for use in Saudi Arabia has not yet been studied. Consequently, there is a need to examine the different e-learning Object Management Systems used in different Saudi contexts. Alenezi et al. (2010) argued that some researchers indicated that the majority of Saudi university students are still unwilling to use e-learning platforms. Therefore, many factors need to be determined in order to enhance students’ use of e-learning in education. For example, a comparison between students’ satisfaction levels towards the different e-learning platforms used in Saudi Arabian universities will indicate the best use of these systems. Consequently, the
different e-learning platforms used in Saudi universities are investigated in the present study to illustrate e-learning characteristics that could help educators in evaluating e-learning systems appropriate for Saudi universities.

1.5 Research objectives

Studies about e-learning in Saudi higher education mainly have focussed on student perceptions of particular online courses, internet use, and the use of ICT which aimed to provide guidelines for implementing e-learning in education. However, these studies have not provided information about academic staff and student attitudes towards the use of e-learning in education in relation to their demographic and experience characteristics and their levels of satisfaction towards particular e-learning platforms used in Saudi Arabian universities. The intent of this study was to focus on a number of e-learning practices in Saudi universities to examine this issue. This study will enrich the growing recent literature in the area of assessing and comparing e-learning in Saudi universities. In addition, none of the previous studies have compared e-learning platforms used in different universities in Saudi Arabia in relation to academic staff and student attitudes and levels of satisfaction particularly. Instead each study focussed on one particular platform or one particular online course in only one educational institution. This study compared and contrasted the attitudes of academic staff and students in relation to their demographic characteristics, teaching and studying experience, IT experience and their levels of satisfaction towards the e-learning platforms used in four main universities in Saudi Arabia. The comparison and the background information about e-learning in Saudi Arabia identified the issues facing Saudi students and instructors in using e-learning as a new learning and teaching technology in different places.

In order to improve Saudi higher education, researchers need to follow the progress of e-learning while the increase and changes in its use in Saudi higher education are happening rapidly. User attitudes and their satisfaction are perhaps changing also due to the increasing use of e-learning in higher education. It is obvious that users’ attitude and satisfaction are important aspects of using e-learning and integrating ICT in education and that they should be measured basically for two reasons. The first reason is that educators can select the appropriate e-learning platform and e-learning tools for
their students and avoid the unfavourable systems from the users’ point of view. The second reason is that e-learning designers can develop systems that cover most of the favourable features and advantages of e-learning. Al-Fahad (2009) pointed out that examining student attitudes can help to gain an understanding of how current students view the issue. In addition, Nehari-Talet (2007) argued that by examining students’ perceptions the researcher could rank a number of selected factors that have a significant impact on the successful implementation of e-learning. This makes attitude and satisfaction good indicators that can guide educators to the most effective factors on the implementation of e-learning. Consequently in this study, user attitude towards e-learning and user satisfaction towards particular e-learning platforms and tools used in Saudi universities were examined. The research study examined academic staff and student attitudes towards e-learning in relation to their demographics, their use of e-learning, teaching and study experience, and levels of satisfaction with e-learning platforms and tools. The field work for the study was conducted in 2012 and the data were collected from four leading universities in Saudi Arabia. In conclusion, the research study objectives can be summarised in two main points. The study aimed:

1- to provide a background overview about e-learning in Saudi universities;
2- to investigate user attitudes towards e-learning in Saudi universities, in relation to their satisfaction, in the light of a number of demographic and experience factors.

The integration of the two components of the study provides the answers to the research questions. The data collected for each part of the study will contribute to the development of the answer to the research questions. Accordingly, the research questions of the present study were related to these two aims. The study aimed to provide overview information about e-learning in general and about the current situation of e-learning in Saudi Arabian higher education. This overview will enrich the literature with updated information collected from recent studies and sources related to e-learning in Saudi Arabia. The research study also investigated the attitudes of academic staff and students in Saudi Arabian universities. It investigated academic staff and student attitudes related to demographic and experience factors. Additionally, the
research study considered the satisfaction of academic staff and students related to their attitudes.

1.6 Definition of the key terms

This section presents definitions of the key terms in this study which are used to convey the following meanings:

- “E-learning” (EL) means the learning systems and tools which are available for on-campus and off-campus users (including staff, instructors and students) for implementing information and communication technologies (ICT) and online technologies in different degrees of interactivity and different degrees of integration with other traditional styles of learning.

- “E-learning platform” means the learning management systems (LMS) or object management systems (OMS) that offer online interactive learning environment to support and accumulate different learning and teaching strategies; for example Blackboard, WebCT e-learning platforms.

- “E-learning attitude” means the perception towards the use of e-learning in education measured through six particular attitude sub-scales which are: EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity.

- “E-learning tools” includes online tools and services offered by university websites for academic staff and students (e.g., online announcement system, online calendar and online forums).

1.7 Structure of the thesis

The thesis is organised into nine chapters. This chapter is the introduction, in which the background of the study is elaborated, the significance of the study is recognised, the research problem is stated, the research objectives are identified, key terms are defined, and the structure of the thesis is proposed.

Chapter 2 presents an extensive review of the literature that provides the study background and more information about e-learning in general. This chapter contains several sections covering the reviews of the term “EL in higher education”. The first section begins with a review of the literature on the definitions of e-learning and the
second section provides definitions of other related terms which have common characteristics with e-learning, including online learning, virtual learning and distance education. The third section is concerned with the literature on the types and levels of e-learning and the different ways of categorising e-learning. The fourth section presents the advantages and disadvantages of e-learning. The fifth section reviews the literature which has focused on the evaluation of e-learning. Chapter 2 is the first part of the study literature review which provides information about e-learning in general.

Chapter 3 presents a review of the literature pertaining to attitudes towards e-learning, especially in Saudi Arabian universities. The chapter consists of three sections covering the reviews on the term “attitude towards e-learning”. The first section provides background information about attitude towards e-learning. The second section presents an overview about the attitudes measured by the present study, and the factors known to influence these attitudes. The last section presents the research questions.

The research methodology is described in Chapter 4. This chapter also includes a description of the research design and the sample. The first section provides an overview of the study purpose. The second section describes the population of the study and the sampling procedure. The third section explains the development of the instrument and discusses the scales and the variables examined by the instrument and the rationale for using each one. The fourth section describes the details of the data collection procedure. The last section discusses the rationale for data analysis.

Chapter 5 addresses the answers to the first three research questions concerning background information about e-learning in Saudi Arabian universities. The answers to the first three research questions will be established through the analysis of the quantitative data in later chapters in the study. The first section of chapter 5 focuses on the growth of e-learning in the Saudi Arabian higher education institutions. The second section focuses on the administration and the main providers of e-learning in Saudi Arabian higher education. The third section presents the current situation of e-learning in the four Saudi Arabian universities involved in the study. The fourth section concludes and compares e-learning in Saudi higher education. This chapter focuses more on the first objective of the study, which aimed to provide an intensive overview about e-learning and its use in the higher education institutions in Saudi Arabia.
Chapter 6 presents the survey analysis and is presented in seven parts. The basic information is presented first regarding instructors’ and students’ characteristics, their use of e-learning, their attitudes towards e-learning, and their levels of satisfaction towards particular e-learning platforms. Then the relationships between academic staff and student attitude towards e-learning with their demographic factors, teaching and study experience, IT experience and their levels of satisfaction towards e-learning platforms are presented.

Chapter 7 provides an analysis model developed to represent hypothesised relationships between variables considered likely to be related to attitudinal outcomes for academic staff and students in the samples from the four universities. The analyses have been done separately for academic staff and students, and results for academic staff analyses have been shown first.

Chapter 8 presents the discussion and the interpretation of the findings in detail, in relation to each of the research questions. Academic staff and student findings are discussed separately recognising the different contexts of each group. The first section discusses the current situation of e-learning in Saudi Arabian universities. The second section discusses academic staff and student attitudes and satisfaction with e-learning in Saudi Arabian universities in relation to demographic and experience factors. These three latest chapters complement Chapter 5 to complete the answers to the research questions.

Chapter 9 provides a summary of the main conclusions drawn from the data analysis, limitations of the study, and also provides a number of recommendations for implementing e-learning in higher education especially in Saudi Arabia. It concludes with recommendations for further study.
Chapter 2
Literature Review part 1: What is E-learning?

2.1 Introduction
This chapter presents a review of the literature on e-learning (EL) while the next chapter presents a review of the literature on attitudes towards e-learning. This chapter is divided into several sections. Following this introduction the second section reviews the literature concerning definitions of e-learning. The third section reviews other related terms which have common characteristics, including online learning, virtual learning and distance education. The fourth section investigates the various types of e-learning. The fifth section is concerned with advantages and disadvantages of e-learning for higher education. The final section focuses on the evaluation of e-learning.

2.2 Definitions of e-learning
The expression e-learning originally comes from electronic learning which consists of two main components: electronic and learning. First, learning is acquiring new, or modifying existing, knowledge, behaviours, skills, values, or preferences and may involve combining different types of information. Learning does not happen all at once, but constructs upon and is shaped by what we already know. It may occur as personal development, education or schooling and training and may occur consciously or without conscious awareness (Al-Sharkawy, 2001; Armstrong, 1979, 1983a, 1983b; Knowles, 1975). Educators recognise various types of learning including habituation, sensitisation, associative learning, imprinting, observational learning, enculturation and play (Al-Sharkawy, 1996; Mitchell & Myles, 2004). The present study focuses on formal learning or formal education which according to Al-Sharkawy (2001) is the process by which society deliberately transmits its accumulated knowledge, skills, customs and values from one generation to another, for example, by instruction in schools. Siddiqui and Masud (2012) in the same context explained learning as “a process of acquiring of knowledge and improving skills either by experience, practice, study or by being taught by someone. It requires concentration to learn anything” (p. 375). Secondly, the term electronic refers to information and communication.
technologies, whether networked or not, serving as specific media to implement the learning process (Zaitoon, 2005). E-learning is the combination of the two dimensions. Generally, e-learning is the computer and network-enabled transfer of skills and knowledge. The content of e-learning is delivered via the internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio. E-learning includes web-based learning, computer-based learning, online learning, virtual education, mobile learning and digital learning. This section discusses definitions of e-learning provided in the literature, and will identify the main similarities and differences between these definitions.

There is diversity in definitions of e-learning, starting from general definitions to definitions which include more aspects and specific details. All e-learning definitions share the concept of employing information and communication technology (ICT) in education in general. Some researchers added other ideas such as what might be employed in e-learning, for example, services, features, tools and media (Homan & Macpherson, 2005). Some researchers have focused on the purpose of using e-learning when they defined e-learning in relation to the implementation of ICT in education (Mlitwa, 2007; Ryan & Hall 2001). Others have added the idea of the degree of interaction between students and other elements of e-learning (Fat’h-Allah, 2006; Nichols, 2008). The definitions of e-learning in this section focus on these three groupings.

Generally, some researchers have used the term e-learning to refer simply to the use of the internet and other networking technologies to enhance learning activity (Guilar & Loring, 2008; Rahmat & Saudi, 2007; Ryan & Hall 2001). Guilar and Loring (2008) defined e-learning as learning “which uses online learning technologies” (p. 19). Rahmat and Saudi (2007) argued that e-learning “is any teaching and learning form that uses electronic networks for presenting the content and interaction” (p. 2). Sambrook (2003) used the term e-learning to define the learning that uses “any electronic learning material from CD ROMs on standalone PCs to intranet/internet networked systems with down-loadable and interactive material” (p. 507). The researchers focused in these definitions on the implementation of information and communication technologies and online technologies in education which is the main idea of e-learning. The use of
computers and networks was the main characteristic of implementing ICT in education in these definitions.

In the same context, researchers such as Homan and Macpherson (2005) provided in the definition a number of specific delivery media, defining e-learning as

a wide set of applications and processes allied to training and learning that include computer-based learning, online learning, virtual classrooms and digital collaboration. These services can be delivered by a variety of electronic media, including the intranet, internet, interactive TV and satellite. (p. 76)

Brown (2003) stated that “we defined e-learning as the delivery of content and interaction via all electronic media, including the internet, intranet, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM” (p. 4). Nichols (2008) has defined e-learning as

the use of technological tools (primarily those that can be made available over networks such as the internet) for education. E-learning is pedagogy that is empowered by digital technology. It may be offline (and non-networked) technologies on CD-Rom or DVD. E-learning usually includes digital resources and computer-interfaced communications as tools for learning. (p. 4)

Al-Dosari (2011) stated that e-learning is often called web-based learning which includes “online course content, discussion forums via email, videoconferencing and live lectures (video-streaming via synchronous or asynchronous teaching); these possibilities and several others are all available through the web” (p. 291). These definitions are comparable to the previous ones as all of them focused on the media used in e-learning, comprising information and communication technologies and online technologies in education. However, the latest definitions named some of the specific media used to deliver learning content and activities to and from learners.

Other definitions have focused on the purpose of e-learning. For example, Hammami (2010) stated that “e-learning represents one of the online education environments that use modern information and communication technologies to provide a very powerful tool for the development of the new society and to keep up with changes in the global economy that now occur in Internet time” (p. 209). Mlitwa (2007) focused in his
definition on another purpose of e-learning, in which e-learning is “the process where education technology is used in a virtual campus to enhance both distance and residential education process” (p. 57). Mlitwa (2007) further explained that e-learning should make students actively engaged with the learning process rather than being passive recipients of knowledge and that technology should be learner-centred and used correctly to improve the quality of learning experiences. Ryan and Hall (2001) focused also on several purposes of e-learning, stating that e-learning is about “the systematic use of networked multimedia computer technology to:

- Empower learners;
- Improve learning;
- Connect learners to people and resources supportive of their needs;
- Integrate learning, performance, individual and organizational goals” (p. 1603).

In the same context Lansari, Tubaishat and Al-Rawi (2007) stated that “in a technology-mediated learning environment, students and teachers use a wide range of information and communication tools (ICT) to communicate, collaborate and share resources. These tools provide anytime–anywhere learning opportunities” (p. 462). They identified that “in a good technology mediated learning system, students must be able to read, critically reflect, discuss, argue, generate and present new interpretations, share and exchange information ideas” (p. 462). The main idea that e-learning is the use of ICT in education is still presented while some purposes are presented. They have not named any of the technologies used to deliver learning content and activities while the latest definitions by Mlitwa, Ryan et. al., and Lansari et. al., provided some e-learning characteristics and purposes that were not actually defining e-learning. However, the information provided clarifies some aspects of e-learning which makes the picture more obvious.

Other educators have focused on the interaction between elements of e-learning while the main idea of implementing information and communication technologies and an online technology is presented. Hammami (2010) stated that the concept of interactivity involves: “how students interact with learning materials, with the teacher and with peer learners” (p. 211). For example Mlitwa (2007) stated that “Elearning is a socio-technical network that comprises of humans (educators, students, administrators),
structures (learning groups, educator groups, institutions, policies), technology (a LMS), environments (contexts), resultant learning processes, wanted and unwanted outcomes” (p. 63). Mlitwa based his vision on a documentary analysis of other research studies supported by case study findings. He was trying to find a theoretical framework for an effective use of e-learning in learning and teaching. He also contextualised e-learning by highlighting the main cumulative elements of the entire context of using e-learning in education (humans, structures, technology and environment). This definition proposed one of the main characteristics of e-learning (interaction) which can probably improve our understanding of e-learning.

In the same context, Fat’h-Allah (2006) defined e-learning as “a group of tools that enable the learner to interact with teachers, colleagues, and the educational content. These tools include: content homepage, study calendar, announcement system, discussion forum, chatting system, and course information” (p. 43). He indicated that e-learning courses can be varied from simple content that includes written materials, assignments, and exams to more inclusive content that includes animation, video and audio materials, simulations and additional links to other online resources. Zaitoon (2005) argued that e-learning is about providing educational content electronically via a variety of delivery media depending on computer and networking technology which enables the learner to actively interact with this content, teachers, and colleagues synchronously or asynchronously and enables the learner to accomplish his or her learning goals anywhere and anytime. He added that e-learning is also managed and administered electronically through the same delivery media and technologies. The main idea of implementing information and communication technology in education is still presented while the two definitions are comparably focused on the concept of interaction between learners and other components of e-learning. In addition, they characterised the components to interact with, including teachers, colleagues and educational content. They provided some examples of e-learning tools which enable learners to interact with other components of e-learning, such as study calendar, discussion forum and chatting system. They explained that interaction between learners and other elements can be synchronous or asynchronous depending on the media or the e-learning tool selected by learners. Analysing the definition of e-learning by Zaitoon provided six main aspects of e-learning:
1- E-learning provides the educational content via different delivery media including texts, voice, graphics, animations and video clips as full learning chunks called learning objects.

2- E-learning uses a variety of technologies to communicate with the learner including computers, local area networks (LAN) and the internet.

3- E-learning enables the learner to interact with the content (e.g., games and quizzes), teachers (e.g., email and forums), and colleagues (e.g., chatting and social networking).

4- E-learning is a flexible learning environment which eliminates the time and place barriers and enables the learners to learn anytime and anywhere appropriate for their circumstances.

5- E-learning is a learner centred style which focuses on the learners’ needs, skills, and weaknesses to increase their interactivity with the educational content.

6- E-learning is administered online or electronically by the institution administration staff and teachers who can serve and control the learning process. These services include enrolment and graduation services, providing educational content, resources, assessment, teaching staff and courses information, IT services, and other online services.

Kensarah and Attaar (2009) and Saalem (2006) provided definitions of e-learning which contain most aspects provided individually in the literature (implementation of information and communication technologies, media used for delivering learning, and purposes of e-learning). Kensarah and Attaar defined e-learning as an 'educational composition that provides learning and training programs anytime and anywhere by using interactive information and communication technologies, such as internet, intranet, radio, TV, CD, phones, mobiles, and computers to offer multi resources and interactive learning environment synchronously and asynchronously for on-campus and off-campus students' (Trans. Kensarah & Attaar 2009, p. 192). Kensarah and Attaar (2009) focused in their definition on a number of e-learning characteristics that can be summarised as following:

1- E-learning is not a haphazard learning; it is actually a well planned and organised learning which is designed according to pedagogical theories and thoughts.
2- E-learning does not provide just educational content; it provides a comprehensive learning program which includes content, teaching and training methods, activities, assignments, resources, and assessment.

3- E-learning is offered for different kinds of learners including workers who need training while they are working.

4- E-learning uses a variety of delivery technologies to offer the proper method of delivery for each individual learner or situation.

5- E-learning shifted the one way traditional learning style to a more interactive learning that enables the learner to interact with teachers, colleagues, and educational elements.

6- E-learning is one of the modes of distance learning; and distance learning is a broader way of learning which could include e-learning and other traditional paper-based distance learning. In addition, e-learning is available for all students including on-campus and off-campus students not just for off-campus students like distance learning.

They defined e-learning in a later version as ‘a learning style which uses computers, information technology, and the internet to enable the learners to send and receive information, gain new skills, and interact actively with others and with educational content in a most flexible learning environment in terms of time and place’ (Trans. Kensarah & Attaar 2011, p. 96). This definition included three main ideas: the implementation of information and communication technologies in learning, the objective of e-learning, and the interaction between learner and the contents of e-learning. They emphasised the role of computers as the main tool to access and interact with e-learning, especially with its modern versions. They discussed that other delivery media such as TV, radio and mobile phones are still used but in limited context. On the other hand, they noted that most e-learning systems recently are depending on computers and information and communication technology more than other delivery media used previously. They emphasised also the role of the internet which is the “orbit” where e-learning takes place and that most e-learning systems can be accessed through the internet.

In conclusion, it is obvious that there are many definitions of e-learning presented in a range of forms and views. The implementation of information and communication
technologies and online technology in education is the main idea of all these definitions. However, some definitions stated only this general idea about e-learning while others provided more details about tools and media delivering learning, purpose of e-learning and interactivity of e-learning. The more detailed definitions such as Kensarah and Attaar were the ones preferred by the researcher because they provide a clear idea about e-learning compared with other definitions definitions. Therefore, in the present study, the definition of e-learning is a detailed definition which includes all sorts of online learning approaches and all characteristics of online mode. In addition, the definition includes a learning style with a low level of e-learning implementation to fully online courses. E-learning in this study is defined as a learning and teaching style which uses computers, information and communication technology, and the internet to enable learners to interact actively with others, with instructors, and with the educational content to gain new skills, behaviours, knowledge, and experiences in a flexible learning environment in terms of time and place.

2.3 Definitions of related terms
There are other terms related to e-learning and some are synonyms of e-learning and some share characteristics with e-learning. For example, distance learning, online learning, online instruction, technology mediated learning, online collaboration learning, virtual learning, web-based learning, open learning, flexible learning, and computer aided/assisted instruction (Fletcher, 2001; Guilar & Loring, 2008; Kausar, Choudhry, & Gujjar, 2008), and blended learning (Melton, Graf, & Chopak-Foss, 2009). Siddiqui and Masud (2012) added that “the term e-learning involves a very wide range of applications: it includes computer based learning, mobile based learning, web based learning, virtual classrooms, and digital association” (p. 375). Each term is provided in this section as defined in the literature.

Distance learning is one of the well-known terms that some educators use when talking about the e-learning context. There is a public understanding that distance learning is e-learning, but this is not the case. As presented in Diagram 1, distance learning is the more general style of learning which contains e-learning as a part of it. Nichols (2008) defined distance learning as the
education provided through learning resources such as articles, learning guides and supplementary media. In distance learning the educator and student are separated by space and/or time. Distance education is extremely diverse, ranging from classic correspondence study to collaborative, internet-enhanced multimedia education. (p. 3)

The main idea of distance learning is that learners can learn from a distance with no physical attendance restrictions. For example, learners and teachers could be physically in different locations and they can communicate by mail, phone, and internet. Technology and other learning process elements (e.g., strategy, activity, resources etc.) used in e-learning can provide the tools for people who want to learn from a distance using distance learning. Moor (1990) cited in Kulchitsky (2008) argued the same point that distance education is defined as “the arrangements for providing instruction and transmitting educational materials through print or electronic media to geographically dispersed students in a place or time different from that of the instructor” (p. 151). According to this, the main quality that characterises distance learning is that physical attendance of the learners is not required regardless of the media used to deliver the educational content and activities. Saalem (2006) and Kensarah and Attaar (2011) argued that distance learning is not e-learning and that e-learning is a kind of learning which can be utilised in distance learning. Therefore, when information and communication technology is used in distance learning it becomes e-learning. On the other hand, if the delivery of distance learning is based on print media only, it is not e-learning because there is no implementation of information and communication technology media.

Online learning and web-based instruction are terms that some educators use as alternatives to e-learning. Online instruction and web-based instruction, according to Olson and Wisher (2002) are “considered to be any educational or training program distributed over the internet or an intranet and conveyed through a browser, such as Internet Explorer or Netscape Navigator” (p. 2). Nichols (2008) argued that “online learning uses e-learning tools in a distance education mode. It uses technology (usually the internet) as the sole medium for all student learning and contact. The term is often used synonymously with the terms immediately above; however, it is best to reserve it to describe education facilitated only through digital technology, usually the internet. An online course typically lacks both physical learning materials and physical meetings,
but the term is also used to describe the online component of an on-campus or distance education course. The term is sometimes used to refer to CD-Rom or DVD-based courses as well as web-based ones” (p. 4).

According to these definitions, the crucial characteristic of online learning and web-based instruction is the use of online technologies, mostly through the internet, to communicate between learners, instructors, and educational contents. This is comparable to the main idea of e-learning which is the use of information and communication technologies and online technologies in education. This sharing of characteristics makes the terms online learning and web-based instruction very closely related to e-learning. On the other hand, the three e-learning styles have different main characteristics from distance learning. The main characteristic of distance learning is learning from a distance while online technology and web-base instruction can be in the classroom. The main characteristic of online learning and web-based instruction is the use of online technologies with no physical attendance restriction while in distance learning, communication between learners and other elements of learning could be through any communication media not only online technologies.

Online distance learning is the one that combines the two previous learning styles (distance learning and online learning). Sait (2003) stated that “in its simplest form, distance learning takes place when a teacher and student(s) are separated by physical distance. The teacher-student interaction can take place using voice, video, data and print (by correspondence)” (p. 4). He added that “a form of distance learning that uses internet and internet technologies as a medium to impart training is known as Electronic Learning (e-Learning)” (p. 4). Researchers argued that online distance learning (ODL) is distance learning with increasing emphasis on offering courses online. For example, Falloon (2011) argued that ODL courses

have emphasised the use of asynchronous communication systems for the delivery of course content and for course-related communication and interaction (for example, WebCT, Moodle, Blackboard, InterAct). Typically, the use of such systems requires students to log in to a website on a regular basis and download relevant documents, such as readings, course outlines, and assessment information, and possibly participate in forums related to the range of topics the course covers. (p. 188)
According to this definition, online distance learning is e-learning in its full utilisation of information and communication technology from a distance. It is a degree of e-learning that greatly eliminates the place and time restrictions and need for physical attendance.

It is important at this point to distinguish between e-learning and Learning Management System (LMS) or Virtual Learning Environment (VLE). LMS and VLE according to Nichols (2008) refer to “a collection of e-learning tools available through a shared administrative interface, such as Blackboard, WebCT, or Moodle. An LMS or VLE is the platform on which online courses or online components of courses are assembled and made available.” (p. 4). Abdel-Wahab (2008) argued that “the term Learning Management System (LMS) refers to an integrated set of networked, computerized tools that support online learning” (p. 158). He added that “LMS such as WebCT and Moodle, has many built-in features to help teachers managing their courses” (p. 158). Braun (2008) provided a detailed explanation of LMS particularly through defining the Blackboard e-learning platform. He stated that “Blackboard allows instructors to post announcements, assignments, course documents, faculty credentials, lecture notes, PowerPoint presentations, and video streaming that can be easily accessed by students” (p. 65). He added that “the course design is structured so instructors have direct communication with their students through emails, posted discussion boards, and real-time chats” (p. 65). Therefore, a learning management system is a combination of online tools and services offered by the educational institution or e-learning provider through the internet or an internal network to offer e-learning for learners and instructors. In other words, learning management systems could be part of e-learning which includes also qualified instructors, training and learning strategies, infrastructure, and financial resources. For example, Georgiev, Georgieva and Smrikarov (2004) defined e-learning as the learning style which uses the “Internet and Learning Management Systems” (p. 1). In the present study, learning management systems such as Blackboard and WebCT are called e-learning platforms which refer to the online systems and applications designed to deliver various types and levels of e-learning.

Virtual Learning Environment is a comparable term to Learning Management System as both are learning environments that offer a range of e-learning tools and online services
to enable learners and instructors to manage e-learning courses. Ho, Higson, Dey, Xu and Bahsoon (2009) defined VLE as

software designed to support teaching and learning. VLEs generally operate on the World Wide Web, and, therefore, they can be accessed both on and off-campus, provided that the users are registered and can access the internet. This overcomes the limitation of traditional face-to-face teaching, and ensures that learning is confined neither to geographical location nor time. (p. 6)

Falloon (2011) argued that VLE

is defined as asynchronous online learning environment that not only delivers course materials to learners, but also provides a live, contextual and interactive environment for learners. It supports active learning by providing an environment with the learning tools, learning materials, and opportunities for contextual discussion. (p. 188).

Blended learning is one of the popular types of learning that uses information and communication technologies and online technologies with different levels of technology contributions. Learners using this style of learning are able to combine physical contribution in the courses as well as using online technologies to study their courses. Blended learning is a term used interchangeably according to Nichols (2008) with the terms “Flexible/mixed-mode/blended/resource-based learning” such that

these terms all describe education that combines on-campus and distance approaches. Such education usually involves an instructor or tutor meeting with students (either on campus or using technology), coupled with a resource base of content materials and learning activities. Some e-learning approaches might be used as part of this mix. It includes conventional on-campus courses supplemented by some e-learning. (p. 4)

Blended learning is an e-learning style because it generally mixes the use of information and communication technologies (ICT) with the traditional styles of learning. Blended learning is a style of learning such that we cannot consider it a fully online or a fully face-to-face mode, although it can be seen as fitting between the two different styles. It is an effective way of mixing e-learning with the traditional face-to-face style resulting in a mixed method that has the advantages of both learning styles. In addition, blended learning can be a general model of different mixed types and levels of e-learning with different degrees of information and communication technology employment. The
difference between blended learning and distance learning is that on-campus participation is an essential part of blended learning while in distance learning physical attendance is optional and the course can be managed completely from a distance. Therefore, blended learning is one of e-learning types where physical attendance is one of the essential course requirements in addition to the online and distance modes.

The main idea of blended learning is to combine traditional and online learning styles in order to offer the best benefits to learners in a flexible mode. Learners can select the way that meets their requirements to achieve their goals. Lansari, Tubaishat and Al-Rawi (2007) argued this point, stating that “traditional as well as completely online learning environments each have their own limitation. A hybrid approach that combines traditional teaching with online learning could provide the best of both worlds” (p. 462). According to Yushau (2006a) blended learning mixes a variety of event-based activities, including face-to-face classrooms, live e-learning and self-paced learning. Blended learning often is a combination of traditional instructor-led training, synchronous online conferencing or education, asynchronous self-paced study. The web-based (internet) media includes learning management systems, asynchronous distance learning, and online classrooms amongst innumerable other rapidly increasing educational technologies (Melton et al., 2009).

To sum up, blended learning comes in the middle between the different learning styles which combined online and traditional face-to-face styles. So, blended learning is e-learning with utilisation of the two learning styles. Learners using blended learning often do not have the opportunity to go fully online or to study fully by face-to-face methods. They are required to contribute in both learning style activities.

Mobile learning (m-learning) is one of the modern styles of e-learning which offers more flexible opportunities for learners. M-learning according to Georgiev et. al. (2004) and Brown (2003) is a new stage in the progress of e-learning. Quin (2001) cited in Brown (2003) stated that “M-learning is e-learning through mobile computational devices: Palms, Windows CE machines, even your digital cell phone” (p. 4). In the same context, Nassuora (2012) stated that usually “we call e-learning with mobile device as mobile learning or m-learning in short form” (p. 1). Georgiev et. al. (2004) argued that “the definition of m-learning must include the ability to learn
everywhere at every time without permanent physical connection to cable networks.
This can be achieved by the use of mobile and portable devices such as PDA, cell
phones, portable computers and Tablet PC” (p. 2). They argued that these media should
have “the ability to connect to other computer devices, to present educational
information and to realize bilateral information exchange between the students and the
teacher” (p. 2). To get a better picture, Figure 2.1 visually portrays the relationship
between m-learning and e-learning. D-learning in the diagram refers to distance
learning and m-learning refers to mobile learning. M-learning is comparable to e-
learning in the main characteristics such as the implementation of information and
communication technologies, the use of online technologies and the internet, and
flexibility in time and place. However, m-learning is distinguished by using modern
laptop computers, digital cellular and smart devices such as iPads, iPods and iPhones.
The main characteristic of these modern devices is the ability to access the internet
anywhere with no need for a physical connection to cable or local network. This style
of learning enables learners to access educational contents and communicate with
instructors with maximum flexibility. Therefore, m-learning is one of the e-learning
styles which is recognised by the use of modern portable computers and smart devices
which gives the learners the maximum flexibility to learn anywhere and anytime.

In conclusion, the term e-learning can be used as a general name for all kinds of
learning which uses information and communication technologies and online
technologies. Brown (2003) concluded that “the term e-learning covers a wide set of
applications and processes, including computer-based learning, web-based learning,
virtual classrooms and digital collaboration” (p. 4). Nassuora (2012) also defined e-
learning generally “as learning through electronic devices such as desktop / laptop
computers, smart phones, CD / DVD players, etc …” (p. 1). However, Brown (2003)
argued that “e-learning is defined more narrowly than distance learning, which would
include text-based learning and courses conducted via written correspondence” (p. 4).
In the present study, the term e-learning is used for all learning styles that use
information and communication technology, online technology and the most recent
smart devices. The term includes all degrees of implementing these technologies from
minor use of technology to enhance traditional face-to-face learning to the fully online
courses including learning which is not part of official courses.
**d-learning (distance learning):** learning from distance which includes learning depending on mail and phones for communication and fully online learning.

**e-learning (electronic learning):** learning using electronic devices and online technology including partial usage of technology to fully online courses.

**m-learning (mobile learning):** learning using mobile phones, smart devices and online technology for communication.

**Figure 2.1: The place of m-learning as part of e-learning and d-learning**

(Diagram by Georgiev et. al. (2004))

### 2.4 Types and levels of e-learning

E-learning has been categorised in the literature into types and levels with different categorisation standards. This section reviews the literature that classified e-learning with different standards and views.

#### 2.4.1 Flexibility classification

In order to classify e-learning types, Fletcher (2001) emphasised that the degree of flexibility in study time (period/access time) and place is the key feature that enables educators to identify different types of e-learning. For example, Holstead, Spradlin and Plucker (2008) classified e-learning as either part-time or full-time virtual programs, highlighting that in part-time programs student access to the system is optional to get course material or additional information, while in full-time programs the entire course...
is provided online. Hosie and Schibeci (2005) argued that flexibility of delivery is on a scale that enables educators and learners to distinguish between different kinds of e-learning and distance learning. They argued that “flexible delivery refers to the degree to which learning is flexible and depends upon:

- The range of course delivery options available;
- The degree of student choice (tailored content, learning style, modularity, etc.) built into course design.” (p. 886).

In other words, flexibility of learning is the extent to which learners can choose what, where, how, and when to study. These categorisation dimensions can be used to categorise various kinds of learning including e-learning. For example, e-learning can be categorised into synchronous and asynchronous or full-time and part-time e-learning.

**2.4.2 Level of interaction classification**

The interaction between the user and the e-learning system can occur in different ways and levels. Nichols (2008) based the categorisation of e-learning on the level of interaction with e-learning. He stated that interactivity “can mean anything from the ability to click on a link to another webpage, through to full interpersonal discourse” (p. 4). In addition, interaction implies the level of learners’ usage of online mode in order to achieve their study requirements. For example, according to Hosie and Schibeci (2005) the Australian Federal Department of Employment Training and Youth Affairs describes three modes of online instruction: web supplemented, web dependant and fully online. They argued that participation online for the web supplement mode is optional for the student. Enrolled students can access information on units of study that is additional to that available in the university’s calendar or handbook. The information may include course description and study guides, examination information, assessment overview, reading lists, and other online learning resources. The information is used to supplement traditional forms of delivery. (p. 885)

They discussed that participation online for the web dependant mode is a compulsory requirement although some face-to-face component is retained. Students must use the web both to interact with content and to communicate with staff and/or other students. For the fully online mode “there is no face-to-face component. All interactions with staff and students,
education content, learning activities, assessment, and support services are integrated and delivered online. (p. 885)

In the same context, Saalem (2006) argued that e-learning can be offered with a different degree of e-learning contribution in the learning process. The author discussed how e-learning can be used as an optional tool to support the traditional face-to-face style of learning. This style depends basically on the traditional style with a small amount of e-learning contribution to increase the learners’ interactivity with the educational content. With more contribution of e-learning with traditional style, the author discussed the blended learning which requires the integration of traditional and e-learning style. With blended learning the learner is required to contribute in both style of learning (face-to-face and e-learning) to achieve the course requirements. The author goes on to discuss a third level of using e-learning which is the virtual learning or fully online learning. Virtual learning depends on the e-learning style completely with none of the traditional face-to-face style. This style of learning is commonly offered for off-campus learners who are not required to attend physically to any of the course activities.

The OECD (2005) divided e-learning according to the level of ICT utilisation into four different types; all cases are campus-based institutions or courses. They were divided according to the degree of the use of internet or other online networks for learning purposes. The four types were:

- Web-supplemented courses: the focus of this type is on classroom-based method but there are some electronic services included such as email, online resources and other online documents.
- Web-dependent courses: internet is required to be used for key elements, but without significant reduction in the classroom time.
- Mixed mode courses: classroom time can be replaced by e-learning, but campus attendance is an important part of the mix.
- Fully online courses: no time and place restrictions.

This mode of classification helps learners to better understand the requirements of the e-learning course. While learners have different attitudes towards e-learning, understanding the level of online utilisation helps them to take the right decision to enrol in an e-learning course or not. This understanding also helps learners in general
and learners with a more negative attitude towards e-learning to manage e-learning courses properly.

2.4.3 Teaching strategy classification

Another point of view is that any e-learning program should benefit the learner pedagogically. It should not be just a new teaching style that includes attractive media, it should implement a variety of teaching and learning strategies that help learners. For example, a pedagogical-based classification approach has been made by Kausar et al. (2008) where they classified e-learning into different types according to the teaching strategy used with e-learning as follows:

- **Drill and Practice**: helps to improve knowledge levels by assisting students in recalling and utilising information that the tutor previously presented.
- **Computer Tutorial**: helps to improve knowledge and comprehension levels through providing a dialogue between students and the computer.
- **Instructional Games**: help to maintain a high level of student interest and to reinforce factual knowledge for students.
- **Simulations**: help to improve analysing skills and the ability to make decisions.
- **Problem-solving Software**: helps to improve level of analysis, synthesis, and evaluation for learners.
- **Discovery-environment**: gives the learner the opportunity to freely determine specific information presented in each session.

According to this, each type should be designed partially to support a specific area of the learning or training that will improve the learning outcomes overall. This specification helps e-learning designers to implement most of the teaching and learning strategies in the e-learning systems to meet most of the learner requirements. Meeting learning requirements is an advantage of any e-learning system which makes it useful for more learners in the educational institution.

In conclusion, there are different views about e-learning classification with different classification standards. Some have argued that the degree of flexibility in study time and place is the key feature that enables educators to identify different types of e-learning. Others divided e-learning according to the degree of interactivity and the use
of internet or other online networks for learning purposes. The third group categorised e-learning according to the teaching strategies used in e-learning. Each group emphasised the characteristics of e-learning that are important for them in e-learning and benefits their desires to implement e-learning. Having different views is desirable in these kinds of issues because it enables educators to think about different dimensions and then to take the most appropriate decision. In the present study, the most important aspects regarding e-learning categorisation are the flexibility in time and place. The reason is that the other categorisation criteria can be included by time and place issues. For example, when users decide how much they will interact with e-learning and if it is compulsory or not they will make their decision according to time and place restrictions. On the other hand, teaching strategies are not just for e-learning categorisation; it is a general way of categorising different kinds of learning. The three dimensions will help learners to make the right decision, however, time and place restriction is the key issue of using e-learning.

2.5 Advantages and disadvantages of e-learning

From the early stages of e-learning up to now some educators accepted e-learning and argued its positive aspects and others opposed e-learning and argued its negative aspects. Kulchitsky (2008) stated that “over the past decade, the advocates of distance education have reported overwhelming success from technology-mediated instruction, while the opponents continue to favour on-campus instruction” (p. 151). The argument about e-learning including both points of view focused mostly on two main concepts: the technical side and the pedagogical side of implementing computer and online technology in education. Saalem (2006) refers to the development of e-learning from the personal contributions of e-learning in some learning and teaching trials to the more systematic utilisation of e-learning in official learning programs. The proposed research study focused on the pedagogical issues of e-learning, emphasising its positive role in teaching and learning. This part of the research study can be considered as a vision of e-learning from the researcher’s point of view which has been created through analysing a variety of resources focused on and investigating the pedagogical aspects of e-learning. In general, those who can benefit from this study are teachers, lecturers, teacher students, research students and others who are interested in e-learning and implementing ICT in education.
2.5.1 Advantages of e-learning

One of the most useful aspects that can improve our understanding of e-learning is the way that educators see e-learning and its role in higher education. Educators and researchers discussed the positive aspects of implementing e-learning in higher education to provide insights of what e-learning can add to teaching and learning. On the other hand, understanding the disadvantages of e-learning clarifies the most appropriate way of implementing e-learning in education. In general, identifying the advantages and disadvantages of e-learning will lead to better implementing of e-learning. Knowing these factors helps decision makers in educational institutions to distinguish between the different systems or styles of e-learning appropriate for their institutions. The present study offers a good opportunity to understand advantages and disadvantages of e-learning before investigating user attitudes towards e-learning. Advantages and disadvantages of e-learning may have a potential effect on user attitude and use of e-learning. The main goal of the present study is to investigate user attitudes towards e-learning and the factors that could affect their attitudes positively or negatively.

2.5.1.1 Learning advantages

In order to compare between e-learning and traditional learning, Hawkridge and Wheeler (2008) argued that traditionally in distance learning tutors assess students’ work and comment on it with poor interaction between tutor and students. For example, students send their assignments to their tutor by mail and wait for the results to be sent back by mail while some of them, who can travel to the tutor, can meet the tutor in face-to-face sessions. On the other hand, Hawkridge and Wheeler (2008) argued that recently, with the huge development of technology and the integration of e-learning with distance learning, learners are able to interact with a tutor actively. They can, for example, attend lectures and get course materials online with a variety of communication tools which enable the learners to interact actively with tutors and other educational resources. In general, Ebenezer (2004) argued that generally well designed instructional software is more effective than instruction with no use of ICT. Goldenberg (1996) and Cheney (1996) cited in Kausar et al. (2008) declared that students who experienced interaction with online instruction gained better working knowledge. Alshumaimeri and Almasri (2012) investigated the impact of the use of e-learning on students’ performance in one of the Saudi Arabian universities. The study
found a positive impact of using e-learning on students’ performance compared to students who did not use e-learning in the same class. Rush (2008) added in the same context in his case study carried out in a university in the Middle East that “students acknowledged that having the resources, models, and links for exploration online where they can be revisited on demand was useful” (p. 692). Rush believed that interaction via online mode helps learners to develop their independent learning skills, analytical skills, and synthesising skills. Knowles and Kerkman (2007) confirmed that “students received more information and learned more than they expected in an online course” (p. 78). They encouraged other educators to practice teaching art history and other subjects online.

Researchers found that the benefits of e-learning helped students to be more positive towards learning compared with the traditional face-to-face learning. For example, Phillips, Gosper, McNeill, Woo, Preston, and Green (2007) reported that academic staff and students were positive about their experience of using e-learning. Students agreed that web-based lecture technology (WBLT) “made it easier for them to learn and helped them to achieve better results” (p. 91). Students and academic staff were agreed that WBLT supported students who cannot attend classes for any reason. In general, they stated a positive attitude towards e-learning regarding the effectiveness of e-learning for higher education students. They reported that “students are largely positive about the effectiveness of online learning” and appreciate more flexible ways of studying (p. 862). Phillips et al. (2007) also reported that “staff perceptions were significantly less positive about the overall experience of Web-based lecture technology” (p. 862). However, according to Gosper et al. (2007) “staff agreed with students that WBLT could support students who cannot attend lectures for a range of reasons” (p. 862) such as distance from campus, disability circumstances, working and taking care of children. Furthermore Gosper et al. (2007) stated that “WBLT is a useful tool to engage external students in a richer learning environment” (p. 862). They added that “staff who have restructured their units to accommodate the changing needs of their students (for example, through increased use of online communication activities to replace physical attendance) have had more positive experiences with WBLT” (p. 863).

Computers and online technologies can be used in most cases as an additional tool not just as a substitute for other activities, such that the student can have the advantages of
e-learning activities in addition to the traditional activities. Olson and Wisher (2002) stated that “web-based instruction offers new advantages to the learner, such as interactivity with instructors and students and quick access to supplementary online resources” (p. 3). Falloon (2011) stated that online interaction between students and teachers “improves attitudes, encourages earlier completion of coursework, improves performance in tests, allows deep and meaningful learning opportunities, increases retention rates, and builds learning communities” (p. 188). Braun (2008) justified these advantages that “student inhibitions can actually be lowered by removing any psychological or social barriers existing between student and teacher” (p. 67). The study reported that, by using online communication through online instruction, the levels of quality interaction between students and teachers increased. The study argued that students have the opportunity to think more deeply when responding to email or online discussions compared with a classroom response situation where students might feel anxious when responding face-to-face. Braun (2008) added that “issues of interaction can be overcome with quality content and the prevailing need from the student for independence and flexibility in completing coursework” (p. 85). Phillips, Gosber, McNeill, Woo, Preston and Green (2008) also reported that the use of online lectures and communication technologies “can reduce the sense of isolation and help to connect external students to their lecturers and to each other” (p. 91).

The value of e-learning is strongly related to its benefits for academic staff and students. Kirby, Sharpe, Bourgeois, and Greene (2010) stated that “students felt that they developed important and highly useful skills as a result of their online learning experience” (p. 172). For that reason, students reported positive perceptions of e-learning and using online technology in education. In the same context, Gormley, Collins, Boohan, Bickle, and Stevenson (2009) stated that “undergraduate medical students value the use of e-learning in their clinical skills studies; however students vary in their approach to and utilization of such learning environment” (p. 10). According to the study findings, the majority of students (81 – 89 %) reported that e-learning had a positive impact on their learning of clinical skills, it encouraged them to practise their clinical skills on real patients, and it was useful in terms of revision and exam preparation. Li, Price and Fu (2011) stated that students were positive towards e-learning and they intend to use e-learning in their future work as teachers because it “enhanced the class instruction, motivated the learners’ involvement and promoted
learning outcomes” (p. 40). Nehari-Talet (2007) examined students’ perceptions of the benefits and the efficient use of Online Teaching and Learning (OTL) in King Fahd University for Petroleum and Minerals. The study attempted to investigate the difference between two groups of students regarding their Grade Point Average (GPA) towards the following five benefits:

- Understanding the material is better with online vs. traditional ways;
- Improve students’ responsibility;
- Improve students’ confidence;
- Increase the students’ knowledge;
- Help students improve their critical thinking.

The study found that students with higher GPAs were aware that e-learning improves their responsibility, confidence and thinking skills. The study also found that students in theoretical courses were more positive towards the use of OTL than students in applied courses regardless of their GPAs.

Kausar et al. (2008) identified the necessity of student interaction in e-learning as a major advantage of e-learning in that the student, by necessity, is required to respond using computer peripheral hardware and to be an active participant in the learning process. They argued that being active in the learning process will increase the opportunity to contribute more in the learning process and this can lead to better outcomes. Kausar et al. (2008) did an experimental study to compare the learning effects of two groups (from three colleges in Faisalabad city) studying the same computer science curriculum. One group used a traditional style and the other used e-learning. The study concluded that the e-learning mode proved to be significantly superior to the courses and improved students’ skills of academic research. In addition, students’ skills of analysis and synthesis showed significant increase. They added that interaction with online learning is benefitting human resources by opening up a greater number of training topics required for job advancement and providing new skills in using technology in learning processes.

There are some factors which affect users’ interaction with e-learning, such as, motivation, self-sufficiency, self-management skills, and support as these affect student
learning positively. Ladyshewsky (2004) discussed the role of student autonomy and motivation to positively affect the learning process which can be offered by e-learning more efficiently than traditional face-to-face learning. The researcher argued that self regulation, organisation and responsibility, in addition to support from family and friends can influence interaction with e-learning and student learning. Ladyshewsky examined the performance of 1401 final grade students in nine units offered in both face-to-face and e-learning mode over the course of two years. The students’ performance, on average, was at least as good as, if not slightly better, in e-learning mode compared to face-to-face mode. Ladyshewsky (2004) reported that there were differences in learning outcomes between face-to-face and e-learning delivery modes and that “when high degree of pedagogical thought goes into the design and delivery of EL, and is supported by adequate resources, positive educational outcomes can be achieved by students” (p. 333). Falloon (2011) also argued that using online technologies in education “enhances student motivation and engagement; supports group identity and community formation; allows for timely, high-quality feedback provision; and assists students in structuring their learning and identifying study priories” (p. 189). In the same context, Tubaishat, Bhatti and EL-Qawasmeh (2006) found in their case study in two universities in Gulf countries that “studying in a technology mediated learning environment could improve motivation and confidence level of students” (p. 676). They stated that use of technology improved students’ communication skills, allowed students to be more independent, allowed students to express their feelings and ideas more openly with others. Therefore, the use of e-learning influences students’ motivation, confidence, engagement; and supports group identity and community formation, self regulation, communication skills, organisation and responsibility. These aspects, in addition to adequate resources and learning strategies, influence student interaction and performance in e-learning courses. These advantages may perhaps be the reasons for the positive attitudes towards e-learning.

**2.5.1.2 Flexibility advantages**

According to Changchit and Klaus (2008)

> there is a higher demand for more flexible and convenient methods in obtaining a higher education. Also, there is a need to teach students to incorporate technological proficiency into their everyday education to meet the demands of many jobs today which require a more technologically savvy workforce. (p. 34)
Advantages of using information and communication technologies and online technologies in education are discussed in the literature from different perspectives. Macpherson, Homan and Wilkinson (2005) discussed the advantages of e-learning based around two main ideas: the cost advantages and flexibility in delivery. They argued that “the cost advantages centre on reduced training time, the costs saved in travel and time away from the job, and the ability of e-learning to serve large number at one time” (p. 36). Therefore, flexibility of e-learning saves cost and effort because it saves training time, travelling time and working time. Olson and Wisher (2002) added in the same context that the use of computers and online technology in education and training reduces the cost of instruction, reduces the time of instruction, and increases the effectiveness of instruction. Reducing time and effort in addition to increasing instruction effectiveness by e-learning are the main reasons for saving costs of education. Educational institutions can use the saved cost to improve other services offered to students and instructors or, for example, to increase opportunities for education. According to this, appropriate implementation of e-learning can save money and effort or can give more advantage with the same cost.

One of the most important advantages of e-learning, especially in Saudi Arabia, is that e-learning can increase opportunities for students to receive higher education. This advantage can be considered as a result of the flexibility of e-learning in delivery and cost saving as there is a strong relationship between them. Phillips (2008) stated that the use of web-based lecture technology (WBLT) “has provided internal and external students with a high degree of flexibility in access to lectures” (p. 91). Holstead et al. (2008), in a policy brief, examined the main aspects of e-learning to provide an overview of e-learning in the USA. They stated that the primary reason for applying e-learning in the USA is to expand the opportunity for more students to access education. Kulchitsky (2008) also stated that distance learning programs which use online learning offered by different universities in different countries are increasing the opportunities for students to attend higher education internationally.

Ladyshewsky (2004) emphasised in the same context the chance of eliminating time and place barriers through e-learning. Flexibility advantages can be offered by all types of e-learning with different degrees. The reason is that using ICT in education in general makes the time and place issues easier to manage and this may lead to savings
in cost, time and effort. Ryan et al. (2001) emphasised flexibility advantages of e-
learning that

legitimate eLearning is more likely to:
- focus on the needs of the learner, not the trainer or institution;
- take advantage of the net: real-time, 24/7, anywhere, anytime;
- bring people together to collaborate and learn;
- personalize, often by combining ‘learning objects’ on the fly;
- offer more than one learning method;
- incorporate administrative functions such as registration, payment … monitoring
  learner progress, testing, and maintaining records. (p. 1604)

In the same context, Al-Fahad (2009) investigated the perceptions of university students
from different colleges towards effectiveness of mobile learning in their studies as one
of e-learning styles. Mobile learning, according to Al-Fahad (2009), is one of the styles
of e-learning which depends basically on mobile devices such as mobile phones and
laptop computers. Students in general reported a positive perception towards m-
learning as one of the e-learning styles by referring to its flexibility of access and
learning. Al-Fahad (2009) stated that “the majority of students supported the notion
that wireless networks increase the flexibility of access to resources in learning and that
they could work independently of variable resources like lab or library PCs” (p. 8).

In conclusion, there are two main advantages of e-learning that are strongly related to
the other advantages, and these are: learning advantages and flexibility advantages. The
reason is that the two advantages are related to learner attitude and use of e-learning.
Flexibility in delivery is recognised as one of the main reasons of positively affecting
learner use of e-learning and their attitude towards e-learning. Interaction with e-
learning which affects learner attitude may increase student engagement with
educational activities in order to accomplish study requirements. Other advantages of e-
learning are strongly related to these two main advantages such as increasing learning
opportunities, learner motivation and positive learning outcomes. For example,
flexibility of e-learning which eliminates time and place restrictions, possibly decreases
the cost for learners such as transportation, accommodation and for educational
institutions such as buildings and increased number of teaching staff. This possibly
increases learning opportunities for learners who have circumstances that prevent them
from attending traditional learning. Another example is that positive interaction with e-
learning probably positively affects learner motivation which in general causes positive learning outcomes.

2.5.2 Disadvantages of e-learning

Despite the perceived benefits of e-learning mentioned above, some literature reported some disadvantages of e-learning. This section discusses two main disadvantages of e-learning: learning disadvantages and flexibility disadvantages. All other disadvantages are strongly related to these two disadvantages, such as, difficulty communicating with others, lack of experience of face-to-face communication and the need to have a high level of self-discipline (Bleimann, 2004; Bouhnik & Marcus, 2006; Hamburg, Lindecke & Thij, 2003; Liaw, 2008). Macpherson et al. (2005) and Bleimann (2004) added technology problems as a disadvantage of e-learning.

2.5.2.1 Learning disadvantages

Hamburg et. al. (2003) argued that lack of actual face-to-face social interaction is one of the main disadvantages of e-learning. For example, body language is one of the effective tools that positively enhance the social interaction between students and instructors. Others such as Bleimann (2004) argued that isolation of learners is one of e-learning disadvantages related to interaction between learners and instructors. They argued that face-to-face communication in the classroom prevents the student from feeling isolated compared with being in a study room alone studying online (often in fully online courses). There are some disadvantages related to the use of computers and the internet which represent important components of e-learning. For example, Tekinarslan and Gurer (2011) stated that “the students who use internet with higher frequencies for chat, entertainment and social networking are more likely to have problems related to social comfort, loneliness/depression, distraction and diminished impulse control” (p. 1048). However, they stated that those students are affected more than “those of the students who use internet for educational purposes, information searching, e-mail and news reading” (p. 1048). According to Smith (2001) cited in Kulchitsky (2008) “students in high-tech programs face a number of unique challenges, including:

- difficulty communicating with team members;
- less spontaneity in discussion;
- a lack of experience with oral presentations;
the temptation for less motivated students to disappear for extended periods of time” (p. 156).

Stahl (2005) argued that “students who are not comfortable with computers [and] who have little self-efficacy in computing find it hard to use the technology to its full potential” (p. 104). He added that students using e-learning take more responsibility for their learning which makes them subject to higher demands. Hamburg et. al. (2003) stated that “e-learning as a variant of self-governed learning requires new abilities and capacities of teachers and learners, that contains as well opportunities as risk” (p. 11). They argued that students who do not have these abilities will find self-governing learning will quickly end in learning frustration. Nedelko (2008) in the same context argued that the success of participants depends on their “skills for working with computer and modern ICT” and their “personal characteristics and readiness for such a way of education” (p. 2). The disadvantages can be avoided with some self-control and awareness by users. For example, with more practising of interaction with colleagues and instructors, the learner will have experience and the skills to interact appropriately. Alshumaimeri and Almasri (2012) investigated the impact of the use of e-learning platforms (WebQuest) on students’ performance. The study found that the use of e-learning had a positive impact on students’ performance. However, academic staff and students need to be trained in order to use the e-learning platform more effectively and this is one of the important requirements of implementing e-learning. In addition, oral presentation can be experienced through online audio and video softwares with no need for physical attendance. Therefore, the disadvantages of e-learning can be avoided but the advantages cannot be ignored especially for the younger generation who are growing up in the computer and technology age.

2.5.2.2 Flexibility disadvantages
Changechit and Klaus (2008) stated that “in recent years, higher education institutions have faced changes in their student demographics as more and more students no longer fit into the traditional young, full-time, in-residence profile. As the demographics change, so do the educational needs” (p. 34). Disadvantages of anytime/anyplace are strongly related in the literature to the high cost of e-learning. Nedelko (2008) explained the high cost issue by stating that “each participant must own a computer and adequate internet connection” (p. 2). Stahl (2005) argued that “the use of technology
will mean higher costs of education, which, in most cases, will have to be paid by the students” (p. 104). On an organisational level, Hamburg et. al. (2003) argued that e-learning has a high cost for educational institutions because of the “high initial costs for preparing multimedia content of learning materials and also substantial costs for its maintaining and updating” (p. 11). Stahl (2005) stated that for educational institutions “providing the technological infrastructure needed for taking advantages of modern e-teaching opportunities is costly” (p. 104). However, educational institutions will save cost in a long term plan by saving time and effort for students and instructors and when increasing the effectiveness of instruction. Indeed, it looks as if at the beginning of implementing e-learning that the institution is investing too much money because of the high cost of infrastructure and technologies. However, as a long term plan the institution saves more money by saving time, effort and increasing instruction quality than invested in infrastructure and technology.

In conclusion, the disadvantages of e-learning are strongly related to interaction disadvantages and cost disadvantages. The interaction disadvantages are related to difficulty communicating with others, lack of experience of face-to-face communication and the need to have a high level of self-discipline. It is also related to being in a study room alone studying online makes students feel isolated compared with communication in the classroom that prevents students from experiencing this emotion. The cost disadvantages are related to the high initial costs for infrastructure, preparing e-learning materials, maintaining and updating e-learning.

When comparing advantages and disadvantages of e-learning, both are strongly related to two main aspects: interaction and cost. The advantages of e-learning have been argued to benefit most learners except learners having problems dealing with technology or those who experienced personal and learning problems because they over-engaged with technology. In other words, some disadvantages affect some situations but not others. For example, high cost disadvantages are not big issues for wealthy countries or wealthy organisations compared with the benefits that will be gained from e-learning. The reason is that they do not have problems with initial costs and they will get more benefits from e-learning such as more opportunity for education and quality education.
2.6 E-learning Evaluation

Any e-learning system provides a number of features and services which are designed to help users to have the maximum engagement with and benefits of the learning process. Different e-learning systems and platforms provide different features which to some extent characterise each e-learning system or platform. These particular features actually should be evaluated accurately when evaluating or choosing any of e-learning systems in the market. Understanding e-learning enables educators to better implement online learning in their institutions (Mitchell & Geva-May, 2009). Mitchell and Geva-May (2009) recorded factors that educators and decision makers should focus on to implement successful online learning in higher education institutions. These factors are institutional change, support, cost-benefit, intellectual reluctance and job change.

Students also should understand e-learning and its benefits for them in terms of usefulness for learning and effectiveness for their future job. Changchit and Klaus (2008) stated that “a university should promote online courses in such a way that students understand that the online courses are useful and that online courses do not have a significantly different level of difficulty than traditional courses” (p. 40). They reported four main demographic factors that can positively impact a learner’s preference towards e-learning (which can be used to develop evaluation systems). They argued that universities should consider: employment status, distance from home, whether they have taken an online course previously, and currently take an online course. Others, such as Muhamad, Mansor and Lily (2010) stated that “learners’ characteristics that should be taken into consideration are working experience and attitude towards computer. Courseware characteristics that [are] regarded as important are textology, immediate feedback, and multimedia elements” (p. 25). For example, Braun (2008) stated factors particularly affecting student attitude are flexibility, quality of instruction, interaction, and previous experience with online mode. Other researchers focused on the interaction as the main factor which affects the use of e-learning. For example, Wilkes, Simon and Brooks (2006) reported that students were more positive than faculty academic staff while both of them valued interaction in online learning courses. Bolliger and Shepherd (2010) focused on individual differences: “we are part of a society that highly values individual differences. Learning environments should be designed to accommodate adult learners’ individual differences” (p. 311).
2.6.1 Importance of evaluating e-learning
Evaluation according to Rahmat and Saudi (2007) is an assessment of knowledge or achievement. It involves a data collection process for making a decision for an individual or group depending on specific rules and standards. Accordingly, to produce a higher quality product that fulfils user needs and ensures the process of teaching and learning, educators and designers should carry out systematic evaluation of the educational product. This demonstrates the importance of the evaluation of any learning approach or technology. Evaluation is an important procedure that educators should undertake before integrating e-learning as a new way of learning and teaching. Jorgensen (2008) argued that evaluating an e-learning system is one of the key factors which will allow learners to concentrate on the course material more than course layout, structure, and language. Ho et al. (2009) argued that the advantage of selecting an optimal virtual learning environment system (VLE) is to facilitate faculty members’ involvement in the management of module contents and also enhance the learning experience of students through the assessment, evaluation, and communication tools. Therefore, an evaluation and selection of VLE system is a critical strategic decision for a higher education institution. (p. 7)

Ho et al. (2009) emphasised the importance of evaluating e-learning systems used in higher education, because they “can support the decision makers of universities in reviewing existing VLE systems and determining whether it is necessary to replace the existing systems by a better one” (p. 27). They argued that “certainly, the selection and adoption of an appropriate VLE system in a university is beneficial to its stakeholders in terms of teaching and learning” (p. 27). Ho et al. (2009) argued finally that e-learning system evaluation can support systems developers in “analysing their strengths and weaknesses, and also identifying the opportunities and threats against the competing systems” (p. 27).

2.6.2 Decisive factors in evaluation
It is obvious from reviewing the literature that most researchers involved in the evaluation of e-learning systems are focussing on students’ and faculty members’ needs and requirements (Al-Turki & Hawsawi, 2003; Aytac & Deniz, 2005; Banwet & Karunes, 2003, 2004; Denton, Kleist & Surendra, 2005; Duffuaa, Shaney, Chou, 2004; Hwarng & Teo, 2001; Jaraiedi & Ritz, 1994; Thakkar, Deshmukh & Shastree, 2006,
Wiklunda & Wiklunda, 1999, cited in Ho et al. 2009). For example, Mlitwa (2007) argued that generally “EL should meet users’ needs, expectations, and should be easy to use” (p. 60). Hess et al. (2005) argued that “educators, administrators, and institutions need tools and methods to evaluate whether their courses and programs meet the requirements of accreditation, policy-making, and funding agencies in addition to meeting the needs of their students and faculty” (p. 2). They explained that “delivering effective instruction on the internet tends to be more complex due, at least in part, to concerns about the technology skills of students, availability of universally-accessible resources, and clarity of expectations and requirements” (p. 2).

Stakeholders’ requirements were emphasised by Ho et al. (2009) as the main consideration from which to derive the evaluation criteria. These requirements were translated by Ho et al. (2009) to e-learning systems’ features and tools to provide a checklist which can be used to evaluate any e-learning system to be implemented in higher education. They proposed five criteria to be evaluated: technology, communication, pedagogy, resources, and support. Table 2.1 shows how these were linked to stakeholders’ requirements and features of EL systems.

### Table 2.1: Stakeholders’ requirements and system tools and features (Ho et al. 2009)

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Stakeholders’ requirements (matched elements)</th>
<th>Online system features and tools</th>
</tr>
</thead>
</table>
| **Technology** | - Upload/download documents and course work efficiency.  
- Customize displaying layout and appearance.  
- Get started easily. | - System speed.  
- Multiple file uploads.  
- Search engine.  
- User interface.  
- Ease of navigation.  
- User-friendly. |
| **Communication** | - Communicate and collaborate with others.  
- Provide e-mailing support. | - Discussion boards/forums.  
- Instant messaging.  
- Community network. |
| **Pedagogy** | - Find and locate documents and course information easily. | - Course design.  
- Grades viewing.  
- Digital drop box.  
- Appointments making.  
- Announcement. |
| **Resources** | - Search for reference materials. | - Link to SITS.  
- Link to library IS portal.  
- Link to e-resource database.  
- Link to Webmail.  
- Alerting of new documents. |
| **Support** | - Provide after-sale service.  
- Be aware of unread documents/messages. | - Multi-language support.  
- Ease of maintenance.  
- Continuous product evaluation.  
- User manual/tutorial guide. |
Ozkan, Koseler and Baykal (2009) categorised evaluation criteria into three main issues: technical issues, social issues and support issues. Technical issues included system quality, service quality and content quality. Social issues included learner perspectives and instructor attitudes; and support issues included training and user help. Hess et al. (2005) however, described seven main domains for evaluation of e-learning courses. These domains and their evaluation criteria are described in Table 2.2.

### Table 2.2: EL evaluation domains and related specific criteria (Hess et al. 2005)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Content description (evaluation criteria)</th>
</tr>
</thead>
</table>
| **Online design and organization** | - Aesthetics (course look and feel)  
|                                   | - Accessibility  
|                                   | - Usability  
| **Instructional design and delivery** | - Clarity of objectives  
|                                   | - Organization of materials  
|                                   | - Utility of resources  
| **Student assessment**            | - Clarity of assignments  
|                                   | - Integration of assessments with instruction  
|                                   | - Quality of formative feedback  
| **Technological support**         | - Hardware requirements  
|                                   | - Software requirements  
|                                   | - Technical support contacts  
| **Communications**                | - Flexibility of communication vehicles  
| **Interactions**                  | - Instructor and peer interaction  
|                                   | - Quality and quantity  
| **Student characteristics**       | - Technological capabilities and proficiencies  
|                                   | - Reasons for taking online course  
|                                   | - Time commitments  

Hosie and Schibeci (2005) described an e-learning evaluation checklist as “based on the determination of critical elements within three main areas that describe the complete online setting: pedagogies include the learning activities that underpin learning; resources refer to the content and information provided for the learners; and delivery strategies are concerned with issues associated with the ways in which the course is delivered to the learners” (p. 888). Table 2.3 shows the criteria under each of the three main evaluation areas:
Table 2.3: EL evaluation main areas and their elements (Hosie & Schibeci, 2005)

<table>
<thead>
<tr>
<th>Evaluation main area</th>
<th>Evaluation elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogies</td>
<td>- authentic tasks</td>
</tr>
<tr>
<td></td>
<td>- opportunities for collaboration</td>
</tr>
<tr>
<td></td>
<td>- learner-centred environments</td>
</tr>
<tr>
<td></td>
<td>- engaging</td>
</tr>
<tr>
<td></td>
<td>- meaningful assessment</td>
</tr>
<tr>
<td>Resources</td>
<td>- accessibility</td>
</tr>
<tr>
<td></td>
<td>- currency</td>
</tr>
<tr>
<td></td>
<td>- richness</td>
</tr>
<tr>
<td></td>
<td>- purposeful use of the media</td>
</tr>
<tr>
<td></td>
<td>- inclusivity</td>
</tr>
<tr>
<td>Delivery strategies</td>
<td>- reliable and robust interface</td>
</tr>
<tr>
<td></td>
<td>- clear goals, directions, and learning plans</td>
</tr>
<tr>
<td></td>
<td>- communication</td>
</tr>
<tr>
<td></td>
<td>- appropriate bandwidth demands</td>
</tr>
<tr>
<td></td>
<td>- equity and accessibility</td>
</tr>
<tr>
<td></td>
<td>- appropriate corporate style</td>
</tr>
</tbody>
</table>

Jorgensen (2008) created the following criteria for evaluation of “e-learning systems:

- technical: all ICT used in EL system;
- instructional: learning and teaching activities;
- user Interface: interaction between users and the system;
- page Design: ease of tracing and following hyperlinks;
- writing and Language: ease of use;
- multimedia: animation, sounds, and graphics;
- interactivity: degree of interaction;
- question: ability to ask and answer different kinds of questions;
- testing: assessment;” (p. 16)

Hartman, Dziuban, and Moskal (2007) provided a number of criteria based on the capabilities of online systems. The criteria were:

- ubiquity;
- interactivity;
- multimedia capability;
- multilingual capability;
- multiplatform capability;
- multiprotocol capability;
- synchronous and asynchronous communication.
Jorgensen (2008) and Hartman et al. (2007) focussed more on the technological side and the appearance of e-learning systems. They emphasised the technical equipment and interface tools that communicate with the user directly. These objects facilitate the interaction between the e-learning system and users and affect their use of the system.

In conclusion, e-learning evaluation should mainly focus on users’ requirements and needs and the role of educational institutions is to identify these requirements and needs. For example, Hammami (2010) stated that “the electronic learning system is evaluated for three main components: the usability evaluation to cover the Graphical User Interface, easy to use, helpfulness and alertness; the fulfilment evaluation to examine the features incorporated in terms of reusability, interoperability, durability and accessibility; and the overall satisfaction” (p. 210). The diversity of evaluation criteria is one of the reasons for the success of e-learning implementation. The evaluation systems in the literature focused on three main aspects as reported in this section. Technological capability was one of important aspects that most evaluation systems involved it. The pedagogical strategies used with e-learning also considered one of the critical issues in evaluating e-learning systems. The third main aspect is the educational resources and support provided to help users during their use of e-learning. Measuring academic staff and student attitudes in the present study through the six attitude scales was focusing on the pedagogical aspects of e-learning. The study also measured their satisfaction towards e-learning platforms and particular tools which covers part of the technical aspects in evaluating e-learning. The first part of the study provided information about the resources and support in Saudi Arabian higher education. The three aspects (technological capability, pedagogical strategies and educational resources and support) are important in evaluating e-learning.
Chapter 3

Literature Review part 2: Attitude towards e-learning

3.1 Introduction
The previous chapter presented a review of the literature on e-learning in general while this chapter presents a review of the literature on attitude towards e-learning. This chapter is divided into several sections. This first section provides an introduction for the chapter. The second section reviews the literature that has investigated the attitudes towards e-learning held by instructors and students in higher education institutions. The third section presents the literature investigating satisfaction with e-learning in general. The fourth section presents the literature which has investigated the attitudes towards e-learning in Saudi Arabian universities. The fifth section reviews the literature that has investigated satisfaction with e-learning in Saudi Arabian universities. The sixth section presents the issues identified in the research on e-learning in Saudi Arabia. The seventh section presents the research questions for this study. The final section provides a general summary for the entire chapter.

3.2 Attitudes towards e-learning
This section focused on attitudes towards e-learning in higher education. It presents a number of the literature-investigated student and academic staff attitudes towards the use of e-learning, ICT and online technology in education. Aiken (2000) (cited in Yushau 2006a, p. 176) defined attitude as “a learned predisposition to respond positively or negatively to a specific object, situation, institution, or person”. Therefore according to Yushau (2006a) “attitude affects people in everything they do and in fact reflects what they are, and hence a determining factor of people’s behaviour” (p. 176). Yushau (2006a) added that “some educators defined learning as a change in behaviour. Since attitude is the determining factor of peoples’ behaviour, the issue then is critical in education” (p. 176). Sang et al. (2010) also stated that “attitudes towards computer use in education seem to be the strongest predictor of prospective computer use” (p. 109). Al-Khalid and Al-Jabri (1998) stated that “the attitudes of students towards computers are significant determinants of behaviour that may influence computer utilization” (p. 23).
Attitude towards e-learning was one of the effective factors which affected the success of e-learning implementation and use in higher education. Sang, Valcke, Braak and Tondeur (2010) stated that student teachers have a favourable attitude towards computers in education and they were interested to integrate computers into their future teaching practice. Educators argued that investigating student perception is an important aspect when applying e-learning in any context as a new learning strategy. For example, Changchit and Klaus (2008) argued that “since students have perceptions about online courses that influence their subsequent decisions whether or not to take online courses, it is important to understand the factors that surround perceptions of benefit towards an online course sitting” (p. 34). Gurbuz, Yildirim and Ozden (2000) stated that “student-teachers developed positive attitudes, their anxiety was lowered and confidence was increased with computers following the participation in a computer literacy course” (p. 352). They argued that understanding user perception and attitude towards online styles helps educators and designers to create better online courses that contain online tools and curricula which meet learner needs. Moallem (2007) added that “integrating student preferences for learning helps the course designers to improve interactivity and social presence in online learning environments” (p. 240). Attitude is one of the key factors that influence the use of new learning styles such as e-learning.

Particularly, positive attitudes towards computers were widely recognised as a necessary condition for effective use of ICT in education (Christensen & Knezek; 2009). Mitchell and Geva-May (2009) emphasised the importance of positive attitudes to influence online learning implementation. Yushau (2006) justified the role of attitude that “in most cases, positive attitudes are interpreted as an indicator the program may succeed. Otherwise, there is a tendency of failure, and so, the attitude needs to be modified or possibly changed” (p. 176). On the other hand, negative attitude towards e-learning could affect the success of implementing e-learning. Wilkes et al. (2006) reported that instructors had negative attitudes towards online learning. They found that “the relatively negative faculty attitudes towards online courses and degree programs could hamper efforts to successfully deliver quality programs” (p. 137). For these reasons, the present study focussed on student and academic staff attitude towards e-learning.
3.2.1 Attitude scales
There are several attitudes scales investigated previously in the literature. Some of them were used to measure attitude towards the use of computers in education and others were used to measure attitude towards the use of e-learning and online technology in education. Some research focused on academic staff attitudes while others focused on student attitudes. This sub-section discusses the attitude scales (towards computer, ICT and e-learning) in the literature.

Research found that anxiety, confidence and liking significantly affected users’ perceptions towards the use of computer and technology in education. Loyd and Gressard (1986) examined the effects of gender and amount of computer experience on the amount of computer anxiety, computer confidence, computer liking and computer usefulness through a staff development course. In general, the study suggested that the teachers as a whole had a fairly positive attitude towards computers. They found that “anxiety significantly decreased and positive computer attitudes significantly increased as a result of this experience with computers” (p. 302). They found significant relationships between computer anxiety and both computer experience and gender. Teachers with more computer experience were significantly less anxious about computer than teachers with less experience with computers. Female teachers were significantly more anxious than males. Computer confidence has a significant relationship with gender in that male teachers were significantly more confident towards computer than females. Computer liking has no significant relationship with gender or computer experience. Perception of computer usefulness has a significant relationship with computer experience in that more experienced teachers perceived computers to be more useful than teachers who had less computer experience. Many other studies have also investigated the same attitude scales and the questionnaire items used by Loyd and Gressard’s (Al-Khalid & Al-Jabri, 1998; Anderson & Hornby, 1996; Doolen, Porter, & Hoag, 2003; Francis, 1993, 1994; Francis, Katz, & Jones, 2000; Galanouli, Murphy, & Gardner, 2004; Kadijevich, 2008; Rosen & Weil, 1995; Sang et al., 2009; Selwyn, 1997; Woodrow, 1990, 1991). Some of these researchers used Loyd and Gressard’s instrument in its original form, whereas others used selected scales or items. The computer attitude scales developed by Gressard and Loyd was one of the most frequently used instruments to assess computer-related attitudes towards pre-service (students) and in-service teachers (Francis et al., 2000; Yushau 2006b). For example,
Francis (1994) developed a Hebrew language edition of this instrument for undergraduate students. He examined the reliability and the validity of attitude scales (computer anxiety, computer confidence and computer liking) used by Gressard and Loyd for further use among Hebrew speaking subjects and he encouraged others to develop other language editions. Francis (1994) found that the three scales were reliable when used with undergraduate students in university in Israel. He stated that “these scales can, therefore, be commended for further use in similar contexts” (p. 287).

Christensen and Knezek (2009) used the four scales developed by Loyd and Gressard (1986) (computer anxiety, computer liking, computer confidence, and computer usefulness) and developed additional attitude scales (impact on society, avoidance or acceptance, and productivity) to evaluate attitudes towards the use of computer and technology in education. They developed the additional scales to provide a broader picture of attitudes towards computers and technology.

Moreover, they reported that there was a significant relationship between school location and total attitude scores in their study, and also a significant relationship between the use of email and total attitude scores. According to Christensen and Knezek (2009) each scale in the Teacher’ Attitude towards Computer Questionnaire (TAC) can be used independently, so that “researchers or evaluators can choose to use only some of the scales and not others” (p. 150). In addition, the TAC instrument can be used in a multicultural environment which makes it appropriate for use in different countries.

In the present study, attitudes towards e-learning refers to the way that participants think about e-learning in terms of their e-learning acceptance, e-learning anxiety, e-learning confidence, e-learning liking, e-learning productivity and e-learning opportunity which all affect academic staff and students decision to use e-learning or learn about e-learning. Each scale had been examined by two questionnaires developed for the present study one for each of academic staff and students. Particularly, the present study investigated six attitude scales towards e-learning for students and academic staff. The attitude scales are: EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity. The Lloyd and Gressard Computer Attitude Scale consists of four attitude subscales: computer anxiety, which assesses fear of computers;
computer confidence, which assesses the confidence in the ability of dealing with computers; computer liking, which assesses the enjoyment of dealing with computers; and computer usefulness, which assesses the perception of the proliferation of computers in future jobs. Al-Jarf (2005a) investigated students’ attitudes regarding their e-learning usefulness and e-learning enjoyment. E-learning usefulness refers to the students’ intention to use e-learning in their future work. E-learning enjoyment is the extent of motivation to use e-learning.

3.2.2 The relationships between demographic and experience factors and attitude

There are a number of demographic and experience factors that affect attitude towards the use of computer and technology in education. This sub-section presents research investigating the factors which had significant relationships with academic staff and student attitude towards e-learning.

Loyd and Gressard (1986) found a significant difference in computer attitude between male and female teachers. Selwyn (1997) added that students’ gender was a factor which significantly affected computer attitudes. However, Francis (1993, 1994) reported no evidence of any significant relationship between gender and university student attitude in terms of anxiety, confidence and liking. Doolen et al. (2003), Uzunboyla (2007), and Sang et al. (2009) also found in general no direct significant relationship between teacher attitudes towards ICT integration and their gender. However, they recommended further research to clarify the relationship between gender and attitude. This controversial aspect increases the need to examine the relationship between gender and attitude towards e-learning which was one of the aims of the present study.

Doolen et al. (2003) argued that the age of undergraduate students is a significant factor that affects student attitude. Anderson and Hornby (1996) argued that previous experience is one of the most important factors in determining student attitudes. Loyd and Gressard (1986) also reported that computer experience was found to be significantly related to teachers’ attitude towards computers. Anderson and Hornby (1996) stated that experience with computers affects students’ attitudes that “the high level of involvement with computers in a course that dealt with on-line experimentation clearly led to more positive changes in computer attitudes than did courses in which
computers were more of a tool for teaching the course content” (p. 346). Loyd and Gressard (1986) also reported a significant relationship between teaching experience and teachers’ attitude.

In conclusion, attitude is one of the critical issues that could affect the use of e-learning and its level of success. Academic staff and students have different attitudes towards e-learning. There are several scales used to measure attitudes towards e-learning in the literature (such as e-learning acceptance and e-learning anxiety) which cannot all be investigated in one research study. In addition, there are other factors that affect the attitude towards e-learning such as demographic and experience factors. In the current research study, three demographic factors (age, gender and university), experience factors (teaching or studying experience) and IT experience (computer experience, internet experience and email experience) were investigated.

3.3 Satisfaction towards e-learning
Student and teacher satisfaction towards the use of e-learning is also an important factor which affects successful implementation of e-learning in education. According to Bolliger and Wasilik (2009) “student satisfaction is defined as the student’s perceived value of his or her educational experience at an educational institution [which] can influence students in their decision to continue with the course” (p. 104). For instructors, they defined satisfaction “as the perception that teaching in the online environment is effective and professionally beneficial” (p. 105). To sum up, the term satisfaction represents user perceptions about the value of specific online ways of learning or teaching that they have experienced in education. Bolliger and Wasilik (2009) stated that “faculty satisfaction is considered an important factor of quality in online courses” (p. 103). Chen, Lin and Kinshuk (2008) also stated that “in any user-oriented system or service, the satisfaction of users is one of the key factors in a successful implementation of e-learning programs” (p. 115). Hermans, Haytko and Mott-Stenerson (2009) stated in the same context that “student satisfaction is an important part of the effort to successfully market higher education. This is especially true given the rapid increase in on-line course offerings” (p. 1). The reason is that, according to Bolliger and Wasilik (2009), “it can impact student motivation and therefore student success and completion rates” (p. 114). They added that satisfaction
“is important and needs to be continuously assessed to assure quality online education experiences for faculty and students” (p. 114). Sinclair (2011) added that positive student satisfaction with online learning “leads to the desired outcomes that include continuing learning, student achievement, retention, and an improved institutional image (i.e., positive public relations)” (p. 9).

Ozkan et al. (2009) stated high overall learner satisfaction towards the METU-Online learning management system. Ropponen (2009) reported high learner satisfaction towards blended learning and they stated that “the combination of an Internet learning environment with workplace involvement was successful” (p. 88). On the other hand, Bolliger and Wasilik (2009) stated that “online instructors in university settings experienced average emotional burnout levels, high levels of depersonalization, and low levels of personal accomplishment” (p. 114). Accordingly, it is possible that levels of satisfaction may be either high or low, depending on the situation. Chen et al. (2008) argued that “any significant or critical incident in e-learning, whether positive or negative, has potential to affect the level of satisfaction. Positive critical incidents would probably increase the satisfaction, whereas negative critical incidents would affect negatively” (p. 115).

Positive satisfaction towards online learning has much potential to enhance student learning. Chen et al. (2008) argued that “high satisfaction reflects that learners are more willing to continue in online instructional programmes, resulting in lower attrition rates, more referrals from enrolled students, greater motivation, better learning achievement and increased commitment to the programme” (p. 115). Moallem (2007) added that “it seems that in online learning environments where social interaction, collaboration and problem solving are highly emphasized, it is likely that students’ perception of their positive learning experience influences their motivation and willingness to adjust their preferred learning style” (p. 238). They emphasised also that offering different learning styles according to users’ satisfaction might have a positive impact on student motivation and their level of effort and engagement in e-learning courses. On the other hand, Chen et al. (2008) argued that negative satisfaction, which may be caused by negative critical incidents, helps educators and e-learning systems’ designers to know exactly where the problems lie, or what they should do to correct weaknesses.
According to Chen et al. (2008) “the measurement of satisfaction is becoming very critical with the increasing popularity of e-learning and increasing use of learning systems. Researchers and decision-makers in academic institutions need to identify factors that affect learners’ satisfaction in the e-learning process in order to ensure that programmes are well designed and successfully run with desired outcomes. If an e-learning manager can solve negative critical problems, learners’ satisfaction would significantly increase” (p. 116). In the same context, Moallem (2007) argued that “integrating student preferences for learning helps the course designers to improve interactivity and social presence in online learning environments” (p. 240).

Chen et al. (2008) categorised incidents that affect users’ satisfaction towards e-learning into four categories: administration, functionality, instruction and interaction. The administration issues related to the management of the e-learning systems by administrators, for example, the security and privacy of personal information, offering updating information and services, and the ease of registration and enrolment procedures. The functionality issues are related to the degree of usefulness of the online tools and services offered by the e-learning system. For example, to what extent can users benefit from announcement systems or an online calendar? The instructional issues are related to effectiveness of pedagogical strategies and learning and teaching styles implemented in the e-learning system. The interaction issue is related to the online tools offered by the e-learning system to allow learners and teachers to interact with each other and with the educational content. Chen et al. (2008) found that instruction and interaction were the most important factors.

According to Hermans et al. (2009) interactions may be the key to ensuring students’ satisfaction, and the reason is that “social interactions are an integral part of satisfaction with others and removing opportunities for interaction between the student and instructor may inadvertently reduce a student’s satisfaction with the instructor and the class” (p. 14). Koh and Hill (2009) also emphasised that social interaction among students significantly affects students’ satisfaction towards online learning. Melton et al. (2009) also ascribed high student satisfaction towards online learning to the active learning and active teaching environments offered by blended learning. Hermans et al. (2009) reported a strong positive relationship between satisfaction with the instructor and satisfaction with the course. The study also identified other factors which have
significant relationships with students’ satisfaction: “satisfaction with the school, ease of use, flexibility, commitment, gender, and expected grade” (p. 14). Sinclair (2011) summarised the issues in the following way: “student satisfaction with online learning is linked to interaction and communication, course design, the learning environment, and individual student factors of computer self-efficacy and the ability to control an individual learning pace” (p. 8). Elebiary (2012) added that “computer skills are needed both in education and at work to improve general satisfaction and education” (p. 154).

3.4 Attitude towards e-learning in Saudi Arabian universities

Many studies have been done on attitude towards e-learning, but the literature presented in this section specifically investigated student attitude towards e-learning in a Saudi Arabian university. In order to make the implementation of e-learning and the developing of e-learning platforms and tools successful, there are a number of aspects that should be understood by educators and education policy makers. When discussing e-learning in Saudi Arabian higher education Al-Shehri (2010) suggested that “there is an urgent need to do major studies on the prospective e-learners to find out what their perception of e-learning is, what skills they have, and what they understand” (p. 150). Al-Harbi (2011) argued that attitude is an important factor that influences the use of e-learning by academic staff and students at Saudi Arabian universities. Nassuora (2012) argued that a user’s attitude is an important factor that university administration and e-learning designers should focus on when developing e-learning in Saudi Arabian higher education institutions. According to Al-Fahad (2010) “online environments cannot be effective and thrive without considering students’ needs and preferences. Online learning environments should be carefully design to maximize students’ satisfaction with these environments” (p. 70). Alfahad (2011) also suggested that “when designing course activities, e-learning instructors should be aware of students’ perception” (p. 9). Correspondingly, Nassuora (2012) stated that in a Saudi Arabian university “good perception and university policy supporting were two major factors that lead to success m-Learning system” (p. 5) (m-learning is one of e-learning styles). This section presents research studies that have been done in the Kingdom of Saudi Arabia investigating academic staff and student attitudes towards e-learning at university level.
Educators have investigated e-learning since it became part of higher education in Saudi Arabia. They focused on several aspects of e-learning in order to implement e-learning successfully. Student attitude was one of the aspects investigated in order to examine student preferences and level of use for e-learning. For example, Al-Harbi (2011) examined the factors that influence e-learning in Saudi Arabian higher education through analysing the attitudes of 531 students (39 % male and 61 % female) at King Abdul-Aziz University in Saudi Arabia. The study reported the results of a questionnaire developed and used to examine the e-learning acceptance attitude. The study reported that students had positive attitudes (e-learning acceptance) towards e-learning in general. Male students demonstrated higher e-learning acceptance than females. Male students also demonstrated greater intention to use e-learning than female students. Al-Harbi (2011) found that e-learning acceptance was the most important factor in terms of their attitude towards e-learning in determining their intention to use e-learning. The study results indicated three main factors that influenced the use of e-learning and found that students’ e-learning acceptance was the most important factor. Subjective norm (i.e., the influence of the important people around the student) and e-learning accessibility were also influential in the use of e-learning. E-learning acceptance was affected by several factors which were found significant in forming attitudes towards e-learning. These factors included university support, confidence in using the internet, the perceptions of e-learning usefulness, ease of use, self-efficacy and e-learning flexibility and interactivity. In addition, the study found that external students (who study off-campus studying from a distance and just come to university to sit exams) demonstrated stronger intentions to use e-learning. Nassuora (2012) investigated the e-learning acceptance of 80 students in Al-Faisal University in Saudi Arabia. The study found that e-learning acceptance is high and is one of the key attitudes towards e-learning. The study found that a positive attitude in terms of e-learning acceptance leads to the behavioural intention to use e-learning.

Yushau (2006a) examined the attitude of students towards e-learning in King Fahd University for Petroleum and Minerals. Data were collected from a sample of 70 students of the preparatory year program at the beginning and the end of the semester. The study used the Computer Attitude Scale (CAS) developed by Loyd and Gressard (1984) to measure students’ attitudes towards the use of ICT in education. Yushau (2006) reported positive attitudes towards computers in general, which was maintained
in both pre-program and post-program data. Analysis of variance showed a statistically significant change in students’ attitudes towards computer for computer confidence and computer anxiety. Al-Jarf (2005a) investigated students’ attitudes regarding their e-learning usefulness and e-learning enjoyment. E-learning usefulness refers to the students’ intention to use e-learning in their future work. E-learning enjoyment is the extent of motivation to use e-learning. She stated that students who used the Nicenet e-learning system in a Saudi Arabian university had a positive attitude towards e-learning. She reported that students found it useful and fun, and considered it a new way of learning.

Alenezi, Abdulkarim and Veloo (2010) examined the role of the attitudes enjoyment, computer anxiety, computer self-efficacy and internet experience in influencing students’ intention to use e-learning in five Saudi Arabian Universities (King Saud University, King Abdul-Aziz University, King Faisal University, King Khalid University and Aljouf University). The study included perceived enjoyment in order to clarify students’ behavioural intention in using e-learning from a motivational perspective. Computer anxiety was the fear of using a computer for learning purposes. Computer self-efficacy refers to the perception by people of their ability to use various computer software and hardware devices to accomplish teaching and learning tasks. Internet experience was defined as the extent of a person’s experience to perform specific tasks using the internet. There were 402 students investigated by a questionnaire adapted from prior research which consisted of 37 items. In general, the study reported a positive attitude towards e-learning in all investigated universities. They found that enjoyment, computer anxiety, and computer self-efficacy significantly influenced the students’ intention to use e-learning. On the other hand, internet experience was insignificant in influencing the students’ intention to use e-learning. In the same context, Robertson and Al-Zahrani (2012) investigated 325 Saudi pre-service teachers from the Faculty of Education at King Abdul-Aziz University in order to identify factors that affect their actual and perceived self-efficacy. The study findings revealed that “higher levels of pre-service teachers’ general self-efficacy are associated positively with computer access at the university, computer experience and related computer qualifications” (p. 1146).
Academic staff attitude towards e-learning has been investigated in Saudi Arabian universities in order to find its effects for the implementation of e-learning. Some educators reported positive attitudes towards e-learning and others reported negative attitudes. Elebiary (2012) investigated faculty members’ attitudes towards e-learning in order to explore their willingness towards e-learning as an alternative method of teaching in one of the Saudi Arabian universities. The study found that “most of the faculty members demonstrated strongly positive attitudes towards the use of computer, communication networking facilities, and willing to the adoption of e-learning program that would be more suitable to the educational needs of students” (p. 154). The study found that “attitude plays a vital role in using technology as a strong tool for a positive change. There must be programs at higher education institutions which could focus on developing a positive attitude among teachers towards e-learning and information and communication technology” (p. 155).

To sum up, academic staff and student attitudes towards e-learning is an important factor to be investigated in order to integrate successful e-learning in Saudi Arabian higher education. Previous research studies investigated student attitude in terms of e-learning acceptance, confidence, anxiety, usefulness, enjoyment, ease of use, effectiveness and satisfaction. In addition, the research investigated factors that affected student attitude such as computer experience, internet experience and university support. Academic staff attitude also has been investigated for e-learning acceptance and level of satisfaction in relation to factors affected e-learning attitude such as teaching experience, age, and university support.

The current research study will investigate some of the presented attitude scales in this section (anxiety, acceptance, confidence) and some additional scales such as e-learning liking, opportunity and productivity. It also uses some scales previously only used to measure student attitude to measure academic staff attitude. In addition, most of the presented research studies investigated the attitudes of academic staff only or students only in one of the Saudi Arabian universities. The present study will investigate the attitudes in four of the main universities to be able to compare between the different contexts and to give a wider vision about the current situation of e-learning in Saudi Arabia.
3.5 Satisfaction with e-learning in Saudi Arabian universities

Level of satisfaction is one of the aspects which influence students’ intention to use computer and e-learning. Al-Fahad (2010) investigated the satisfaction towards e-learning of 201 female students in King Saud University. The study reported high positive satisfaction by the majority of students (71.1 %). Al-Fahad (2010) stated that “participants were highly satisfied with the opportunity to interact with distance learning context, which can be a viable option to increase student satisfaction” (p. 70). Particularly, more than 70 % of students strongly agreed that e-learning will contribute to improving education in Saudi Arabia and it will be able to be a substitute for the conventional way of learning in the future. They also agreed that e-learning is becoming more acceptable and they prefer to study all courses in electronic form in the future. Alamro and Schofield (2012) investigated the level of satisfaction of students towards e-learning in Qassim Medical School. There were 130 students (91 males, 39 females) examined. They found that, overall, students had positive satisfaction from the use of e-learning in a blended learning form. They reported that students agreed that the use of e-learning with traditional face-to-face learning improved their learning experience, making learning more interactive and interesting. The study found that the majority of students agreed that using e-learning (particularly discussion forums) enhanced interactivity among participants (student-student and student-tutor collaborations).

Zouhair (2010) evaluated the level of satisfaction of the students towards e-learning after using Jusur at Prince Sultan University in Saudi Arabia. Overall, 92 % of students reported positive satisfaction. The research study indicated several reasons reported by students. Ease of use and usefulness were the main reasons for the very positive satisfaction. In addition, most students (almost 98 %) reported that the use of Jusur is exciting and enjoyable and it gave them the opportunity to interact with peers and instructors and to read instructors’ announcements. The research study indicated that 91 % of students would like to use Jusur in the future.

Alamro and Schofield (2012) investigated the level of satisfaction of academic staff towards e-learning in Qassim Medical School. There were 14 academic staff (10 males, 4 females) examined. They found that, overall, tutors had positive satisfaction from the
use of e-learning as a blended learning form. Zouhair (2010) evaluated the level of satisfaction of instructors towards e-learning after using Jusur at Prince Sultan University in Saudi Arabia. She reported instructors’ first impression about Jusur that “it is simple and intuitive front page, with an engaging interface; it doesn’t take very long to learn how to navigate the system” (p. 119). Zouhair (2010) reported instructors’ opinion about Jusur that “technical support is also available to instructors in the form of simple user manuals and workshops to train instructors on how to use the system and about the importance of promptly replying to any user queries” (p. 119). In general, instructors were highly satisfied with using Jusur in teaching at Prince Sultan University. In addition, instructors reported that Jusur saves their time answering students’ questions and communicating with them, especially female students. However, academic staff in this research study stated the importance of university support in terms of management and funding to increase the use of technology in education and e-learning.

Ali (2012) investigated the factors that influence nursing students’ satisfaction in King Khalid University in Saudi Arabia. The study found more than half of participants (female students) were unsatisfied with their experience with e-learning. The study findings revealed that “learners’ attitude towards computers, learners’ computer anxiety, e-learning course flexibility, e-learning course quality, technology quality, perceived usefulness, perceived ease of use, diversity in assessment, and learner perceived interaction with others are critical factors affecting learners’ perceived satisfaction” (p. 211). On the other hand, Alkhalaf, Drew and Alhussain (2012) investigated the impact of e-learning on university students in the Kingdom of Saudi Arabia. One of the study results confirmed that 60 % of participants were either satisfied or very satisfied with their experiences using e-learning. The study findings implied that using e-learning has increased students’ ability to interpret information accurately. Furthermore, the e-learning system has increased students’ understanding of the information and relevant activities in their departments. It also helps provide basic information, which, in turn, helps students take important decisions effectively and accurately, thus increasing the overall productivity of the process of teaching and learning. (p. 102)

Thus, these positive impacts were strongly related to the positive satisfaction of university students.
3.6 Issues identified in the research on e-learning in Saudi Arabia

The amount of research done on online learning and training in Saudi Arabia is considered to be limited (Aljahni, Obayya & Skinner, 2010; Alkhalaf, Drew, AlGamdi & Alfarraj, 2012; Nehari-Talet, 2007). However, several important issues have been identified in the research. In this section, issues of e-learning in Saudi Arabia are discussed in order to provide further background for the present study. In addition, understanding the rapid growth of the use of ICT in Saudi Arabian education (Alkhalaf et al. 2012) helps educators to understand the changes of user attitudes and compare them with attitudes reported previously. Some researchers such as Abu Hassana and Woodcock (2006) and Nehari-Talet (2007) investigated some general organisational aspects of implementing e-learning in Saudi Arabian universities, such as IT infrastructure, availability of skilled instructors and technicians, availability of students’ support, and providing e-learning in public and private schools. Others such as Junaidu (2004) and Mirza (2007) investigated student issues such as students’ motivation, time management skills, study habits and gender issues. Al-Jarf (2002) and others investigated some e-learning systems used in Saudi Arabian universities in terms of student achievement. However, this section focuses on issues identified in the research on e-learning in Saudi Arabia regarding the requirements for successful implementation of e-learning on the personal, organisational and pedagogical aspects. The main issues that have been identified are the matching between the demand and educational opportunities available, the organisational support needed and skills and techniques needed for successful use of e-learning.

3.6.1 Meeting the demand for education

A number of educators believe there is a need for e-learning in Saudi Arabia because of the mismatch between the demand of higher education and the capacity of higher education institutions (Alkhazim, 2003). According to Al-Dosari (2011) the need for e-learning in Saudi Arabia “is urgent, given demographic facts that 60 % of the overall population fall in the age category of less than 15 years. This means that those children and early adolescents need to be inducted into the technology of today which will be the basis of future development” (p. 404). Al-Dosari suggested that, regarding this issue in the Kingdom of Saudi Arabia, “online learning has the potential to bring new opportunities to higher education” (p. 395). Sait (2003) stated that
with over 50% of the country’s population under the age of 20 and one of the highest birth rates in the world, Saudi Arabian higher education institutions have been facing a growing demand for enrolment. The capacity growth rate of existing Saudi universities doesn’t match the current growth rate in the enrolment demand. (p. 8)

He argued that this has resulted in overcrowded classrooms with a consequent reduction in the quality of learning. The researcher suggested that “a viable eLearning system represents an excellent cost-effective solution to these problems” (p. 8). Saudi schools at various levels are also facing the same problem but on a much smaller scale.

Traditionally, e-learning programs are considered useful for adults who missed higher education, or those who are not able to attend traditional face-to-face classes. The rapid increase of population, rapid obsolescence of existing knowledge, and the rapid technological advances are challenging the higher education institutions in Saudi Arabia to provide additional educational opportunities for students. Al-Shehri (2010) stated that according to statistical information about higher education in the Kingdom of Saudi Arabia that “despite the recent impressive development and expansion of higher education in KSA, there are still not enough places in the universities to accommodate the large number of applicants and meet the growth of the population” (p. 148). Al-Shehri (2010) suggested that “part of the solution to this problem is to be found in E-learning” (p. 148). Al-Harbi (2011), discussing the same issue, stated that “despite a recent educational revolution in Saudi Arabian educational systems, the issue of access to higher education still remains one of the more enduring challenges. The need for more delivery modes that take education to learners wherever they are, and not within the boundaries of the campus, is thus necessary” (p. 31). Al-Harbi (2011) suggested that “e-Learning could dramatically increase access to tertiary education and training” (p. 31).

The other issue regarding the mismatching between the demands for education and opportunities offered by universities is the gender issue. Males and females in the Kingdom of Saudi Arabia study in a segregated environment for religious and traditional reasons. Saudi students are studying in separate gender-based environments so male teachers cannot teach females face-to-face and vice versa (Al-Jarf, 2007). Mirza (2007) stated that “boys and girls in Saudi Arabia are segregated in educational
settings from the first grade of elementary school” (p. 3). In addition, Tubaishat, Bhatti and EL-Qawasmeh (2006) stated that “cultural and social values in the Middle Eastern countries are usually based on gender segregation. This factor results in a lack of interaction, lack of confidence in communication and a lack of opportunity to meet and exchange ideas with members of opposite gender” (p. 676). Moreover, because of some traditional and cultural backgrounds, the chance for females to get higher education is lower than males; consequently the number of female lecturers is lower than male lecturers. Mirza (2007) argued one of the main reasons that taking care of the home and raising children properly was considered to be the most important job of a woman. Men were considered the breadwinners and hence, were more likely to seek higher education and to get government scholarships for completing master’s and doctoral degrees overseas. (p. 3)

Therefore, research has identified a shortage of female instructors in e-learning in Saudi Arabian universities (Baki, 2004; Mirza, 2007). Mirza (2007) stated that, while 40 % of King Saud University students were female in 2007, the female educators represented 26 % of overall educators in the university. Mirza (2007) added that “this situation of non-equal distribution between the number of female instructors and female students is easily replicated in other universities and select colleges across the nation” (p. 2).

Some educators in Saudi Arabia argued that e-learning is one of the solutions to this problem. They argued that e-learning will enable male instructors to teach female students. For example, Elebiary (2012) stated that “e-learning will be flexible for many females who have family responsibilities and/or other commitments and for remote area students” (p. 154). According to this, some educators focused on the role of e-learning to solve the problem of the shortage of female instructors in Saudi higher education institutions. For example, Mirza (2007) suggested that e-learning can be one of the effective solutions for this problem in Saudi universities. The first reason is that e-learning will increase the chance for women to get higher education by offering opportunities for them to study online from home while taking care of their home and responsibilities. The second reason which is suggested in Mirza’s (2007) research study is that male lecturers are allowed to teach female students from a distance if there are not enough female lecturers. The communication technologies used in e-learning allow males and females to communicate for educational purposes with no face-to-face interaction. The approach suggested in the study is a combination of ICT and traditional
methods. In other words, the use of online technologies is available between males and females while face-to-face interaction is allowed between the same genders only. The findings of Mirza’s (2007) study suggested that female students in King Saud University have a positive perception of the mixed method while they emphasised the importance of face-to-face meetings.

3.6.2 Organisational support

E-learning is considered a new way of learning for Saudi students and academic staff which makes it difficult for them to be enthusiastic about the new studying and teaching strategies. To make their job easier, the universities should take care to address the technical problems that face academic staff and students and provide support to give them the chance to cope with the new learning strategy. For example, Ageel (2011) focussed in his study on the level of use of ICT among academic staff at one of the leading universities in Saudi Arabia. The analysis of the data collected by interviewing 16 academic staff revealed two major findings. First, the majority of academic staff do not use ICT in their teaching. The first reason for the low level of ICT usage according to academic staff is the lack of management commitment to promote ICT usage. The second finding revealed that most of the academic staff suggested training programs should be created that focus on ICT in teaching. According to these findings, it can be concluded that academic staff were not using ICT in teaching because of the lack of the required knowledge and skills necessary to use ICT successfully in teaching. Alebaikan and Troudi (2010) stated that because the status of higher education in Saudi Arabia necessitates an urgent solution, it is recommended that the transition to a blended learning university environment is facilitated by providing the following: a thorough orientation for new students and instructors; student computer laboratories; instructor training programmes; and a series of easy to use curriculum design ideas for instructors. In addition, it is recommended to use feedback from students and instructors via regular course evaluations and other means to accurately inform university action plans. (p. 58)

Al-Dosari (2011) examined the perceptions of 20 academic staff members towards the use of e-learning in King Khalid University in Saudi Arabia. Al-Dosari (2011) found that “qualification and experience significantly affect the deployment and acceptance of technology based instruction” (p. 405). The study indicated that teaching experience was one of the factors that affect academic staff use of e-learning. Academic staff with
less than 10 years of teaching experience were more likely to use e-learning than academic staff with more than 10 years of teaching experience. Age was also significantly affecting academic use where younger academic staff were more interested in e-learning than older professors. The study suggested that younger and less experienced academic staff had less work load which gave them more opportunities to develop themselves professionally and to attend e-learning training sessions provided by the university. Al-Jarf (2007) stated that academic staff at some Saudi Arabian higher education institutions “feel that online instruction requires additional time and effort and that it will increase their teaching load” (p. 4). She added that many academic staff cannot join training courses “because they are not given time off for training. They are busy with meetings, committee work and other administrative and academic commitments” (p. 4). However, attending training sessions probably will increase the use of e-learning and develop their skills to use e-learning successfully.

Nehari-Talet (2007) stated one of the students’ problems related to this issue in Saudi Arabian universities is that “students in Saudi Arabia required collaboration from technicians and skilled instructors” (p. 32) to achieve good results when using online training and learning (OTL). The researcher believed that the findings released critical factors which certainly “shed some light for the policy makers and administrators in higher learning institutions in Saudi Arabia for the purpose of planning, designing, and implementing OTL” (p. 30). In addition, the study provided a ranking of the importance of these selected critical factors on the successful implementation of OTL in a Saudi context. The researcher argued that this ranking is also important for policy makers and administrators to make right decisions about OTL, rather than simply looking at the factors independently.

Specifically, the highest factor is that in general the technicians, who are responsible for transmitting technical knowledge to instructors and students, should be skilful not only from the technical side but also the pedagogical aspects. The second “highest ranked critical success factor is the availability of skilled instructors to teach online” (Nehari-Talet, 2007, p. 31). This critical factor is complementing the previous one that instructors should be skilful in using online tools in teaching. According to that, instructors and technicians should be skilful in both sides of online mode; the technical and the pedagogical aspects. However, it does not mean that instructors should be
professional in the technical issues or the technicians should be professional teachers. It means that instructors should have basic knowledge for using training and teaching online tools and knowing how they can be implemented in their teaching. On the other hand, technicians should know the objectives behind the use of each tool and how learners benefit from each one. Consequently, workshops and training sessions should be provided for instructors and technicians in both areas. The third ranked critical factor affecting the implementation of e-learning according to Nehari-Talet (2007) is “the ability of the university to provide the infrastructure” (p. 31). One of the most important operational factors to implement online learning is the technological capacity of the institution. Universities must invest in building high quality and modern technological infrastructure such as networks, computer labs, and databases to get the best results. However, the university target of online learning and the needs required to achieve the target should be figured before building the infrastructure. This calculation gives the decision makers the chance to spend the appropriate amount of money which makes it a cost effective project. The fourth ranked factor is the cooperation between technicians and students. This, according to Nehari-Talet (2007), is the real challenge “to facilitate the tasks to the students in utilizing OTL efficiently” (p. 31). The reason is that students are already loaded with the course requirements for their study, so it is difficult to encourage them to have extra workshops or training sessions. However, it is important for students to practise and to have the knowledge of using online learning tools.

The other organisational issue is access to the internet in Saudi Arabia. In Saudi Arabia, public access to the internet was allowed in April 1997 with a slow start for a few years followed by rapid growth (Al-Fahad, 2009). The Saudi Arabian Communication and Information Technology Commission (CITC, 2007) conducted a study on the Saudi nation of over 7,500 individuals which revealed that only 49% of society were aware of e-learning, while 5% of those who were aware of e-learning were using it. There were several possible reasons suggested in the literature regarding the low awareness and usage of e-learning in Saudi Arabia. Al-Kahtani, Ryan and Jefferson (2006) stated that the biggest and probably the most important reason for the low awareness and use of e-learning in the Kingdom of Saudi Arabia was the very low internet penetration rate (26.8%) by the general public. The literature provided several reasons for this low rate, such as the high initial costs of internet access, low quality and speed connections, and
the fear that the internet possibly will import immoral values to the society (Mirza & Al-Abdulkareem, 2011). Another possible reason for this hesitation was the low public esteem for e-learning and distance learning (Al-Jarf, 2005b) and the low access for future jobs for e-learning degree holders (Kensarah & Attaar, 2009, Mirza & Al-Abdulkareem, 2011).

In recent times, these reasons have become less important and consequently have less effect on the use of e-learning in Saudi Arabia because of the development of internet access (Al-Fahad, 2009; Sait, 2003). Al-Fahad (2009) argued that in recent times major network providers in the Kingdom of Saudi Arabia have announced commercial packages at economical prices offering internet connection. Consequently, in the last few years, internet users in Saudi Arabia have increased dramatically and their chance to access e-learning has obviously increased as well (Al-Dosari, 2011; Al-Fahad, 2009; Alkhalaf, Nguyen, Nguyen & Drew, 2011; Sait, 2003). The fear of the internet also started to change, and the image that the internet is importing immoral values to Saudi families is also changing (Al-Mosaa, 2002), partly because, materials which conflict with moral and religious values are banned by the King Abdul-Aziz Center for Communication and Technology and are not accessible via the internet in Saudi Arabia.

The competition between the different providers is also benefiting the Saudi Arabian user by providing competitive services and prices. Consequently, in the last few years, the number of internet users in Saudi Arabia increased dramatically in all areas including main cities and urban areas. The result of this is that the chance for more people to be online properly (low cost and high quality internet) is increasing and the chance to access online learning and training is increasing as well. Sait (2003) stated that public access to the internet in the Kingdom of Saudi Arabia was allowed in 1997. Then after a slow start for a few years, the use of the internet increased rapidly in the kingdom. Sait (2003) stated that, according to the latest figures, there were approximately 1.1 million users of the internet in 2002. Alkhalaf et al. (2011) also stated that generally there is an explosive growth in the number of internet users in Saudi Arabia from 200,000 in 2000 to 4.5 million in 2006. Alkhalaf, Drew, AlGamdi and Alfarraj (2012) stated that “according to the Communication and Information Technology (CITC 2011), the number of internet users rapidly increased from 200,000 internet users in 2000 to 11,400,000 users in 2011 which is about 43.6 % of the total
population” (p. 1199). Alzahrani (2012) investigated the use of e-learning at one of universities at Saudi Arabia. One of the study findings indicated that students have good personal access to the internet. Al Lily (2011) stated that in 2007, The Ministry of HE officially adopted the internet into its educational policy, by establishing a National Centre for E-learning and Distance Learning (NCEL). Through the NCEL, the Ministry aspires to spread online learning methods throughout its institutions, to widen access to HE and to support the educational process. (p. 124)

Al-Fahad (2009) stated that now in Saudi Arabia anyone can use e-learning technology for instructional purposes. Statistics according to Al-Dosari (2011) indicate that the e-learning market in the Kingdom of Saudi Arabia will grow by 33 % within the next five years. Alkhalaf et al. (2011) stated that “the Kingdom of Saudi Arabia (KSA) is one of the fastest growing countries in the world in terms of e-learning” (p. 48).

3.6.3 Skills and pedagogical techniques required

Learning and teaching skills are affecting the use of e-learning and the successful implementation of e-learning in teaching and learning. Al-Dosari (2011) examined perceptions of 20 academic staff and 212 students towards e-learning in terms of effectiveness of e-learning and preference of e-learning in King Khalid University in Saudi Arabia. The study found that lack of time management skills, lack of training and lack of updating e-learning courses were the main issues which affected academic staff’s intention to use e-learning. Alkhalaf et al. (2012) investigated the attitudes and the perceptions of academic staff in two universities in the Kingdom of Saudi Arabia. They found positive attitudes towards e-learning and academic staff reported that e-learning has a positive impact on their performance. Therefore, academic staff were “strongly urged to improve their skills in dealing with technologies such as eLearning in order to do their jobs better and then enhance their performance” (p. 1204).

In other words, in order to utilise e-learning successfully, students should have the skills and personal characteristics required. For example, Junaidu (2004) argued about some issues which significantly affect students learning by online education in King Fahd University of Petroleum and Minerals. The study reported about students’ time management skills and students’ study habits. Junaidu (2004) stated that “our students are generally deadline-oriented in that they have to be pushed to study. This means that
they are not as self-paced independent learners as online study requires and that they lack time management skills” (p. 7). According to Junaidu (2004), this means “our students are not as instructor-independent as should [be the case with] online learners” (p. 8). Rush (2008), referring to the Middle East, wrote that “this society’s primary and secondary schools rely heavily on rote memorization, pen and paper exams and require few critical skills, group work, or independent learning activities” (p. 668). Al-Jarf (2005) added that in King Saud University “many students did not take online instruction seriously” (p. 8). She added that one of the reasons was that “using the internet as a learning tool was not part of some students’ culture” (p. 8).

Pedagogically, Junaidu (2004) argued another issue that “course content should be rich in multimedia animations” and “without animations that add value to your course, students will study only from the printed course materials” (p. 8). This issue is related to student motivation and contends that an animations option is one of the effective ways to motivate students. Increasing students’ motivation affects their use and interaction with e-learning which may increase their engagement with course activities. However, providing too many animations may cause some technical problems such as overloading the system. Junaidu (2004) also raised the point that in using e-learning with students in Saudi Arabia, participation should be optional. In other words, the student should be interested in using online mode or at least they should be convinced about the advantages of studying by online learning. The study findings emphasised that online study should be optional, and only learners who believe that quality education can be achieved through online study may be advised to take online courses.

One of the issues that affect e-learning usage at the tertiary level is a learners’ previous use of e-learning in schools. Students entering university from some types of schools will be more familiar and proficient in using e-learning in Saudi Arabia. At the school level in Saudi Arabia, Al-Fahad’s (2009) study found a large divergence between private and public schools in terms of ICT usage, the usage of internet, content of curriculum, age at which they start to teach computers, underlying pedagogies, and computer teachers’ qualification. Studying in private or public high schools can be an effective factor in Saudi Arabia regarding previous experience that influences the students’ use of an e-learning system in the university. E-learning and online technologies are used in private schools more than public schools. Abu Hassana and
Woodcock (2006) added that “generally, most schools are not satisfied with traditional learning. They are now in the transitional stage, blending ICT with traditional teaching methods and have the ambition to move towards e-learning. However, this may not be the most appropriate strategy for all subjects and all students” (p. 2). They added that “therefore, many commentators believe there is still a place for traditional learning in classrooms with the e-learning” (p. 3). Al-Fahad (2009) suggested that it can be a similar situation at the tertiary level in that the public and private universities can have a different approach to using e-learning. However, there are some differences between the two contexts (university, high school) in terms of students’ age, teachers’ qualifications, policies and number of students.

It has also been argued that to get the best value from e-learning, teachers should implement active teaching and learning styles in online learning. Grasha and Yangarber-Hicks (2000) emphasised the importance of focusing on learning and teaching styles implemented in e-learning programs. Moallem (2007) added that offering different learning styles in e-learning systems “may play a more significant role in improving instructional effectiveness in online learning” (p. 238). Availability of different learning styles in online learning increases the chance to meet most of the learners’ needs, preferences and expectations which may improve their performance and increase their motivation. Grasha and Yangarber-Hicks (2000) proposed that learner activities should be competitive, collaborative, avoidant, participant, dependent and independent. In addition, teaching styles should include expert, formal authority, personal model, facilitator and delegator. Grasha and Yangarber-Hicks (2000) investigated how teaching and learning styles varied within both traditional and e-learning courses taught by the same instructor. They found that the effects of ICT on teaching style, learning style, grades obtained, and course satisfaction may not be very robust. They emphasised that educators “need to think about how technology fits into their philosophy of teaching and learning” (p. 10).

Ladyshewsky (2004) also emphasised that “technology does not cause learning” (p. 319) and that only “when a high degree of pedagogical thought goes into the design and delivery of EL, and is supported by adequate resources, positive educational outcomes can be achieved by students” (p. 333). Ladyshewsky (2004) focused on e-learning features that may increase student engagement with online course content, activities,
instructors and other students. He argued that student-teacher contact, reciprocity and teamwork among students, and respect for diverse learning communities increase student confidence in using online learning. Additionally, provision of timely feedback, adequate time on task and active learning techniques increased users’ participation and developed their time management skills.

Saalem (2006) stated four main pedagogical considerations that from his point of view can achieve the learning goals of using e-learning. These are:

1- In terms of using e-learning in an Arabic context, e-learning systems should be translated into Arabic or developed originally in Arabic to enable the learners to interact with the system actively.
2- Teacher students (students who are prepared to be teachers) should be attending intense courses about using e-learning in education.
3- Teachers should take training courses frequently according to the needs and levels of their students.
4- Before integrating e-learning in any educational institution, needs, goals, and using strategies should be characterised first.

In addition, online libraries are a specialised form of e-learning, and evaluation of these resources has provided useful guidelines for e-learning in general. A number of characteristics have been identified which can be used as criteria to evaluate good library instruction in online environments. According to Dewald (1999) good library instruction should provide a number of services that enhance the benefits to students. She examined 20 web-based library tutorials as examples of online library instruction in order to examine how traditional library instruction is applicable to e-learning library instruction. The findings revealed a number of aspects that should be considered in order to provide successful e-learning library instruction. E-learning library tutorials should:

1. Be used in connection with academic classes rather than in isolation;
2. Include collaborative learning;
3. Include graphics;
4. Include clear objectives;
5. Teach concepts rather than the mechanics of online library.
The study by Nehari-Talet (2007) provided an overview of many of the issues identified above. He examined student perceptions towards the effect of a number of selected success factors of e-learning in King Fahd University of Petroleum & Minerals in Saudi Arabia. A total of 500 students in different majors were randomly selected at the end of academic year 2005 as respondents to answer the questionnaires. The findings showed that all the selected critical success factors had a significant impact on the successful implementation of e-learning. These factors were ranked by the importance of each one in the context of Saudi Arabia:

1. The availability of a skilled technician to help instructors and students.
2. The availability of a skilled instructor to teach using e-learning.
3. The ability of the university to provide the infrastructure.
4. The cooperation between technicians and students.
5. The ability to use the online system any time/ any place.
6. Students must know how to use PCs.
7. The ability to provide a PC for each student.
8. Must be started from high school.
9. Availability of instructors to answer student questions any time.
10. The ability of a technician to speak Arabic with students.

The following table summarises the issues in the literature of e-learning in Saudi Arabian universities:
Table 3.1: Issues of e-learning in Saudi Arabian universities

<table>
<thead>
<tr>
<th>Issue</th>
<th>Conclusion</th>
<th>Author(s)</th>
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<tbody>
<tr>
<td>Meeting the demand for education</td>
<td>1- Saudi Arabian universities facing high demand for higher education as more than 50% of population are in the college age.</td>
<td>Alkhazim (2003); Al-Mosaa (2002); Al-Dosari (2011); Sait (2003); Al-Shehri (2010); Al-Harbi (2011).</td>
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<td></td>
<td>2- Students at Saudi Arabian universities are studying in a segregated environment by gender. For traditional and social restrictions, there is a shortage of female instructors. Therefore, some educators suggested that e-learning is part of the solution.</td>
<td>Al-Jarf (2007); Mirza (2007); Tubaishat, Bhatti and El-Qawasemeh (2006); Baki (2004); Elebiary (2012).</td>
</tr>
<tr>
<td>Organisation support</td>
<td>1- Academic staff and students were not using ICT and e-learning in teaching and learning because they lack the required knowledge and skills necessary to use ICT successfully in teaching. Support from universities was strongly recommended for teachers and students, such as training, infrastructure, and technical support, in order to facilitate the use of e-learning.</td>
<td>Ageel (2011); Alebaikan and Troudi (2010); Al-Dosari (2011); Al-Jarf (2007); Nehari-Talet (2007).</td>
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<td></td>
<td>2- Access to the internet was one of the big issues facing the implementation of e-learning in Saudi Arabian universities. The recent development of the internet providers facilitates the implementation of e-learning.</td>
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<tr>
<td>Skills and pedagogical techniques</td>
<td>1- Researchers found lack of teaching and learning skills was one of the issues that affected the use of e-learning in Saudi Arabian universities. The lack of using e-learning and IT skills was also one of the reasons which affect the use of e-learning.</td>
<td>Al-Fahad (2009); CITC (2007); Al-Kahtani; Ryan and Jefferson (2006); Al-Jarf (2005); Mirza and Al-Abdulkareem (2011); Kensarah and Attaar (2009); Sait (2003); Alkhalaf, Nguyen, Nguyen and Drew (2011); Sait (2003); Al-Dosari (2011); Al-Mosaa (2002); Alkhalaf, Drew, AlGamdi and Alfarraj (2012); Lily (2011); Alzahrani (2012).</td>
</tr>
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<td>required</td>
<td>2- They strongly suggested that e-learning courses should be regularly updated with implementation of multimedia and study activities which motivate students to use e-learning. In addition, multiple teaching and learning styles with highly pedagogical thought should be implemented in e-learning courses.</td>
<td>Al-Dosari (2011); Alkhalaf, Drew, AlGamdi and Alfarraj (2012); Junaidu (2004); Rush (2008); Jarf (2005); Abu Hassana and Woodcock (2006); Al-Fahad (2009).</td>
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<td></td>
<td></td>
<td>Grasha and Yangarber-Hicks (2000); Moallem (2007); Ladyshewsky (2004); Saalem (2006); Dewald (1999); Nehari-Talet (2007).</td>
</tr>
</tbody>
</table>
In summary, e-learning in Saudi Arabian higher education institutions at this stage of its development is important in order to provide quality higher education with the maximum capacity. It offers a reasonable solution to some of the problems facing higher education institutions such as the fast growth of population and gender issues. It will match the demand for higher education with the opportunities provided by institutions. In order to implement successful e-learning in Saudi Arabia, there are several requirements that have to be considered at different levels. Institutions should provide support for students and academic staff to ensure the maximum benefits of using e-learning such as sufficient infrastructure and training. Students and academic staff should have the skills and knowledge to be “mature” enough to use e-learning and to get the best results which meet their expectations. Academic staff also should implement the appropriate techniques and pedagogical strategies in order to support students to get the maximum benefits from e-learning.

3.7 Research Questions
The value of this study is strongly related to the successful implementation of e-learning in higher education institutions. Understanding the current situation of the use of e-learning in these universities will provide background information about the stage of e-learning implementation in these universities which used different e-learning systems used at the different universities. It also will provide information about the providers of e-learning in Saudi Arabia and their plans to develop e-learning in the higher education context. In general, the study will provide a comprehensive picture about e-learning which should help educators and researchers to understand the current situation of e-learning in Saudi higher education especially universities. In order to achieve this research study objective, the following main research question will be answered: What is the current situation of e-learning in Saudi Higher Education in terms of use and attitude? The Literature Review suggests that there are five research questions requiring investigation by the research study which is designed to provide an overview about e-learning in Saudi Arabia including background information about e-learning in Saudi higher education institutions. In addition, it investigates the use of e-learning in Saudi universities and the relationship between users’ attitude, demographic factors and experience factors. It also makes comparisons between academic staff and students’
levels of satisfaction towards the e-learning platforms: Blackboard, WebCT, Moodle, and Jusur in relation to their attitudes towards e-learning.

The first part of the study concentrates on the first three research questions, specifically:
1. What is the current situation of e-learning in Saudi universities?
2. What are the main characteristics that distinguish the e-learning system used in Saudi universities?
3. What e-learning systems are used in Saudi universities and what are the features and tools used in these systems?

Generally, the present study provided first an overview about e-learning in Saudi Arabia which included background information about e-learning in Saudi higher education institutions. These research questions focused on the administration of e-learning in Saudi higher education, e-learning platforms used in Saudi universities, e-learning services and training. This part of the study will enrich the literature with updated and forceful information collected from recent and valid websites and resources. It also developed a conceptual understanding of e-learning in terms of the controversial definitions of e-learning from different perspectives, the types of e-learning, the history of e-learning, and the pedagogical aspects of e-learning.

Secondly, the present study investigated the use of e-learning in Saudi universities and the relationship between user attitude, demographic factors and experience factors. In order to provide successful implementation of e-learning, the study provided two main aspects about the users of e-learning in Saudi universities: the use of e-learning and attitudes towards e-learning. The fourth research question is related to this part of the study:
4. What factors can affect the attitude towards the use of e-learning systems from students’ and teachers’ perspective?

The use of e-learning has been represented in the study by the number of users of e-learning through the participants and the number of hours per week they used e-learning. The attitude towards e-learning in general is presented through six attitude sub-scales. The attitude sub-scales were e-learning anxiety, e-learning confidence, e-learning liking, e-learning acceptance, e-learning productivity and e-learning opportunity.
In addition, the satisfaction with particular e-learning systems used in Saudi universities such as Blackboard and WebCT have been examined in the study. The fifth research question is related to student and academic staff satisfaction towards e-learning platforms:

5. Do e-learning systems used in Saudi universities enhance teachers’ and students’ satisfaction?

The attitudes and satisfaction was examined in relation to demographic and experience factors to highlight the factors which affects academic staff and student attitudes and satisfaction towards e-learning. These aspects will provide useful information for educators and researchers about the users of e-learning in Saudi universities and the factors which affects their use. The study will enrich their understanding of the users of e-learning. Consequently, the final responses to the five research questions posed have been constructed through the integration of the two major components of the study: the documentary analysis section and the statistical analysis section.

3.8 General summary

The main objective of the present study is to examine attitudes towards e-learning in Saudi Arabian universities. In order to achieve this objective, background information for the study was required. This chapter is the second part of the literature review which provides information about attitude towards e-learning and related issues. Reviewing the literature revealed that evaluation of attitudes towards e-learning was one of the critical factors to ensure the success of its implementation. Research examined several attitude scales such as anxiety, acceptance and usefulness in order to measure general attitudes towards e-learning. There were some factors found which had significant relationships with attitudes towards e-learning such as demographic and experience factors. Research in the literature also found that satisfaction was one of the critical factors which impact the use and success of e-learning. Satisfaction also had strong relationships with several other factors positively or negatively.

The review of the literature emphasised the importance of evaluating attitudes and satisfaction towards e-learning in Saudi Arabia. Research in this area found the significant impact of attitude on the implementation of e-learning in the Saudi Arabian higher education institutions. Some studies reported positive attitudes towards e-
learning in terms of acceptance and enjoyment while others reported negative attitudes. There were some studies that evaluated academic staff attitudes while others evaluated student attitudes. However, there was no study found which compared the attitudes of academic staff and students. Research found different factors influenced academic staff attitudes or student attitudes towards e-learning. Satisfaction towards e-learning in Saudi Arabian higher education institutions was also examined indicating different levels of satisfaction and several factors affected satisfaction positively or negatively.

There were some specific issues strongly related the implementation of e-learning in higher education institutions in Saudi Arabia. For example, reviewing the literature revealed issues regarding the demand of higher education in Saudi Arabia, such as the very high demand and the gender issues. Issues related to organisational support were also found in Saudi Arabian higher education, such as providing sufficient infrastructure and training. Literature also indicated issues related to skills and techniques required to implement successful e-learning in Saudi Arabia. At the end of this chapter, research questions were provided to clarify the strong relationship between the literature review of the study and the findings in this study discussed in the following chapters.
Chapter 4
Research Methodology

4.1 Introduction
This chapter presents the methodology, sample and research design for the study. The chapter consists of five sections: an overview of the research design, the population and sampling for the study, the development of testing instruments, a description of the data collection procedure and the data analysis.

4.2 Purpose of the Study and Overview
The purpose of this study was to provide an overview about e-learning in Saudi higher education and to investigate the attitudes of students and academic staff towards e-learning in Saudi universities related to demographic and experience factors. This section consists of two sub-sections that provide the purpose of each part of the study in order to answer the research questions (page 78). The purpose of this study is divided into two main parts. The first part provided the overview about e-learning in Saudi Arabian higher education (mainly presented in Chapter 5). The second part focused on the attitudes towards and satisfaction with e-learning in Saudi Arabian universities. The two parts of the study, in combination, answer the research questions concerning e-learning in Saudi Arabian universities.

4.2.1 Overview of e-learning in Saudi Arabian universities
The aim of the first part of the study is to provide background information about e-learning in Saudi Arabia, and in particular in Saudi Arabian tertiary education. The methodology used to achieve this aim was a documentary analysis. The data for this part of the study were collected from university websites and websites of governmental institutions which provide and develop e-learning in Saudi higher education institutions. The information is documented and summarised in Chapter 5 (E-learning in Saudi Arabian Higher Education) which primarily addresses the first three research questions. Information about the current use of e-learning in Saudi universities is provided in Chapter 8 which discusses the findings of the presented research study. The data were
analysed and compared with the literature in order to identify the current situation of e-learning in Saudi universities.

4.2.2 Attitudes towards e-learning in Saudi Arabian universities

The second part of the study investigated academic staff and student attitudes towards e-learning in four Saudi Arabian universities. The study intended to describe the use of e-learning platforms (Learning Management Systems), such as Blackboard and WebCT, by students and academic staff in Saudi universities in order to examine the relationship between the use of e-learning platforms and participants’ attitudes and satisfaction with e-learning. The study focused on four key Saudi universities located in four of the main cities in the country. Participant attitudes were assessed by six attitude scales adapted from previous research studies’ instruments. The attitude scales were: EL Anxiety, EL Confidence, EL Liking, EL Acceptance, EL Productivity and EL Opportunity.

The information about academic staff and students’ attitudes was collected by two instruments developed for this study. The study intended to investigate the relationships between participants’ attitudes and demographic and experience factors.

- It was intended to investigate the relationship between attitudes towards e-learning and gender, as the differences between male and female are relevant to the Saudi Arabian social environment.
- It also investigated the relationship between attitudes towards e-learning and institutional identification factors.
- The study investigated the relationships between attitudes towards e-learning and IT experience including computer experience, email experience and internet experience.
- It also investigated the relationships between attitudes towards e-learning and the use of e-learning platforms (Learning Management Systems): Blackboard, Moodle, Jusur and WebCT.
- The study also examined the relationship between attitudes towards e-learning and the use of particular e-learning tools such as an announcement system, online calendar and online assessment system.
- The study investigated the relationship between academic staff and student attitudes towards e-learning and their satisfaction with the e-learning platforms.
A descriptive-correlational research design was used to accomplish the objectives of which part of the study. Descriptive data were particularly appropriate because e-learning as a teaching and learning tool is in an early stage as an innovation in the Saudi Arabian context. Descriptive statistical procedures (frequencies, percentages, means, and standard deviation) were used to describe user practices and attitudes. Correlations were used to analyse relationships, and t-tests and ANOVAs were used to determine the differences between the demographic and experience factors in relation to attitudes scales and satisfaction with e-learning in teaching and learning. Finally, multiple regression analyses were used to explain the degree to which the variables, singly and collectively, were predictive of users’ attitude and satisfaction with e-learning.

A structured quantitative approach was followed, through which data were assembled by two instruments developed for the purpose of this study: one for academic staff and one for students. Documentary analysis of the information collected from literature and websites helped to inform the instrument and the data collection and used to create a comprehensive picture of the current situation of e-learning in Saudi universities. Data collected by the questionnaires about user attitude and level of satisfaction towards e-learning added a texture to the study by clearing up a number of issues and areas that need more explanation.

4.3 Population and Sampling for the Study
This section is intended to provide information about the data sources for each part of the study. It consists of two sub-sections, which correspond to the two main parts of the study (e-learning in Saudi Arabia overview and attitudes towards e-learning).

4.3.1 Sources of overview of e-learning in Saudi Arabian higher education
The first part of the study aimed to provide a current description of the state of e-learning in Saudi Arabia. To achieve this aim, information was collected from official websites of governmental institutions which provide and develop e-learning for Saudi Arabian higher education institutions. These organisations were: Saudi Arabian Ministry of Higher Education, National Center for E-learning and Distance Learning, and The E-learning & Training Resources Center. Information about particular higher education institutions was then obtained from university websites. Information about
the four universities included in the research study is provided in the list in the following sub-section. The information was collected initially in 2010 and then updated in 2011 and 2012 in order to provide valid and current information.

4.3.2 Participant attitudes towards e-learning in Saudi Arabian universities
Information for this part of the study was obtained by two questionnaires designed for the present study; one for academic staff and the other for students. The participants for this part of the study, which focused on user attitudes towards e-learning, were academic staff and students at four main Saudi Arabian universities in four major cities. These four major universities possessed the institutional characteristics necessary for this study, in that they all had a substantial population of students. These four universities have four of the largest campuses of all public universities in Saudi Arabia (www.mohe.gov.sa), a diversity of specialities and courses, and a varied geographical distribution. These three characteristics were important in order to improve the representativeness of the sample of students and staff members from Saudi Arabian universities. The four universities examined in this study were chosen because they were four of the most important and largest universities in Saudi Arabia. They provide higher education for huge number students and employ a large number of academic staff. They are the oldest and most well respected higher education and research public universities in Saudi Arabia. This section was based on the geographic and general information available on higher education institutes in Saudi Arabia. Table 4.4 provides demographic and general information about all public universities in Saudi Arabia according to the information provided by the Ministry of Higher Education. The table also provides information about e-learning platforms and online services provided by each university (Appendix Q). Consequently, the possibility of generalising the study for all Saudi Arabian universities was increased.

Initial data collected about all Saudi universities are presented in Table 4.4 (Appendix Q). As shown in Table 4.4, universities were selected from four main regions in the country. The Kingdom of Saudi Arabia consists of four main regions: the western region (the Hejaz), the southern region (Asir), the middle region (Central Plateau), and the eastern region (the Ahsa) (Wells, 2003). The universities were:

1- University A (located in the western region);
2- University B (located in the western region);
3- University C (located in the middle region);
4- University D (located in the eastern region).

The present study was aiming to include all four regions of the Kingdom of Saudi Arabia. However, approvals were not obtained from other universities from some regions. Accordingly, other universities have not been included in the research study as was planned. In addition, there was insufficient time to follow the progress of researcher requests in other universities in order to provide any additional documents requested by universities. Each region has special characteristics in terms of land, weather, and people. The Hejaz (the western region) is a mountainous region which is warm in winter and hot in summer. The Hejaz is the most important region in Saudi Arabia for all Muslims because it contains Makkah and Madinah, Islam’s two holiest sites. According to Wells (2003) the Hejaz has traditionally been better developed and more multinational because of its importance in the Islamic world. The Hejaz also contains the important port city of Jeddah which is the nearest entry point for Muslim pilgrims journeying on the Hajj (in addition to its huge airport). Unlike the rest of Saudi Arabia this region has population groups of non-Saudi origin that have put down roots in the country. These are the ancestors of pilgrims from earlier times who came and stayed (Wells, 2003). For these reasons, the research study targeted two universities (University A and University B) in the western region.

The Central Plateau (or Najd) is a huge desert region which is excessively hot during the day, excessively cold at night and has slight or no rain. The Najd is important because it contains Riyadh which is the seat of government and the home of the royal family. Najdis (the people of Najd) are known for their conservatism compared with other communities in Saudi Arabia and their adherence to social traditions. Wells (2003) argued that Najdis faced a big cultural shift from a poor and conservative society to a wealthy and modern society. For these reasons, University C was selected for this research study to be compared to other universities in different regions.

The Ahsa (or Hasa) is a farming region and has different weather from the middle of the desert, but basically is cold in winter and hot in summer. The Ahsa is important because it holds nearly all of the country’s oil reserves and most of the factories. People in the eastern cities interact with western people from the USA and other countries who have people working in the oil fields. Wells (2003) argued that some pure Saudi
Arabian traditions were changed in this area because of the multicultural environment. For these reasons, University D was included in the present research study to allow comparisons between university academic staff and students in the three different contexts. The fourth region of Saudi Arabia (the Asir) was omitted from the study sample for the reasons reported previously.

The four universities were selected from the seven mother universities in Saudi Arabia in terms of population (www.mohe.gov.sa). The selected universities were public universities working under the supervision of the Ministry of Higher Education in Saudi Arabia. Courses offered in these universities included both face-to-face programs and distance programs. The degree of use of an e-learning mode varied from university to university. For example, in University A and University C there were some courses that provided part of the course content online while the main emphasis was on face-to-face lectures and examinations, and attendance was compulsory. On the other hand, in University B and University D there were some courses provided totally online, physical attendance was not required and students were able to interact with course materials and activities online. In addition, some courses and e-learning facilities were free of charge whereas others required a fee to be paid in the beginning of each semester.

Students were randomly selected from diverse courses and year levels. The researcher first selected the courses from different disciplines from the university websites according to the availability of face-to-face lectures to ensure meetings with students could be arranged. The specialities included education, engineering and designing, healthcare, IT and networking, linguistics and social arts, mathematics and statistics, and management. Then the HER departments at the four universities were informed about the classes from faculties and departments targeted by the researcher in order to obtain approval to distribute the questionnaires. The classes were varied that students included were from students in the first year to students in the final year from a range of different specialities. Academic staff also were randomly selected from diverse faculties and schools by a comparable method of selection. They varied from novice academic staff to more experienced academic staff from a range of different specialities.
The number of participants was arrived at in the following way. One hundred academic staff questionnaires and 200 student questionnaires were distributed by the Research and Higher Education Department in each university, so a total of 1,200 questionnaires were distributed across the four universities (400 academic staff questionnaires and 800 student questionnaires). Collection of completed questionnaires by the researcher revealed that 253 academic staff questionnaires and 496 student questionnaires were obtained from the four universities overall (a total of 749 participants). The response distribution across the universities was approximately 14 – 30 % for academic staff and 4 – 42 % for students. The response rates for academic staff and students were not uniform across the four universities. The following tables present the response rates from each university out of the total number of academic staff or student participants. The lowest response rate was from academic staff and students at University D. In addition, respondents from this university were males only as the university did not include any females.

Table 4.1: Academic staff distribution across the universities

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Academic staff</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>University A</td>
<td>29</td>
<td>11.5</td>
<td>19.4</td>
<td>30.9</td>
</tr>
<tr>
<td>University A</td>
<td>43</td>
<td>17.0</td>
<td>12.2</td>
<td>28.2</td>
</tr>
<tr>
<td>University C</td>
<td>48</td>
<td>19.0</td>
<td>6.3</td>
<td>25.3</td>
</tr>
<tr>
<td>University D</td>
<td>37</td>
<td>14.6</td>
<td>0.0</td>
<td>14.6</td>
</tr>
<tr>
<td>Rows total</td>
<td>157</td>
<td>62.1</td>
<td>37.9</td>
<td>100</td>
</tr>
</tbody>
</table>

The percentage fields present the percentage of male or female academic staff who participated from each university out of the total number of participants from the four universities.
Table 4.2: Student distribution across the universities

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Number</th>
<th>Students</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>University A</td>
<td>121</td>
<td>92</td>
<td>213</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>24.4</td>
<td>18.5</td>
<td>42.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University B</td>
<td>49</td>
<td>108</td>
<td>157</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>9.9</td>
<td>21.8</td>
<td>31.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University C</td>
<td>83</td>
<td>23</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>16.7</td>
<td>4.7</td>
<td>21.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University D</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rows total</td>
<td>273</td>
<td>223</td>
<td>496</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>55.0</td>
<td>45.0</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The percentage fields present the percentage of male or female students who participated from each university out of the total number of participants from the four universities.

4.4 Development of the study instrument

A questionnaire was used to gather data to address the purpose and objectives of the study. The questionnaire included both closed-response and open-ended items. Questionnaires are known for their ability to gather a large amount of information about the target population in a timely and processable manner (Anderson & Bourke, 2000; Creswell, 2008; Obaidaat, Adas, & Abdul-Haq, 1987; Omar, 1987). The anonymous questionnaires for both academic staff and students in the present study consisted of three main sections (see Appendix A and Appendix C). The structure and the questions are similar for both questionnaires. Section one of the questionnaire asked participants for demographic details, institutional identification and experience information which represented the independent variables in the study. The participants were asked firstly in this section to provide information about the name of their university, and the online courses taken (either as academic staff or students). Participants were then asked to identify their gender, as previous research has suggested that gender can significantly affect the use of e-learning and attitude towards it. Academic staff were asked about experience of teaching and students were asked about study years in this section in order to examine the relationships between the attitude towards e-learning and experience in teaching for academic staff and year level for students. The final three questions in this section of the questionnaire were about IT experience (computers, email, and the internet) for both academic staff and students to investigate the relationships between participant attitudes towards e-learning and IT experience.
The second section of the two instruments examined academic staff and students’ use of e-learning platforms and also their use of a number of selected e-learning tools and services often used in educational contexts. Three main questions were used: participants were asked to select or name the e-learning platforms and tools that were used; to detail the number of usage hours per week; and to describe the level of satisfaction with each platform and tool used. The item for the level of user satisfaction was linked to a 4-point Likert scale (very low, low, high, and very high). This part of the instrument was intended to provide information about the use of e-learning in Saudi Arabian universities. It would also help to evaluate the e-learning systems and the e-learning tools used in Saudi Arabian universities because it would provide information about the e-learning platforms and the e-learning tools preferred and most used by students and academic staff.

The third section of the two instruments examined academic staff and students’ attitudes towards e-learning. Thirty-eight items were used to investigate six attitudes scales (EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity). The participant was asked to identify their level of agreement with each sentence through selecting one of four Likert scale levels (Strongly agree, Agree, Disagree and Strongly disagree). At the end of the questionnaire there was a space for participants to write any additional comments. Each scale was assessed by approximately 5 items. For example, EL Anxiety was assessed by 5 items in the questionare. EL Anxiety is the fear of using e-leaning in education. The participants were askes to provide their level of agreements with statements which explaine their feeling towards (fear of) e-learning. Particularly about their feeling (fear) when:

- Studying with e-learning
- Taking about e-learning
- Others taking about e-learning
- Thinking about e-learning
- Working with e-learning

4.4.1 Explanatory variables
The questionnaire used in this study was adapted from previous surveys by Christensen and Knezek (2009), Loyd and Gressard (1986), and Uzunboylu (2007). These studies
investigated the attitudes towards the use of computers and information and communication technologies (ICT) in higher education. Likewise, the present study aimed to investigate attitudes towards e-learning, in higher education. Consequently, a number of scales and items were selected from these studies and then utilised in two instruments (one for academic staff and one for students), with some adjustment as explained below. Loyd and Gressard (1986) and Uzunboylu (2007) also reported that there was a significant relationship between teaching experience and teachers’ attitude, so in the present study, years of experience (either in teaching or studying) was included as an independent variable. Christensen and Knezek (2009) and Uzunboylu (2007) reported that there was a significant relationship between school location and total attitude scores in their study, and also there was a significant relationship between the use of email and access to the internet and total attitude scores. Additionally, Uzunboylu (2007) reported that attitude towards online education was positively high among teachers who access web pages regularly. Accordingly, location, use of email and internet experience were included in the present study as explanatory variables.

The factors (gender, teaching or study experience, institutional identification, IT experience, e-learning experience) represented the explanatory variables and intervening for the present study including dependent and independent variables. Many of these variables were selected because they have been shown by previous studies to have a potential influence on attitudes towards e-learning. For example, Loyd and Gressard (1986) reported that computer experience was found to be significantly related to teachers’ attitude towards computers, and consequently it was included as an independent explanatory variable in the present study. In addition, although Uzunboylu (2007) claimed that there was no significant difference found between males’ and females’ attitudes towards computers, Loyd and Gressard (1986) found that gender was significantly related to teachers’ attitude towards computers. In addition Uzunboylu (2007) found that there was a significant indirect relationship between gender and teachers’ attitude towards computers. Due to these conflicting results, further investigation was needed to identify the relationship between gender and attitude towards e-learning. The present study investigated the relationship between gender and attitudes towards e-learning, as this is particularly relevant to the segregated education environment in Saudi Arabia.
4.4.2 Outcome variables
The study investigated six attitude scales adapted from previous research studies: EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity. Five of these attitudes subscales were adapted from previous studies but the opportunity attitude sub-scale is a combination of two attitude sub-scales (usefulness and impact on society), combined for analysis purposes. The scales usefulness and impact on society had low reliability individually. Some items have been deleted and the two scales’ items have compiled to get the opportunity scale with reasonable reliability. The four attitude sub-scales (anxiety, liking, confidence, and usefulness) were adapted from Loyd and Gressard’s (1986) instrument. A large number of other researchers have also used these scales, or adaptations of them, to measure attitudes towards the use of computers and technology in education (Al-Khalid & Al-Jabri, 1998; Anderson & Hornby, 1996; Doolen et al., 2003; Francis, 1993, 1994; Francis et al., 2000; Kadijevich, 2008; Rosen & Weil, 1995; Sang et al., 2009; Selwyn, 1997; Woodrow, 1990). Loyd and Gressard (1986) reported that:

anxiety toward or fear of computers or learning to use computers; computer confidence, related to confidence in the ability to learn about or use computers; computer liking, meaning enjoyment or liking of computers and using computers; computer usefulness, consisting of the perception of computers as helpful in one’s future work. (p. 303)

Loyd and Gressard (1986) also reported that the coefficient alpha reliabilities of the four sub-scales: computer anxiety, computer confidence, computer liking and computer usefulness, were .90, .89, .89 and .82 respectively. The other three initial attitude scales used in the present study (acceptance, productivity and impact on society) were adapted from the Teacher’ Attitude toward Computer (TAC) questionnaire (Christensen & Knezek, 2009). Computer acceptance related to the acceptance or avoidance of using computers in education and in future work. Computer productivity consists of the perception of a computer as a productive tool in teaching and learning and the value of training in e-learning to improve education. Computer impact on society is related to the role of the computer in study and future work and the importance of training to improve study and working skills. The attitude scales have been shown to have a high level of validity and reliability. Christensen and Knezek (2009) argued that TAC was “a well validated, reliable instrument for teachers’ self-appraisal of their attitudes toward computers, worthy of continued use in multiple language and cultural
environments” (p. 143). They added that “each subscale of the TAC is independent and can stand alone. Therefore researchers or evaluators may choose to use only some of the scales and not others” (p. 150).

In summary, the attitudes towards e-learning are measured in this study by using six attitude scales. The attitude scales have been adapted from the Teachers’ Attitudes toward Computers (TAC) questionnaire which was designed by Christensen and Knezek (2009) and also the attitude scales have been adapted from Loyd and Gressard’s (1986) instrument.

4.4.3 Development of the instrument items
Each one of the six attitude scales was examined by several items in the second section of the instrument. The scales EL Acceptance, EL Anxiety, EL Confidence, EL Liking, and EL Opportunity were examined by five sentences each while the EL Productivity scale was examined by six sentences. In order to examine EL Anxiety, EL Confidence, EL Liking, EL Usefulness, five items were adapted from the Loyd and Gressard’s (1986) instrument for each scale. The initial items of the scale EL Usefulness were also adapted from Loyd and Gressard’s (1986) instrument. The attitude scales EL Acceptance, EL Productivity and EL Impact on Society were adapted from the Christensen and Knezek’s (2009) TAC instrument with minor changes to the wording; changing items to a positive form and substituting “e-learning” for “computer”. The attitude scales EL Impact on Society and EL Usefulness were combined in one attitude scale called EL Opportunity to create one scale with reasonable coefficient alpha reliability.

In the present study the coefficient alpha reliabilities of the six attitude scales: EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity, were 0.727, 0.766, 0.778, 0.743, 0.713 and 0.906 respectively. In the present study, scales used to measure participants’ attitude towards e-learning were: EL Anxiety, EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity. Items for each attitude scale were rated on a four-point Likert scale from “strongly agree” to “strongly disagree”. All items were worded positively, so the higher the total score, the more positive attitude towards e-learning (except for the anxiety scale, which was reversed). A four-point Likert scale was chosen as scale reliabilities.
are higher with four-point scales compared with three or five-point scales (Anderson & Bourke, 2000; Bourke & Frampton, 1992). Analysis of the relationships between these scales was also intended to provide meaningful information for the third aim of the study which emphasised the evaluation of factors that affect the success of EL systems in Saudi Arabian universities.

There are a number of changes and modifications to the wording of the original statements in terms of adding more clarification and simplicity. Firstly, the negative statements that included “not” in the original instrument were changed to incorporate statements in a positive form by deletion of the negative words from the statement. The negative statements that include “not” in the sentence can confuse participants and it takes a longer time for the participant to understand the sentence (Creswell, 2008; Wiersma & Jurs, 2009). On the other hand, the analysis of items will be easier when all sentences are in the same format (positive or negative). For example, the item “I do not like working with e-learning mode” in the liking subscale was changed to “I like working with e-learning mode”. Secondly, for all items the word “computer” was changed to “e-learning” in order to focus on the attitude towards e-learning instead of examining the attitude towards computers, as in the original instrument. The questionnaire was developed in English and then translated into Arabic to ensure that Saudi participants had complete comprehension of the instrument. To achieve the best possible semantic and conceptual accuracy in the translation, a forward and back translation method was used. Different versions of English and Arabic translations were compared by the researcher and other Arabic post graduate students studying in Australia to resolve any differences in meaning.

4.5 Data collection

Before the data collection process commenced, approval for the data collection journey was obtained from supervisors in terms of time of travelling, duration, and the procedures to be used. Approval was also obtained from the relevant ethics committee at the University of Newcastle. The data collection procedure for this study therefore had four main steps beginning with collection of preliminary and basic data about different universities in Saudi Arabia to select the study sample, then contacting the researcher’s sponsor and university to get the approval from the selected universities for
collecting data, and finally distributing and collecting the questionnaires. These are described as follows.

**4.5.1 Collecting initial data**

The first step of the data collection process was the collection of general information about different universities in Saudi Arabia (see Appendix Q, Table 4.4). This publicly available information was needed from the beginning to enable the researcher to select the most appropriate universities for inclusion in the sample. This information was of two kinds: general information and specific e-learning information. The researcher began data collection by accessing the website of the Ministry of Higher Education in Saudi Arabia (www.mohe.gov.sa), seeking general information. The website offers the most recent information about all Saudi universities. The researcher focused on only the public universities as private universities were not targeted by this study. The general information has been summarised in Table 4.4 (Appendix Q) and includes the university location, number of students and academic staff, gender of students and academic staff (as some Saudi universities are unisex institutions) and availability of e-learning courses.

On the other hand, the specific information concerned the e-learning systems and the number of e-learning modes in each university. This information included the names of e-learning platforms used, e-learning courses provided, the number of e-learning mode users, other online services for students and academic staff, and any future plans to implement e-learning courses and services in each university. These data were obtained from university websites and the website of the Ministry of Higher Education in Saudi Arabia. The researcher found the official access (URL links) for all Saudi universities from the website of the Ministry of Higher Education in Saudi Arabia. The university websites were investigated one by one and the information obtained has been summarised in Table 4.4 (Appendix Q). This information was then used to identify appropriate universities for study. The universities initially selected were University A, University B, University C, University D, University X, and University Y. However, University X and University Y were excluded from the study later because responses to the request to collect data were not reviewed by the Higher Education and Research departments of these universities and the researcher did not get any response until the end of the data collection journey.
The website of the Ministry of Higher Education in Saudi Arabia and the websites of the four selected universities (University A, University B, University C, University D) were accessed further seeking more specific, detailed information. In addition, information was found in these websites about government organisations which provide and developed e-learning for Saudi higher education institutions. These institutions are The National Center for E-learning and Distance Learning and the E-Learning & Training Resources Center. The researcher accessed the websites of these institutions seeking information about e-learning in Saudi higher education and providers of e-learning in Saudi Arabia. Detailed information about e-learning in Saudi Arabia especially in the four selected universities was found in The Ministry of Higher Education website, the National Center for E-learning and Distance Learning website and the E-Learning & Training Resources Center website. Other resources such as research studies and government reports were also included to provide background information about e-learning in Saudi Arabia. This information is summarized in Chapter 5, structuring the first part of the present study which provides background information about e-learning in Saudi higher education.

4.5.2 Preparation and administration

The second step of the data collection process was to use the study instrument to collect data from each university. The researcher’s sponsor in Australia (the Saudi Arabian Cultural Mission of the Royal Embassy of Kingdom of Saudi Arabia in Canberra) and the original sponsor in Saudi Arabia (University A) were contacted to obtain approval to begin the data collection process. A crucial procedure for data collection in Saudi Arabia is to have an institution sponsoring the data collection process. The researcher formally requested University A to be the sponsoring institution and this was approved (see approval letter in Appendix M1 and M2). The sponsoring university provided letters directed to the departments of Higher Education and Research (HER) (see letters in Appendix M3) for each of the selected universities to inform them about the project. This phase took four weeks from the time of requesting the approval to the time of printing the letters directed to different universities. The researcher then travelled to Saudi Arabia to begin the data collection. In Saudi Arabia, the researcher distributed the requests directly to each selected university (Appendix M3) seeking approval for distribution of questionnaires. After obtaining approval from the four universities, the researcher travelled to each university to distribute the questionnaires.
4.5.3 Distributing questionnaires
The third step started with the distribution of letters and questionnaires to each university. The researcher started by distributing the questionnaires in University A itself as it was one of the targeted universities for the study. Academic staff questionnaires were distributed by the researcher to the mail boxes of the academic staff in the university. Participants were asked to complete the form and return it to the secretary of their faculty or department (see flow chart of data collection process in Appendix M4). Student questionnaires were distributed to students face-to-face in lectures after gaining approval from their lecturer. The lecturers were personally contacted by the researcher to seek approval to meet their students. When the lecturer agreed they were asked to come to class 30 minutes late to allow enough time for the researcher to distribute and then collect the questionnaire from students. For the female campus, the same process was followed by the researcher’s wife, given that students in Saudi Arabia are separated based on their gender (see flow chart of data collection process in Appendix M5).

The researcher then travelled to the other three universities to distribute the letters and then the questionnaires to each university. The printed questionnaires were given to the HER department after obtaining approval for their distribution to academic staff and students. This procedure for distribution of questionnaires was repeated in all four universities involved in the study. Then the researcher travelled to each one of the participating universities to distribute the questionnaires following the same procedure. The progress of these processes was tracked by the researcher by phone and email, and, when the researcher was physically available, by face-to-face meetings.

4.5.4 Collecting questionnaires
The final step of the data collection procedure was to collect the completed questionnaires. The researcher visited each university several times to do this. Assistance from a female assistant (researcher’s wife) was needed to collect the completed forms from the female respondents. Academic staff questionnaires were collected by the researcher and his assistant from the secretary of each faculty involved in the study as academic staff were asked to return the completed questionnaires to their faculty secretary. Each faculty was visited three to four times to collect the questionnaires. The process of collecting students’ questionnaires was different. In
some universities the researcher was asked to be available with the students while completing the forms to explain the items in the questionnaire in case students did not understand any of the questionnaire statements. Most of the questions from students were about the names of some particular e-learning platforms and e-learning tools listed in the instrument, because some of them did not know what the platforms or the tools were. On the whole, as confirmed by a number of students, the language of the questionnaire was easy to understand. In the case of problems the researcher was available with students, the questionnaires were collected by the researcher from the lecturer’s table after the class. Otherwise, questionnaires were collected from lecturers of students who completed the questionnaires after lecturer request by phone. After the researcher collected the questionnaires they were sorted into groups according to the university, gender, and student or academic staff, and then packed in plastic folders. The total number collected was about 850, but after checking and removing the uncompleted ones there were 749 usable questionnaires. The questionnaires were taken to Australia at the end of the data collection to be analysed at The University of Newcastle.

4.5.5 Number of questionnaires distributed and collected

The total number of questionnaires distributed was 1,200. Each university received 100 academic staff questionnaires and 200 student questionnaires. Table 4.3 presents information about the response rate from each university. A total of 496 student questionnaires and 253 academic staff questionnaires were collected. University A had the highest response rate and University D had the lowest for both academic staff and students.

<table>
<thead>
<tr>
<th>University</th>
<th>University A</th>
<th>University B</th>
<th>University C</th>
<th>University D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td><strong>Staff</strong></td>
<td><strong>Stud.</strong></td>
<td><strong>Staff</strong></td>
<td><strong>Stud.</strong></td>
<td><strong>Staff</strong></td>
</tr>
<tr>
<td>Male</td>
<td>78</td>
<td>213</td>
<td>74</td>
<td>157</td>
<td>64</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>121</td>
<td>43</td>
<td>49</td>
<td>48</td>
</tr>
<tr>
<td><strong>Response rate (%)</strong></td>
<td>30.83</td>
<td>42.94</td>
<td>28.25</td>
<td>31.65</td>
<td>25.30</td>
</tr>
</tbody>
</table>

* When percentages of academic staff are added, the total is 100 % as percentages in each university are computed out of the total number of academic staff participated (253).

** When percentages of students are added, the total is 100 % as percentages in each university are computed out of the total number of students participated (496).
4.6 Data Analysis

The first part of the study was intended to provide an overview about e-learning in general and e-learning in Saudi Arabia in particular, through documentary analysis. Data were collected from university websites and other official websites. The data collected for this part of the study supported the qualitative data collected in the second part of the study to articulate the answers to the research questions in a more multimodal way. The second part of the study focused on academic staff and students’ attitudes towards e-learning in Saudi Arabian universities. Quantitative data (survey data) were analyzed using the Statistical Package for Social Sciences for Windows and reported using appropriate measures and procedures. Means, standard deviations, range, frequency counts and percentages were used to describe users of e-learning systems, personal characteristics, e-learning usage hours, users’ level of satisfaction towards e-learning platforms, teaching and studying experience, computer and internet expertise, and academic staff attitudes towards the use of e-learning in higher education. Analysis for this part of the study also included scale development of constructs, where appropriate, for both academic staff and student respondents using one-factor congeneric models. In addition, comparisons of scale means for groups using demographic information, was carried out using t-tests and analysis of variance. Structural equation modeling was used to test multivariate models using demographics, institutional identification, and experience as independent variables and attitude scale means as dependent variables. The documentary analysis and statistical analysis both contributed in answering the research questions in a complementary manner.

4.7 General summary

The purpose of this study was to determine academic staff and student attitudes towards e-learning in four selected universities in Saudi Arabia. The study examined selected factors related to the use and attitude towards e-learning in the investigated universities. The factors were gender, university, teaching experience for academic staff, study experience for students, computer, email and internet expertise. Data were collected by a printed survey instrument for academic staff and students designed to measure their use of e-learning and their attitudes towards the use of e-learning. Attitudes towards e-learning were measured by six scales (EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL Productivity).
Chapter 5

Results of documentary research: (E-learning in Saudi Arabian Higher Education)

5.1 Introduction

The purpose of this study was to provide background about e-learning and to explore the use of e-learning in Saudi Arabia. This chapter is intended to provide background information about e-learning in Saudi Arabian higher education, especially with regard to the e-learning platforms, e-learning services and tools, and the providers of e-learning in Saudi Arabia. It addresses the first three research questions:

1. What is the current situation of e-learning in Saudi universities?
2. What are the main characteristics that distinguish the e-learning used in Saudi universities?
3. What e-learning platforms are used in Saudi universities and what are the features and tools used in these systems?

The data were collected from university websites and other websites for governmental organisations relevant to e-learning in higher education, including the Ministry of Higher Education.

The information in this chapter is divided into five main sections. The first section focuses on the growth of e-learning in the Saudi Arabian higher education system, and this section uses research findings published in journals. The second section presents information about e-learning in Saudi higher education in general, focussing on administration of e-learning in Saudi Arabia. These data consist mainly of information from governmental websites, but also include selected research findings. The third section presents information about e-learning in the four Saudi Arabian universities, especially with regard to the e-learning platforms, e-learning services and training to use e-learning provided by universities. The data for this section consists of information collected from the university websites during 2010–2011. These data also consist of statistical data from governmental websites. The fourth section presents a conclusion which pulls together all information from the previous sections.
5.2 The growth of e-learning in Saudi Arabia

Implementing e-learning has been one of the important aims of the higher education system in Saudi Arabia. The Saudi government invested money and effort to develop e-learning in higher education and is planning to implement more e-learning in universities and training institutions in order to improve higher education. Mirza and Al-Abdulkareem (2011) stated that “the Saudi Arabian National ICT plan released in 2003 had called for the implementation of e-learning and distance learning and all prospective applications in higher education” (p.91). The national plan of implementing e-learning is supported by decision makers in the Saudi Arabian government. According to Al-Dosari (2011) “Saudi Arabia’s King Abdullah has called for a national plan to adopt information technology across the country” (p.291). The plan quote advocates the utilisation and development of e-learning and distance learning in higher education institutions.

The demand for higher education in Saudi Arabia has been growing dramatically. One of the reasons for the rapid growth was that almost half of the population in the Kingdom of Saudi Arabia were at or under college age. The Saudi government was trying to complement the population growth with opportunities offered for higher education. Al-Shehri (2010) stated that “over the last five years the growth in higher education has seen the opening of one university every three months, five colleges every month, 800 scholarships being awarded to students to study abroad every month; and an extension of higher education from 15 to 86 districts” (p.147).

However, some educators argued that the opportunities for higher education have not been matching the growth in demand for higher education. They suggested that the implementation of e-learning and distance learning in Saudi higher education would fill the mismatch between the demands for higher education and offering sufficient opportunities for students to get higher education. Al-Shehri (2010) stated a number of initiatives have been made to introduce e-learning to the Kingdom of Saudi Arabia. These included “orientation sessions and campaigns on the subject, short and long courses for interested participants, establishment of E-learning units in universities and educational organizations, establishment of National Center for E-learning, and the launching of local E-learning programs that aim at national certification for E-learning”
The development of e-learning currently was one of the important aspects of the national plan to develop higher education in the Kingdom of Saudi Arabia.

5.3 Administration of e-learning in Saudi Arabia

In 2010–2011, when this research was carried out, the implementation of e-learning in Saudi Arabian higher education was administered mainly by governmental organisations. There were three main organisations which were the main sponsors of e-learning in Saudi higher education. Their roles ranged from providing support to e-learning users, to more complicated roles such as developing modern learning management systems (e-learning platforms) such as the Jusur e-learning system. The information about e-learning in Saudi higher education in this section was collected from three main websites: The Ministry of Higher Education website, the National Center for E-learning and Distance Learning website and the E-Learning & Training Resources Center website. These were the only three organisations involved directly in e-learning at tertiary level in Saudi Arabia. The information gathered from each organisation is presented in the following three sub-sections.

5.3.1 Ministry of Higher Education in Saudi Arabia

The Ministry of Higher Education was the ministry in charge of providing tertiary education through universities, colleges and other higher education institutions. In addition, the ministry was in charge of all technical training institutions that provide training to students after secondary school in Saudi Arabia. The information provided in the website (www.mohe.gov.sa) focused mainly on the electronic services provided by the ministry to support e-learning in higher education. These electronic services (such as the students’ portal and online application system) can be considered as support services for e-learning rather than e-learning itself. Although the main focus of this study was on e-learning systems and tools, the services offered to support e-learning may have a potentially valuable role to play, and for this reason are described in the sections below. The Ministry of Higher Education has worked to assist students by providing many online services. These were mainly provided through the Educational Portal. The Educational Portal was one of the electronic services that aimed to spread knowledge and share skills and experiences of e-learning and distance learning. The portal enabled students to send requests and documents online easily and then receive responses from
the ministry online. The Ministry of Higher Education also offered an online system to request sponsorship from the ministry to study outside the country and to track the progress of the request. Additionally, it offered an online form system to apply and register for private universities in Saudi Arabia. The Ministry of Higher Education also provided services to enable students with special needs to obtain support. For example, it supported students with audio disabilities by providing them with sample transcripts and subtitles for all video and audio materials on the portal. There were additional services offered by the ministry through the website including statistical information, an events calendar, forums, email system, general announcements, SMS messaging protocol, the ministry news, and an online messaging system to contact the minister of higher education directly. Finally, the website offered an online system to organise conferences and meetings for educators and administrators.

Online services provided by the Ministry of Higher Education were designed to support students to deal with general requests and procedures related to their registration, enrolment and scholarship in a flexible way. Although, these services are not e-learning, they are important in the present study because they support e-learning and distance learning students who are interested in the advantages of online education which include flexibility and interactivity. In other words, students who are studying from a distance can benefit from the online services provided by the ministry to communicate with the ministry and universities in order to manage their registration, enrolment and scholarship from a distance.

5.3.2 The National Center for E-learning and Distance Learning
According to Mirza and Al-Abdulkareem (2011) “the establishment of the National Center for E-learning and Distance Learning by the Saudi Arabian Ministry of Higher Education, has started as a project aiming to become an international leader in research, development, and implementation of an e-learning architecture using open standards” (p.91). The National Center for E-learning and Distance Learning (NCEL) (www.elc.edu.sa) is a government institution which focused generally on implementing e-learning and information and communication technologies (ICT) in Saudi higher education. According to the website of the National Center for E-learning and Distance Learning, the Custodian of The Two Holy Mosques, King Abdullah bin Abdul-Aziz Al-Saud, had issued a decree to establish a national plan for the utilisation of information
technology (IT). The plan recommended the implementation of e-learning and distance learning and all their prospective applications in higher education. The National Center for promoting e-learning was established to fulfil the following goals:

- To develop infrastructure for e-learning;
- To collaborate with higher education, government and corporate partners to solve e-learning problems;
- To provide complete e-learning solutions;
- To develop QA standards for e-learning;
- To develop rules and regulations for e-learning;
- To establish awareness of e-learning programs (National Center for e-Learning and Distance Learning, 2008).

Consequently, the National Center provides technical support as well as the tools and means necessary for the development of E-learning content for higher education institutions.

The Saudi Digital Library (SDL) is one of the online services provided by the NCEL. According to its website, the project objective was to support learning and educational aspects in general and e-learning and distance learning in particular. It also aimed to provide the requirements of research and build a knowledgeable society. It offered the resources and the environment for researchers to obtain the maximum benefits from their research. The digital library supported the digital curricula with sources and resources necessary for learners and teachers. The library contained approximately 90,000 titles of digital books and resources covering a variety of study areas. The digital resources were available for all university students and academic staff belonging to the Ministry of Higher Education.

The National Center for E-learning and Distance Learning has also established The Saudi Center for support and counselling (SANEED) to provide technical, educational, academic and advisory support and guidance to beneficiaries of e-learning including students, academic staff and faculty members. SANEED provides solutions and services to its customers through multi communication channels such as live voice connection, email, chat, fax, and SMS messages.
The National Center for E-learning and Distance Learning provides support services for Saudi higher education institutions to develop digital content, enrich their curricula and facilitate learning. In order to implement and provide these services, an electronic national repository for learning objects (MAKNAZ) has been built. MAKNAZ supported Saudi Arabian universities to build digital curricula in terms of developing, archiving, retrieving, reusing and sharing learning objects. The national repository also aims to identify the outcomes of research in Saudi Arabian universities in order to develop learning content of an international standard.

QanaTech is another e-learning service provided by The National Center for E-learning and Distance Learning. QanaTech is an educational video-sharing website comparable to YouTube. After registration, users can download, upload and send by email videos for educational purposes. They can also evaluate and write their comments about the videos to share knowledge and skills. The knowledge fields offered by QanaTech include information technology, e-learning, social sciences, linguistics, physics, mathematics, chemistry, biology and geology. There is also a designated channel for recorded lectures which can be accessed by lecturers to record lectures from different higher educational institutions and then students can access the recorded lectures.

A particularly important project in relation to this thesis is the Jusur learning management system (LMS) which was designed by the National Center for E-learning and Distance Learning in order to manage e-learning in Saudi Arabia. Jusur was an e-learning platform comparable to Blackboard and WebCT that enabled academic staff and students to manage and access university courses online. Jusur, according to Zouhair (2010) “is a Saudi web-based application that includes functionality for launching courses, registering users, tracking students’ progress and assessing students’ learning”(p.115). The main benefit of Jusur for Saudi students was that it offered an Arabic interface, which was intended to make its use easier for Arabic students than using other English language e-learning platforms such as Blackboard. According to the National Center for E-learning and Distance Learning, the Jusur e-learning system could be used for:

- Registration: registering students and managing their information;
- Scheduling: planning the course and the way of teaching it;
- Delivery: making the course available for users;
• Tracking: following up student progress and issuing academic reports;
• Communication: managing synchronous and asynchronous communication through forums, emails, and files sharing;
• Assessment: testing students and grading them.

Jusur also has a learning content management system (LCMS) which is a system that can access the learning object repository that enables subject matter experts with little technology expertise to design and develop new online courses or units. It was designed to help educators and online course developers to search for materials and to obtain access to appropriate media in order to develop effective e-learning courses. According to Zouhair (2010) Jusur

is a locally developed platform which is freely available for academics, and can be hosted for free by NCeDL meaning that instructors can start creating their online courses without having any programming and installation knowledge or managing server maintenance. NCeDL is responsible for all administration, management of the system and user registration. In addition, NCeDL offers regular in-house workshops for its users. (p.115)

On the other hand, there have been some weaknesses reported by some educators. For example, Zouhair (2010) reported some drawbacks of Jusur, such as the interface could not be easily customised according to user taste. Also the grades book did not record the students’ marks as points but only as a percentage. In addition, the collaboration feature did not include a simple wiki or personal blog. However, Zouhair reported that these potential disadvantages seemed not to affect students’ learning or academic staff teaching.

In summary, the online services provided by The National Center for E-learning and Distance Learning were supportive of e-learning and distance learning for both students and academic staff. The online services were designed to help learners to find educational resources easily with minimal place and time restrictions, and a range of resources was provided to suit different study styles and strategies. The services assisted academic staff to locate resources and to design teaching which could be flexible yet effective. There were two main implications for the present study. First, the Jusur platform was a unique e-learning system that was used by many students and
staff, and second, the attitudes of students and academic staff towards e-learning were likely to be influenced by the quality and availability of the support services provided.

5.3.3 The E-learning & Training Resources Center

The E-learning & Training Resources Center (www.elearning.edu.sa) was established in 2007 with the aim of improving teaching and training strategies and to employ information and communication technologies (ICT) and e-learning in the Technical and Vocational Training Corporation. The Technical and Vocational Training Corporation was one of the main public training institutions in Saudi Arabia that provided post high school education. The E-learning & Training Resources Center was intended to enable the technical and vocational training institutions to be up to date in recent information and communication technology in terms of the design, utilisation and development of online learning systems. The centre worked cooperatively with more than 20 academic technical colleges in Saudi Arabia and guided them in their use of ICT and e-learning in their training programs. It offered information for educators as well as practical and technical support in terms of software and hardware implementation.

The main service provided by the centre was online training for instructors and the provision of resources and tools to enable them to use e-learning in the technical colleges. It offered face-to-face and online training for instructors on how to use e-learning for teaching. The training consisted of five main courses: the introductory course focused on using learning management systems, especially Blackboard; the advanced course focused on developing instructor skills for using ICT and e-learning tools, such as communication tools, multimedia tools and evaluation tools, to enhance their teaching; and the third course covered the use of e-learning materials and how to implement online content in lessons. The fourth course was the training which was designed to enable instructors to develop their own online courses, online profiles, and online content. The fifth course was the training intended to develop instructor skills for using the internet to enhance teaching and learning.

The centre offers an online guidebook for instructors to help them with these five courses and to assist them to use the e-learning systems and e-learning tools available on the centre website. The e-learning platform offered for instructors was Blackboard, which was available for all academic staff belonging to the Technical and Vocational
Training Corporation. In addition, the centre offers online educational portfolios for instructors to use with their students in different subjects. The educational portfolio is an educational package for one subject, such as Mathematics Introduction, and consisted of interactive content and tools that enabled learners to read and interact with the educational content without the need for instructors.

The centre also offers training courses for students after graduation and during their work. The main object of these training courses is to enable graduates to develop skills and experiences for work in the different specialisations and to keep them updated. The training courses are offered face-to-face and online depending on the area of specialisation. The centre also offers online resources including digital libraries and online databases for students and instructors. Online laboratories and simulation systems are available for students and instructors in order to enhance practical and technical activities.

In summary, the E-learning & Training Resources Center provided the e-learning services and tools for technical colleges in Saudi Arabia. It was not concerned with universities, which made it less directly relevant to the present study. However, the services provided were comparable to those provided for Saudi Arabian universities (as will be explained below).

5.4 E-learning in Saudi Arabian universities

This section presents information about e-learning in four of the main Saudi Arabian universities as informed by the university websites. The universities involved in the study were University A, University B, University C and University D. In general, the websites contained information about online services as well as e-learning platforms and e-learning support, so these are the three main components of each of the following sections. In addition, there is more information about all the public universities in Saudi Arabia in Table 4.4, Appendix Q. The table provides general information about Saudi universities and about the e-learning facilities provided in each university. In general, all Saudi university were providing e-learning and online services but with different levels of implementing online facilities. For example, some universities were providing fully online courses and were offering e-learning platforms such as Jusur and
On the other hand, some universities did not provide any e-learning platform and the online services were low compared with other universities.

5.4.1 University A
The information about e-learning in University A was divided into three main aspects: general online services, the e-learning platform, and training and support. The Deanship of E-learning and Distance learning in University A was responsible for developing and managing the different kinds of e-learning options.

There were many online services provided by the university website designed to assist on-campus and off-campus students. The services included online course application entry forms, course information, an email system, staff member information and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the Manar online magazine. The electronic library contained the full-text online resources while the database was a list of labels containing titles and abstracts of the paper-based books, journal articles and theses which did not have any online copies. The Manar was an online magazine which broadcast the news of University A and higher education in Saudi Arabia in general. In addition, it broadcast some external news that was considered important for academics and university students. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube.

There was one e-learning platform provided by the university to enable students to study online. This was the Jusur learning management system, which was accessible for all students, including on-campus and off-campus students, via the university website. The Jusur e-learning system was utilised in a variety of online courses (roughly 100 courses from all subject areas at the university) and typically contained e-learning tools such as a system manual, course information, course content, a forum, announcement system, online curricula, assignments, exams, questionnaires, results and grades.

Online guidelines for using Jusur were available for students and staff members in addition to face-to-face training when requested by users. Furthermore, the National Center of E-learning and Distance Learning also offered online training for Jusur users.
in all higher education institutions which was an additional source of training for academic staff and students in University A. In addition, the university offered support for lecturers and students by providing a PC for each lecturer (including all software needed) and internet laboratories on campus. Technical support was also offered to students and academic staff in order to improve e-learning and distance learning.

In summary, the Jusur e-learning platform and the online services and tools offered by the university were complementary. Students and academic staff were able to use them together to support learning and teaching. Together they provided the opportunity for students to learn with minimal time and place restrictions and to communicate relatively easily with educational content and educators. The University A website provided a comprehensive background regarding their use of e-learning and the support services available, which provided an adequate context for the present study.

5.4.2 University B

E-learning started in University B in 2004, and it was the first Saudi university to utilise e-learning in higher education. The information about e-learning in University B was divided into three main areas: general online services, the e-learning platform (EMES), and training and support. The Deanship of E-learning and Distance learning was responsible for developing and managing the different kinds of e-learning options.

There were a number of general online services provided through the university website. These services were the university directory, email system, SMS messaging system, online application forms system, university forum, forum of the university president, university news, university website evaluation questionnaire, and weather forecasting. These general services were available for all university students and academic staff and some of them were available for website visitors. Student online services included the online registration system and student services system. These two systems allowed students to register in different courses including face-to-face and online courses. Using these two systems, students could also send requests for such things as study funds, change of department or faculty, academic transcript and change of class. The website also provided access to the digital library and the CENTRA virtual classroom system, which was designed to enable students to attend lectures online. Using CENTRA, distance students could access lectures from a distance while
their peers synchronously attended the lecture face-to-face. They could also communicate with the lecturer online by voice or texts as long as they had access to a high speed internet connection. The university also had an online administration system which was designed to help staff to manage procedures online instead of with traditional paperwork. These were not directly relevant to e-learning as they included procedures for such things as sending announcements to university employees, and managing employment requests. As with most of the universities’ websites, the University B website has its own links to web pages on Facebook, Twitter, and YouTube that were accessible for anyone accessing the university website.

University B offered online courses for undergraduate and postgraduate students. The online learning management system offered by the university to provide online courses was the E-learning Management Electronic System (EMES). This platform was comparable to Blackboard, WebCT and Jusur, and like Jusur, was an Arabic language system for on-campus and off-campus students. EMES was developed for University B and it was not offered in any other universities. The platform was available for all university academic staff and students and could be accessed through the university website. However, it was not available for website visitors which made it hard for the researcher to navigate the platform. The main functions of this e-learning platform were:

- To provide the educational content (e.g. online resources and online lecturers);
- To provide communication facilities between students, and between students and lecturers;
- To facilitate the sending and receiving of assignments, projects and research and other forms of assessment including online quizzes and exams.

There was a variety of e-learning courses and units available in all university departments, and in total, more than 100 units could be taken online through EMES. Furthermore, there were reportedly many subjects under development, from traditional to electronic versions to be released in the near future.

In order to support EMES users, training was provided for academic staff and students through traditional (face-to-face) classes, simulation and online courses. In addition, the university offered support for academic staff and postgraduate students by providing a
PC for each academic staff and postgraduate student (including all software needed) and internet laboratories on campus for all students. Technical support was also offered to students and teaching staff in order to improve e-learning and distance learning.

In summary, University B was the first university to use e-learning. There were some online services provided by the university which were especially noteworthy, such as the CENTRA distance classroom system, students’ registration system and online administration system. The e-learning platform EMES was a built-in system which was designed for the University B. Training systems were comparable to other universities in providing online and face-to-face training for both academic staff and students in order to enhance online teaching and learning.

5.4.3 University C
The information about e-learning in University C is divided into three main aspects: general online services, the e-learning platform, and training and support. The Deanship of E-learning and Distance learning was responsible for developing and managing all aspects of e-learning.

The general online services were the university email system, the SMS messaging system, the university forum and the university online magazine. Students and academic staff could use the university email to communicate while academic staff could use the university SMS messaging system to send messages to students’ mobile phones. The online magazine provided university news for anyone accessing the university website. These online services could be accessed from the university website and were available for all teaching staff and students including on-campus and off-campus students. The university provided online services for academic staff which enabled them to send administrative requests regarding such things as teaching load, conference and workshop attendance and research leave. An online task tracker enabled staff to monitor their requests. The electronic library of University C offered a variety of resources from all over the world in Arabic and English. The university database offered research studies and theses for students and academic staff to enhance their learning and teaching. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube that were available for academic staff, students and the university website visitors.
The e-learning platform at University C was called the University C Learning Management System (UCLMS). This system was comparable to the e-learning platform (EMES) used in University B. It had been designed for University C in order to facilitate e-learning. It was available for all university students, lecturers and staff members, and could be accessed from the university website. However, access to the university e-learning platform was not available for visitors. As a result, the researcher could not access the system to find out the details except for the information provided on the university website.

In terms of supporting the system users, the university provided face-to-face and online training sessions for students, lecturers and university staff members. Technical support for academic staff and students was provided in University C in order to facilitate the use of e-learning for teaching and learning. The university provided a PC for all academic staff including all software needed and the internet connection. It was also offering computers and internet connections for students. The university was also providing personal computers for students with payment methods appropriate with their financial situation.

In summary, University C provided an e-learning platform (the Management Learning System) which was designed and developed for the University academic staff and students. The university also provided general online services through the university website. Technical support and training was also provided by the university to enhance the use of e-learning facilities in teaching and learning.

### 5.4.4 University D

The website of University D offered information about online services, the e-learning platform and training and support. The management and development of E-learning and Distance learning at the university was administered by a Deanship of E-learning and Distance Learning.

A number of general online services were provided. These included the university email system, university forum, university calendar, academic staff websites and university news. These services and others were available for academic staff and on-campus or off-campus students. Students and academic staff were able to communicate
with each other through the university email and forum. The university news was available for all university website visitors. The university website has its own links to web pages on Facebook, Twitter, and YouTube for university members and visitors to the university website.

The e-learning system used at University D was Blackboard. On-campus and off-campus students were able to use Blackboard for learning purposes. The university offered most of the courses provided in face-to-face style through Blackboard. Students were optionally encouraged to use e-learning in addition to the traditional style as a blended learning style. However, attending traditional face-to-face classes with no use of e-learning was enough to meet study requirements. Academic staff were strongly encouraged to use their personal websites on the university homepage for teaching purposes.

The university offered extensive face-to-face and online training and support services, that were delivered through the e-learning centre. Hands-on training programs were frequently conducted for faculty members to enable them to develop effective web-based instruction. These training programs covered a wide range of topics starting from instructional design of online courses to the development of web-based content. In instructional design programs for example, participants were introduced to the strategies and tools that would enable them to design pedagogically sound online courses. The centre also provided web-based content training, which included using web-based tools such as Macromedia Flash, Adobe Photoshop and Adobe Illustrator in their courses.

In addition, this university had an e-learning centre, which was the department responsible for providing and supporting e-learning under the supervision of The E-learning Deanship. The mission of the e-learning centre was to provide opportunities for the university community to utilise technology to enhance education through self-paced, learner-centred techniques. A main aim was to equip faculty members with the necessary skills to cope with new instructional technologies and to utilise the benefits of e-learning in teaching and learning. A further aim was the promotion of quality, self-paced, learner-centred education through the development and delivery of quality web-based courses that could be delivered completely online. Academic staff for example, were only required to provide the content of the online course, and then the support
team in the e-learning centre was responsible for formatting the online content to provide the online course through the university website. The e-learning centre also provided all necessary software, including course management systems (CMS), authoring tools and assessment tools, to ensure successful delivery of courses. The CMS were designed to allow teaching staff to carry out course-related activities online, including course content delivery, communication and collaboration and assessment.

In summary, the university provided Blackboard as the e-learning platform for academic staff and students. The platform was an English interface e-learning platform which is used in many universities around the world. It was not an Arabic interface like Jusur which was designed for students in Saudi Arabia. However, this was not necessarily an issue because most of the subjects at this university were provided in English and most of the lecturers were non-Arabic speakers. The university also provided general online services through the university website to support academic staff and students. In order to enhance the use of e-learning platforms and online services, the university provided training and technical support for academic staff and students.

5.5 General summary

The three main providers of e-learning for Saudi Arabian higher education were: The Ministry of Higher Education, The National Center for E-learning and Distance Learning, and The E-learning & Training Resources Center. Notably, the Ministry of Higher Education offered general online services for all Saudi higher education academic staff and students inside and outside Saudi Arabia. These services were designed to increase the flexibility of the procedures and ease communication between the ministry and academic staff and students. The National Center for E-learning and Distance Learning was the provider of e-learning for Saudi Arabian universities. It provided and developed general online services, e-learning platforms and e-learning training and support for all universities to enable them to utilise e-learning for teaching and learning. In addition the centre supported the e-learning and distance learning centres and deanships in the universities to develop their own e-learning platforms and online services. By comparison, the contribution of the E-learning & Training Resources Center was less relevant to this thesis, as it provided e-learning for the Technical and Vocational Training Corporation, rather than universities.
The four investigated universities each provided three main online dimensions that were relevant to e-learning: online services, e-learning platforms, and training and support, as follows.

Each university provided general online services such as online application forms system, SMS messaging system, electronic libraries, university forum, online calendar, email system and university news. Some universities provided additional online services which were not offered by other universities such as the online administration system provided by University B and University C. In addition, all university websites had their own links to web pages on Facebook, Twitter, and YouTube. Although online services are not a component of e-learning, the ease of use of these online services and the attitude towards these online services could potentially affect academic staff and students’ attitude toward e-learning (Zouhair, 2010). If users were satisfied with the use of the general online services, their attitudes could be affected positively towards the use of e-learning.

There was a variety of e-learning management systems (e-learning platforms) offered to provide online courses for on-campus and off-campus students. Each university offered a different e-learning platform. Some universities offered more widely available platforms such as Jusur and Blackboard while others had their own (built-in system) platforms which were designed for use within a single university. Specifically, University A offered the Jusur e-learning platform and University D offered Blackboard, whereas University C offered its own e-learning platform, the UCLMS, and University B offered EMES. Thus, academic staff and student attitudes towards e-learning in each university might be influenced by the e-learning platform in use. This did create an issue for the present study however, it was not possible for the researcher to access UCMLS and EMES in order to identify their particular features, and nor were these two systems available elsewhere in Saudi Arabia. For these reasons, the study focused on the platforms that were widely available both in Saudi Arabia and elsewhere, as it was decided that this would make the results of this thesis of more general relevance.

The four universities also provided training programs and support for students and staff in order to improve the use of e-learning systems. Online and face-to-face training were
provided in the four universities for academic staff and students. Additional online training at University A was offered by the National Center of E-learning and Distance Learning which was the provider of the e-learning platform (Jusur) used at the university. In addition, University B offered a simulation system for academic staff and students training that was not provided by other universities. In University D there was additional training for academic staff in designing and developing e-learning courses. It is potentially important to consider the training provided by each university, as different kinds of training may improve user skills in using e-learning systems and online tools, and also their use of e-learning. As a result, attitude towards e-learning could be affected positively or negatively depending on the skill level.
Chapter 6
Data analysis and findings: Use of e-learning and attitudes towards e-learning

6.1. Introduction
The purpose of this second part of the study was to explore e-learning at four main universities in Saudi Arabia. Examining academic staff and student attitudes towards e-learning is one of the main aims of the study. The study also investigated the demographic and experience factors that affect attitudes and satisfaction. The present chapter, which is designed to report these results, provides the basic information that was gathered using the questionnaire designed for this study. It presents information about academic staff and students who participated in the study, their use of e-learning and their attitudes towards e-learning. The results of analysing the data in this chapter complement the answers to the research questions suggested by the data provided in Chapter 5.

The results are presented in nine main sections starting from the more general information and leading through to more specific information. In all sections, academic staff data is presented first followed by student data.

- Section one presents an introduction to the chapter.
- Section two provides background information about the study participants regarding their demographics and IT experience.
- Section three focuses more closely on the respondents who used e-learning, with regard to their teaching/learning experience and IT experience.
- Section four provides information about usage of specific e-learning platforms.
- Section five provides information about attitude sub-scales and levels of satisfaction towards e-learning.
- Section six presents information about attitudes towards the four platforms.
- Section seven provides information about the attitudes and satisfaction in relation to e-learning.
• Section eight provides information about the use of specific e-learning tools such as email, announcement systems, and online forums.

• Section nine provides a general summary for the study findings presented in this chapter.

6.2. Study respondents
This section provides basic information about the respondents who participated in the study from the four investigated Saudi Arabian universities. It will describe the respondents from each university, in terms of their gender, teaching experience, study year level and IT experience. The information is presented in three main sub-sections. The first sub-section presents numbers and percentages of academic staff and students who participated in the study, by gender. The second sub-section presents academic staff teaching experience and student study experience, and both are divided into groups according to years of experience. The third sub-section presents academic staff and student IT experience (computer experience, email experience and internet experience) which also are divided into groups according to years of experience, for the purpose of analysis.

6.2.1 Respondents from Saudi Arabian universities
This section provides background information about respondents of the present study as an introduction to the results. A total of 749 participants, made up of 253 academic staff and 496 students, took part in the study across the four public Saudi Arabian universities. All students were undergraduates who were enrolled for the first semester of 2010. Students and academic staff came from a range of faculties and departments in the four investigated universities. The following two tables show numbers and percentages of academic staff and students from each university that participated. The universities are ordered in the tables in decreasing order of the number of participants. The percentage fields present the percentage of male or female academic staff in each university out of the total number of participants. For example, 29 male academic staff participated from University A representing 11.5% out of the total number of academic staff who participated from the four universities (253) and 49 female academic staff participated from University A representing 19.4% out of the total number of academic staff participants (253), so the total number of males and females (78 academic staff)
from this university represented 30.9 % out of the total number of academic staff who participated in the study as a whole (253).

Table 6.1: Academic staff participants from Saudi Arabian Universities by gender

<table>
<thead>
<tr>
<th>University</th>
<th>Respondents by gender</th>
<th>Academic staff</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (%)</td>
<td>Male</td>
</tr>
<tr>
<td>University A</td>
<td>29 (11.5)</td>
<td>49</td>
</tr>
<tr>
<td>University B</td>
<td>43 (17.0)</td>
<td>31</td>
</tr>
<tr>
<td>University C</td>
<td>48 (19.0)</td>
<td>16</td>
</tr>
<tr>
<td>University D</td>
<td>37 (14.6)</td>
<td>0</td>
</tr>
</tbody>
</table>

Rows total: 157 (62.1) 96 (37.9) 253 (100)

Percentage fields present the percentage of male or female academic staff who participated from each university out of the total number of participants at universities.

Table 6.1 shows that University A had the highest number of academic staff participating in the study overall, while University D had the lowest number of academic staff participants. The percentage of male academic staff participants was higher than females in all universities except in University A. The likely reason for the high percentage of male academic staff is that in most Saudi Arabian higher education institutions, there are more male academic staff than female. The low number of participants from the last university (University D) was probably because questionnaires had to be distributed and collected during the examination weeks, so staff may have been more difficult to contact. In addition, this university was a male-only institution, so there were no female staff or students. (This university provides engineering and other degrees which qualify students to work in the oil industry. The oil industry to date in Saudi Arabia is considered a male only field for traditional and religious reasons.)
Table 6.2: Student participants from Saudi Arabian universities by gender

<table>
<thead>
<tr>
<th>Respondents by gender</th>
<th>Students</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University A</td>
<td>Number</td>
<td>121</td>
<td>92</td>
<td>213</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>24.4</td>
<td>18.5</td>
<td>42.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University B</td>
<td>Number</td>
<td>49</td>
<td>108</td>
<td>157</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>9.9</td>
<td>21.8</td>
<td>31.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University C</td>
<td>Number</td>
<td>83</td>
<td>23</td>
<td>106</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>16.7</td>
<td>4.7</td>
<td>21.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University D</td>
<td>Number</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rows total</td>
<td>Number</td>
<td>273</td>
<td>223</td>
<td>496</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>55.0</td>
<td>45.0</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentage fields present the percentage of male or female students who participated from each university out of the total number of participants from the four universities.

As shown in Table 6.2, the number of student respondents was higher than the academic staff. The data in Table 6.2 show that there were major differences between numbers of student respondents from each university. University A had the highest number of student respondents while University D had the lowest. In general, there were slightly more males than females among the student respondents. This was not surprising as the number of males generally is higher than females in most Saudi Arabian universities.

The participation percentages of male students were higher than females in all universities except University B, in which the percentage of females was higher. Similarly to academic staff, for University D there were no female students because it is a male-only university. The following sub-sections provide more specific information about academic staff and students who participated in the study.

6.2.2 Teaching experience and study year level of respondents

This sub-section provides descriptive information about the academic staff teaching experience and the students’ years of study. Table 6.3 shows years of teaching experience of the academic staff. For the purpose of comparison, these were categorised into three groups: the first being the less experienced academic staff who had teaching experience of between one and ten years; the second group being the mid-experience academic staff who had teaching experience of between 11 and 20 years; and the third group being the most experienced academic staff who had teaching experience of more than 20 years.
Table 6.3: Academic staff teaching experience

<table>
<thead>
<tr>
<th>Experience in teaching</th>
<th>Number of teaching staff</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10 years</td>
<td>118</td>
<td>46.6 %</td>
</tr>
<tr>
<td>11 to 20 years</td>
<td>91</td>
<td>36.0 %</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>44</td>
<td>17.3 %</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Table 6.3 shows that almost half of the academic staff who participated in the study had 10 years’ experience or less. The percentage of academic staff participants then reduced progressively as the years of experience increased. Fewer than one fifth had more than 20 years of experience.

Table 6.4 provides descriptive information about students’ years of study. The students were categorised into two main groups according to their number of years spent at university. The first group was the students who had been enrolled at their university for up to five years. This cut-off was chosen because the standard duration of the bachelor degree in Saudi Arabia is five years (except medical specialists). The second group was the students enrolled for more than five years, which was more than the standard degree duration. The first group (five years and less) was divided into three sub-groups. Students at the first and second year represented the first sub-group. Students at the third and fifth year represented the second sub-group. Students at the fifth year represented the third sub-group. The total of the three sub-groups represented the group of students who spent five years and less at the university. The data were divided in such a way to provide more details about students who were in the standard duration of the bachelor degree at Saudi Arabian universities who were the majority of participants.

Table 6.4: Student study experience

<table>
<thead>
<tr>
<th>Studying at university</th>
<th>Number of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years and less:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st – 2nd year</td>
<td>58</td>
<td>11.7 %</td>
</tr>
<tr>
<td>3rd – 4th years</td>
<td>177</td>
<td>35.7 %</td>
</tr>
<tr>
<td>5th year</td>
<td>180</td>
<td>36.3 %</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>81</td>
<td>16.3 %</td>
</tr>
<tr>
<td>Total</td>
<td>496</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Table 6.4 shows that the majority of the students participating in the research study were studying within the standard duration of the bachelor degree. The minor groups indicated that students at the first and second year were the lowest represented at 11.7 %
of the total number of students who participated in the study. Students at the third and fourth year were similar in proportion to students who were in the fifth year of their studies.

6.2.3 IT experience of respondents

This section presents information about the respondents’ experience using computers, email and the internet. The intent was to categorise IT experiences into two groups as suggested by other studies such as Loyd and Gressard (1986), who found significant differences between those who had used computers for more than one year and those who had used computers for less than one year. However, in the present study there were no participants whose experience was less than one year. For that reason the minimum years of experience has been increased in this research study to five years. Respondents who had used computers for five years and less were considered less experienced users while those who had used computers for more than five years were categorised as more experienced users.

Table 6.5: Academic staff IT experience

<table>
<thead>
<tr>
<th>Type of experience</th>
<th>Experience level</th>
<th>Academic staff IT experience figures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N = 253</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% = 100</td>
</tr>
<tr>
<td>Computer</td>
<td>5 years and less</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>216</td>
</tr>
<tr>
<td>Email</td>
<td>5 years and less</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>183</td>
</tr>
<tr>
<td>Internet</td>
<td>5 years and less</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>184</td>
</tr>
</tbody>
</table>

The data in Table 6.5 suggest that IT experience was high for academic staff. The majority of academic staff had been using the computers, email system and the internet for more than five years.

Table 6.6 presents students’ data relating to the same three categories of IT experience.
Table 6.6: Student IT experience

<table>
<thead>
<tr>
<th>Type of experience</th>
<th>Experience</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>496</td>
<td>100</td>
</tr>
<tr>
<td>Computer</td>
<td>5 years and less</td>
<td>194</td>
<td>39.1</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>302</td>
<td>60.9</td>
</tr>
<tr>
<td>Email</td>
<td>5 years and less</td>
<td>282</td>
<td>56.9</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>214</td>
<td>43.1</td>
</tr>
<tr>
<td>Internet</td>
<td>5 years and less</td>
<td>249</td>
<td>50.2</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>247</td>
<td>49.8</td>
</tr>
</tbody>
</table>

Unlike academic staff, there were smaller differences between students’ experience relating to computer, email, and internet usage. The data in Table 6.6 indicate that while approximately 60% of students had been using computers for more than five years, about half had been using the internet for that time, and less than half had been using email for at least five years.

6.3 Users of e-learning

This section focuses on the participants who actually used e-learning. Staff and students were categorised as e-learning users if they were using at least one online platform or online tool for educational purposes. In total, the number of academic staff using e-learning was 117 representing 46.2% of the total academic staff participants. The number of students using e-learning was 128 representing 25.8% of the total students participating in the study. This suggested that, in the present study, a higher proportion of the staff than students were involved in e-learning. In this section, percentages of e-learning users are provided first. Information about teaching experience and study years’ experience for academic staff and students who were using e-learning is then provided. The last sub-section provides information about IT experience of academic staff and students who were using e-learning.

6.3.1 Users of e-learning in Saudi Arabian universities

In general, 117 academic staff and 128 students were using e-learning in the four investigated universities. Tables 6.7 and 6.8 present the percentages of academic staff and student participants who used e-learning, participants not using e-learning and the total participants from the four investigated Saudi Arabian universities. The reason for presenting the descriptive information by percentages in each university is that the numbers of participants from each university were different. For example according to Table 6.7, 30 users representing 38.5% of the total academic staff who participated in
the study from University A were using e-learning while 61.5% of academic participants from this university were not using e-learning. In this university also 40% of academic staff who were using e-learning were male, while 60% of academic staff who were using e-learning were female.

As can be seen in Table 6.7, University B had the highest percentage of academic staff using e-learning then University D had the second highest while University A and University C had lower percentages of e-learning users. The data also showed that percentages of males using e-learning were higher than females at University B and University C, while it was lower at University A.

<table>
<thead>
<tr>
<th>University</th>
<th>EL users</th>
<th>Percentages</th>
<th>Non users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>University A</td>
<td>30</td>
<td>38.5 %*</td>
<td>40.0 % (M)**</td>
<td>(n=48) 61.5% (n=78) 100 %</td>
</tr>
<tr>
<td></td>
<td>12 (M)</td>
<td>60.0 % (F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University B</td>
<td>43</td>
<td>58.1 %</td>
<td>76.7 % (M)</td>
<td>(n=31) 41.9 % (n=74) 100 %</td>
</tr>
<tr>
<td></td>
<td>33 (M)</td>
<td>23.3 % (F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University C</td>
<td>24</td>
<td>37.5 %</td>
<td>54.2 % (M)</td>
<td>(n=40) 62.5 % (n=64) 100 %</td>
</tr>
<tr>
<td></td>
<td>13 (M)</td>
<td>45.8 % (F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University D</td>
<td>20</td>
<td>54.1 %</td>
<td>100 % (M)</td>
<td>(n=17) 45.9 % (n=37) 100 %</td>
</tr>
<tr>
<td></td>
<td>20 (M)</td>
<td>0.0 % (F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>46.2 %</td>
<td>66.7 % (M)</td>
<td>(n=136) 53.8 % (n=253) 100 %</td>
</tr>
<tr>
<td></td>
<td>78 (M)</td>
<td>33.3 % (F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>39 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* This column presents percentages of academic staff who were using e-learning out of the total participants from each university (e.g., 38.5% of academic staff (n=30) were using e-learning out of the total academic staff participated from University A).

** In this column, percentages of males and females are presented out of the total academic staff who were using e-learning at each university (e.g., at University A, 40% of participants who were using e-learning were males).

For University D, the comparison in Table 6.7, between males and females was not possible because it is a male-only university.
Table 6.8: Students using EL in Saudi Universities

<table>
<thead>
<tr>
<th>University</th>
<th>EL users</th>
<th>User percentages</th>
<th>non users</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University A</td>
<td>55</td>
<td>25.8 %*</td>
<td>74.2 %</td>
<td>(213)</td>
</tr>
<tr>
<td></td>
<td>14 (M)</td>
<td></td>
<td>158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>41 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University B</td>
<td>23</td>
<td>14.6 %</td>
<td>85.4 %</td>
<td>(157)</td>
</tr>
<tr>
<td></td>
<td>7 (M)</td>
<td></td>
<td>134</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University C</td>
<td>33</td>
<td>31.1 %</td>
<td>68.9 %</td>
<td>(106)</td>
</tr>
<tr>
<td></td>
<td>18 (M)</td>
<td></td>
<td>73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University D</td>
<td>17</td>
<td>85.0 %</td>
<td>100 %</td>
<td>(20)</td>
</tr>
<tr>
<td></td>
<td>17 (M)</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
<td>25.8 %</td>
<td>74.2 %</td>
<td>(496)</td>
</tr>
<tr>
<td></td>
<td>56 (M)</td>
<td></td>
<td>368</td>
<td></td>
</tr>
<tr>
<td></td>
<td>72 (F)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* This column presents percentages of students who were using e-learning out of the total student participants from each university (e.g., 25.8 % of students (n=55) were using e-learning out of the total number of students who participated from University A which was 213 students).

** In this column, percentages of males and females are presented out of the total students who were using e-learning (e.g., of students who participated from University A who were using e-learning (n=30), 25.5 % were males and 74.5 % were females).

Table 6.8 shows that the percentage of students using e-learning was 25.8 % of the total number of student participants (496). University D had the highest percentage (85.0 %) of students using e-learning while University B had the lowest (14.6 %). The percentages of female students using e-learning were higher in University A and University B. At University C there were similar numbers of male and female students using e-learning. In University D comparison between males and females was not possible because it is a male-only university.

6.3.2 Teaching/learning experience of e-learning users

Tables 6.9 and 6.10 present user experience data for academic staff and students. They provide specific information about academic staff and students who were using any e-learning in relation to their years of teaching/learning.

Table 6.9: Teaching experience for academic staff using e-learning

<table>
<thead>
<tr>
<th>Teaching experience</th>
<th>Number of users</th>
<th>%</th>
<th>Number of non-users</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10 years</td>
<td>57</td>
<td>48.3</td>
<td>61</td>
<td>51.7</td>
<td>118</td>
<td>100</td>
</tr>
<tr>
<td>11 to 20 years</td>
<td>36</td>
<td>39.6</td>
<td>55</td>
<td>60.4</td>
<td>91</td>
<td>100</td>
</tr>
<tr>
<td>More than 20 years</td>
<td>24</td>
<td>57.1</td>
<td>18</td>
<td>42.9</td>
<td>42</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>117</td>
<td>46.2</td>
<td>134</td>
<td>53.8</td>
<td>251</td>
<td>100</td>
</tr>
</tbody>
</table>
The data in Table 6.9 show that the percentage of users was highest among academic staff with more than 20 years of experience. The second highest was for academic staff with one to ten years of experience. The lowest percentage of e-learning use was for academic staff with teaching experience between 11 to 20 years. There was no significant difference between of the three groups of academic staff who were using e-learning regarding to their teaching experience.

### Table 6.10: Study experience for students using e-learning

<table>
<thead>
<tr>
<th>Study experience</th>
<th>Number of users</th>
<th>%</th>
<th>Number of non-users</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years and less</td>
<td>113</td>
<td>27.2</td>
<td>302</td>
<td>72.8</td>
<td>415</td>
<td>100</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>15</td>
<td>18.5</td>
<td>66</td>
<td>81.5</td>
<td>81</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>128</strong></td>
<td><strong>25.8</strong></td>
<td><strong>368</strong></td>
<td><strong>74.2</strong></td>
<td><strong>496</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Data in Table 6.10 show that students between year one to year five were using e-learning more than students who had spent more than five years at the university. The difference between study experience was not significant between the two groups of students.

### 6.3.3 IT experience of e-learning users

This sub-section provides descriptive data about the e-learning users in relation to their IT experience. IT experience was separated into computer experience, email experience, and internet experience, and both academic staff and students were categorised into two groups of either lower experience (5 years or less) or higher experience (more than 5 years).

### Table 6.11: IT experience of academic staff using e-learning

<table>
<thead>
<tr>
<th>IT experience</th>
<th>Years of experience</th>
<th>Non users N=136</th>
<th>%</th>
<th>Users N=117</th>
<th>%</th>
<th>Total N=253</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer</strong></td>
<td>5 years and less</td>
<td>21</td>
<td>56.8</td>
<td>16</td>
<td>43.2</td>
<td>37</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>115</td>
<td>53.2</td>
<td>101</td>
<td>46.8</td>
<td>216</td>
<td>100</td>
</tr>
<tr>
<td><strong>Email</strong></td>
<td>5 years and less</td>
<td>42</td>
<td>60.0</td>
<td>28</td>
<td>40.0</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>94</td>
<td>51.4</td>
<td>89</td>
<td>48.6</td>
<td>183</td>
<td>100</td>
</tr>
<tr>
<td><strong>Internet</strong></td>
<td>5 years and less</td>
<td>44</td>
<td>63.8</td>
<td>25</td>
<td>36.2*</td>
<td>69</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>92</td>
<td>50.0</td>
<td>92</td>
<td>50.0*</td>
<td>184</td>
<td>100</td>
</tr>
</tbody>
</table>
The data in Table 6.11 show the differences in IT experiences between the two groups of academic staff. A chi-square test showed that there were no significant differences between the groups of academic staff who were using e-learning for computer and email experience. This implies that there was no significant relationship between academic staff experience with computer and email and their use of e-learning in the four universities. A further chi-square test showed that academic staff with more than five years of internet experience were using e-learning significantly more than academic staff with five years and less of internet experience ($X^2 = 0.86$, SD = 3.45, $p = 0.03$). This implies that the experience with the internet had a significant and positive relationship with the use of e-learning among academic staff.

The data in Table 6.12 show the comparison in IT experience between the two groups of students. A chi-square test showed that there were no significant differences between the two groups of students regarding their use of e-learning for any of the IT dimensions. It implies that there was no significant relationship between IT experience and students’ use of e-learning.

<table>
<thead>
<tr>
<th>IT experience</th>
<th>Years of experience</th>
<th>Non users N=368</th>
<th>%</th>
<th>Users N=128</th>
<th>%</th>
<th>Total N=496</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td>5 years and less</td>
<td>149</td>
<td>76.8</td>
<td>45</td>
<td>23.2</td>
<td>194</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>219</td>
<td>72.5</td>
<td>83</td>
<td>27.5</td>
<td>302</td>
<td>100</td>
</tr>
<tr>
<td>Email</td>
<td>5 years and less</td>
<td>211</td>
<td>74.8</td>
<td>71</td>
<td>25.2</td>
<td>282</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>157</td>
<td>73.4</td>
<td>57</td>
<td>26.6</td>
<td>214</td>
<td>100</td>
</tr>
<tr>
<td>Internet</td>
<td>5 years and less</td>
<td>191</td>
<td>67.7</td>
<td>58</td>
<td>23.3</td>
<td>249</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>177</td>
<td>71.7</td>
<td>70</td>
<td>28.3</td>
<td>247</td>
<td>100</td>
</tr>
</tbody>
</table>

### 6.4 Users of e-learning platforms

This section provides information about the use of particular e-learning platforms in the four Saudi Arabian universities. The e-learning platforms investigated by the study were Blackboard, WebCT, Moodle, and Jusur. These platforms were chosen because they are widely available in Saudi Arabia and internationally, so this would allow the findings to have relevance beyond the particular universities that were investigated in
this study. Comparison between different e-learning platforms can be done through comparing number and percentages of users for each e-learning platform and how many hours they use it per week. The use of these systems is described in the following two subsections.

6.4.1 Comparison of platforms used
Tables 6.13 and 6.14 provide data about academic staff and students who were using each e-learning platform and/or multiple platforms. The term *multiple platforms* refers to use of more than one e-learning platform. The reason for this measurement is that some academic staff and students had used one e-learning platform only, while others had used more than one platform for their teaching or learning. For example, in University A, some students were using Jusur which is the only platform offered by the university at that time. On the other hand, other students were using Jusur provided by the university and Moodle, possibly because they might have found some features helped them more or it may have been recommended by lecturers who were more familiar with Moodle.

Table 6.13: Academic staff use of e-learning platforms

<table>
<thead>
<tr>
<th>EL platform</th>
<th>Single platform users</th>
<th>%</th>
<th>Multiple platforms users</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>16</td>
<td>26.2</td>
<td>45</td>
<td>73.8</td>
</tr>
<tr>
<td>Jusur</td>
<td>19</td>
<td>61.3</td>
<td>12</td>
<td>38.7</td>
</tr>
<tr>
<td>Moodle</td>
<td>23</td>
<td>62.2</td>
<td>14</td>
<td>37.8</td>
</tr>
<tr>
<td>WebCT</td>
<td>7</td>
<td>14.0</td>
<td>43</td>
<td>86.0</td>
</tr>
</tbody>
</table>

Table 6.13 shows that for Blackboard and WebCT, the percentages of single platform users were less than for multiple platforms users. In other words, the majority of academic staff who were using Blackboard or WebCT also used other e-learning platforms. On the other hand, the percentages of Moodle-only users and Jusur-only users were higher than multiple platform users.

Table 6.14: Student use of e-learning platforms

<table>
<thead>
<tr>
<th>EL platform</th>
<th>Single platform users</th>
<th>%</th>
<th>Multiple platforms users</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>26</td>
<td>37.7</td>
<td>43</td>
<td>62.3</td>
</tr>
<tr>
<td>Jusur</td>
<td>16</td>
<td>50.0</td>
<td>16</td>
<td>50.0</td>
</tr>
<tr>
<td>Moodle</td>
<td>22</td>
<td>46.8</td>
<td>25</td>
<td>53.2</td>
</tr>
<tr>
<td>WebCT</td>
<td>11</td>
<td>21.6</td>
<td>40</td>
<td>78.4</td>
</tr>
</tbody>
</table>

127
Table 6.14 shows that the majority of students who were using Blackboard or WebCT also used other e-learning platforms. However, with regard to Jusur and Moodle the single platform users were similar in numbers to the multiple platform users.

6.4.2 Usage hours for each platform

This section provides information about the usage hours per week for each of the e-learning platforms. The number of usage hours has been divided into seven categories representing the number of usage hours for the e-learning platform. For example, the 0 category represents the participants with 0 hours per week usage of any e-learning platform. The 1 category represents the participants with one hour per week usage of e-learning. The “over 5 hrs” category represented participants who were using e-learning platforms for more than five hours per week.

<table>
<thead>
<tr>
<th>EL system</th>
<th>Usage hours</th>
<th>Academic staff figures</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>0</td>
<td>182</td>
<td>71.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>7</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>8</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>8</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>12</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>15</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>236</td>
<td>93.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>17</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>253</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>0</td>
<td>212</td>
<td>83.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>236</td>
<td>93.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>17</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>253</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>0</td>
<td>204</td>
<td>80.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>13</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>1</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>3</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>236</td>
<td>93.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>17</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>253</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
The percentages in this table represent proportions out of the total number of academic staff who participated in the study (253) including users and non-users of e-learning.

For each platform, the numbers appear to be roughly evenly distributed among the usage hours from 1 to over 5 hours, and no clear patterns are evident. However, the low numbers in many categories make it difficult to reliably identify any trends in these data.

Table 6.16: Student usage hours of e-learning platforms

<table>
<thead>
<tr>
<th>EL system</th>
<th>Usage hours</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>WebCT</td>
<td>0</td>
<td>192</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>238</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>253</td>
</tr>
<tr>
<td>Blackboard</td>
<td>0</td>
<td>381</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>435</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>496</td>
</tr>
<tr>
<td>Jusur</td>
<td>0</td>
<td>414</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>429</td>
</tr>
<tr>
<td></td>
<td>Missing</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>496</td>
</tr>
<tr>
<td>Moodle</td>
<td>0</td>
<td>397</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Over 5 hrs</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>433</td>
</tr>
</tbody>
</table>
The percentages in this table represent proportions of the total number of students who participated in the study (496) including users and non-users of e-learning.

<table>
<thead>
<tr>
<th></th>
<th>Missing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>395</td>
<td>79.6</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>15</td>
<td>3.0</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Over 5 hrs</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>434</td>
<td>87.5</td>
</tr>
<tr>
<td>Missing</td>
<td>62</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>496</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Again, the numbers of users appeared to be roughly evenly spread among the usage hours from 1 to over 5 hours, although the low numbers in many categories also make it difficult to reliably identify trends in the data.

### 6.5 Attitude towards e-learning

One of the main objectives of this study was to measure users’ attitudes towards e-learning. Satisfaction also has been recorded as part of users’ attitude towards e-learning. The difference between both measures (attitude sub-scales and level of satisfaction) in this study was that the attitude was investigated towards e-learning in general while the level of satisfaction was investigated towards particular e-learning platforms used (Blackboard, Moodle, Jusur and WebCT). This section focuses on the attitude of academic staff and students towards e-learning in general and the level of satisfaction towards e-learning platforms used in their universities. The results in this section are presented in nine sub-sections starting with five sections about attitude towards general e-learning related to demographic and experience factors. Then the following two sub-sections present the users’ levels of satisfaction towards the four e-learning platforms used in Saudi Arabian universities related also to demographic and experience factors. In each sub-section, academic staff data is presented first followed by student data.

#### 6.5.1 Scale totals for each attitude

This section provides information about academic staff and students’ attitudes towards e-learning for each attitude scale individually. In addition, a t-test comparison between
students and academic staff is provided for each of the attitude scales. In all but one of the tables in this section, higher means represents a more positive attitude. For example, the mean of EL Acceptance for academic staff in Table 6.17 was 3.09 out of a possible 4 which indicates a moderately high level of EL Acceptance. However, the EL Anxiety scale is an important exception, as low numbers indicate low anxiety, which is a more positive attitude. For example, the mean of EL Anxiety for academic staff in Table 6.17 was 1.98 which was lower than the neutral point (2.5 in 1-4 scale) which means their EL Anxiety towards e-learning was low, which implies they were more positive towards e-learning. Table 6.17 presents the means for each attitude scale for academic staff and students.

Table 6.17 shows that, in general, academic staff and students reported positive attitudes towards e-learning. When the means were compared using t-tests, it was found that students were significantly more anxious (mean = 2.07) than academic staff (mean = 1.98) towards e-learning, while academic staff significantly had higher levels of EL Liking, EL Productivity and EL Opportunity.

This indicates that academic staff were significantly more positive towards e-learning in these dimensions.

### 6.5.2 Attitude towards e-learning in four Saudi universities

In this sub-section the scale means are provided for academic staff and students in each of the four universities individually. Academic staff in all universities reported positive attitudes towards e-learning in general. The data in Table 6.18 were analysed using an
ANOVA, and a post-hoc Scheffe test was used to identify significant differences between universities. There were significant differences between academic staff attitudes across the four universities for EL Acceptance, EL Productivity, and EL Opportunity. The Scheffe test indicated that EL Acceptance by academic staff in University A was significantly higher than for academic staff in University D. The Scheffe test also showed that the EL Opportunity mean for University A was significantly higher than for both University D and University C. In addition, the EL Productivity means for University A and University B were significantly higher than that for University D.

Table 6.18: Academic staff attitude towards e-learning in four Saudi universities

<table>
<thead>
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<th>Mean</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
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<td>0.002*</td>
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</table>

* The significance level is 0.05
Students in all universities reported positive attitudes towards e-learning in general. The data in Table 6.19 showed that there were significant differences between students’ attitude in the investigated universities for all six e-learning attitude sub-scales. While the ANOVA test found significant differences between the four universities for the attitudes scales EL Anxiety, EL Liking, and EL Opportunity, the Scheffe test showed that the differences were not significant enough to differentiate specific universities. However, the EL Acceptance mean of students in University C was significantly higher than students of University D. The EL Confidence means of students in University C and University D were significantly higher than for students of University A.

Table 6.19: Student attitudes towards e-learning in four Saudi universities

<table>
<thead>
<tr>
<th>EL attitude by university</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
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<td><strong>EL Acceptance</strong></td>
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<td>0.000*</td>
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<td>0.595</td>
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</tr>
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<td>0.627</td>
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<td>0.595</td>
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<tr>
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<td>0.548</td>
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<tr>
<td>Total</td>
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<td>2.07</td>
<td>0.592</td>
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<td><strong>EL Confidence</strong></td>
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<td>0.594</td>
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<td>0.570</td>
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<td>2.82</td>
<td>0.598</td>
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</tr>
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<td><strong>EL Opportunity</strong></td>
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<td></td>
</tr>
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<td>0.547</td>
<td>3.75</td>
<td>0.011*</td>
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<td>0.557</td>
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<td>0.555</td>
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</tr>
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<td></td>
</tr>
<tr>
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<td>3.09</td>
<td>0.616</td>
<td>9.01</td>
<td>0.000*</td>
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<td>3.04</td>
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<td>University C</td>
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<tr>
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<td>0.550</td>
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<tr>
<td>Total</td>
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<td>3.15</td>
<td>0.619</td>
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* The significance level is 0.05
The EL Productivity mean for students of University D was significantly higher than for students of University A and University B, and it was also higher for University C students than for University B students.

### 6.5.3 Attitude comparisons by gender

In this sub-section the comparison between male and female is presented.

#### Table 6.20: Academic staff attitudes towards e-learning by gender

<table>
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<tr>
<th>Attitude subscales</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig. (2-tailed)</th>
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<td>Acceptance</td>
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<td>152</td>
<td>3.09</td>
<td>0.443</td>
<td>0.06</td>
<td>0.952</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>94</td>
<td>3.09</td>
<td>0.472</td>
<td></td>
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</tr>
<tr>
<td>Anxiety</td>
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<td>1.86</td>
<td>0.517</td>
<td>4.95</td>
<td>0.000*</td>
</tr>
<tr>
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<td>94</td>
<td>2.18</td>
<td>0.549</td>
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</tr>
<tr>
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<td>Male</td>
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<td>3.26</td>
<td>0.422</td>
<td>6.31</td>
<td>0.000*</td>
</tr>
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<td>94</td>
<td>2.92</td>
<td>0.408</td>
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<td></td>
</tr>
<tr>
<td>Liking</td>
<td>Male</td>
<td>151</td>
<td>3.15</td>
<td>0.464</td>
<td>4.95</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>94</td>
<td>2.83</td>
<td>0.524</td>
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<tr>
<td>Opportunity</td>
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<td>0.404</td>
<td>1.75</td>
<td>0.082</td>
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<tr>
<td>Productivity</td>
<td>Male</td>
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<td>0.445</td>
<td>1.06</td>
<td>0.292</td>
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<td>3.34</td>
<td>0.549</td>
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</tr>
</tbody>
</table>

* The significance level is 0.05

Male and female academic staff reported positive attitudes in general. T-tests were used to identify any significant differences between genders. The data in Table 6.20 show that there were significant differences between male and female academic staff for EL Anxiety, EL Confidence, and EL Liking. Male academic staff had higher EL Liking and EL Confidence than females. The EL Anxiety mean of female academic staff (2.18) was less than the neutral point (2.5 in 4 points scale), however their EL Anxiety mean was higher than the male academic staff EL Anxiety mean (1.86). This implies that female academic staff had significantly higher EL Anxiety than males.

#### Table 6.21: Student attitudes towards e-learning by gender

<table>
<thead>
<tr>
<th>Attitude subscales</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig. (2-tailed)</th>
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<td>Acceptance</td>
<td>Male</td>
<td>264</td>
<td>2.99</td>
<td>0.502</td>
<td>- 3.61</td>
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<tr>
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<td>Female</td>
<td>209</td>
<td>3.17</td>
<td>0.606</td>
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<tr>
<td>Anxiety</td>
<td>Male</td>
<td>267</td>
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<td>0.570</td>
<td>- 1.83</td>
<td>0.067</td>
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<tr>
<td></td>
<td>Female</td>
<td>213</td>
<td>2.13</td>
<td>0.616</td>
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<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>Male</td>
<td>267</td>
<td>3.06</td>
<td>0.538</td>
<td>0.40</td>
<td>0.688</td>
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<td>210</td>
<td>3.04</td>
<td>0.628</td>
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<td></td>
</tr>
<tr>
<td>Liking</td>
<td>Male</td>
<td>266</td>
<td>2.83</td>
<td>0.555</td>
<td>0.51</td>
<td>0.611</td>
</tr>
<tr>
<td></td>
<td>Female</td>
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<td>2.80</td>
<td>0.648</td>
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</tr>
</tbody>
</table>
Male and female students reported positive attitudes towards e-learning in general. The data in Table 6.21 show that females had a higher level of EL Acceptance than males, but no other significant differences were identified.

6.5.4 Attitude towards e-learning by teaching experience and study year level

The number of years of teaching experience of academic staff was categorised into three groups as described above in section 6.2.2. An ANOVA was used to identify any significant differences between them with regard to the attitude scales.

Table 6.22: Academic staff attitude towards e-learning by teaching experience

<table>
<thead>
<tr>
<th>Attitude sub-scales</th>
<th>Teaching experience</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
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<td>114</td>
<td>3.09</td>
<td>0.451</td>
<td>0.032</td>
<td>0.969</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>91</td>
<td>3.10</td>
<td>0.442</td>
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<td></td>
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<tr>
<td></td>
<td>More than 20</td>
<td>40</td>
<td>3.08</td>
<td>0.502</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>245</td>
<td>3.09</td>
<td>0.454</td>
<td>2.997</td>
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<td>10 and less</td>
<td>114</td>
<td>2.06</td>
<td>0.534</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>90</td>
<td>1.88</td>
<td>0.554</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>41</td>
<td>1.97</td>
<td>0.572</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>1.98</td>
<td>0.552</td>
<td>4.179</td>
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<td></td>
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<td>40</td>
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<td>0.470</td>
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<tr>
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<td>244</td>
<td>3.13</td>
<td>0.449</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Liking</td>
<td>10 and less</td>
<td>114</td>
<td>3.00</td>
<td>0.464</td>
<td>0.954</td>
<td>0.387</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>90</td>
<td>3.08</td>
<td>0.590</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>40</td>
<td>2.97</td>
<td>0.447</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td>3.02</td>
<td>0.512</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Opportunity</td>
<td>10 and less</td>
<td>114</td>
<td>3.26</td>
<td>0.416</td>
<td>0.019</td>
<td>0.981</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>91</td>
<td>3.27</td>
<td>0.429</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>40</td>
<td>3.28</td>
<td>0.522</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>245</td>
<td>3.27</td>
<td>0.438</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Productivity</td>
<td>10 and less</td>
<td>113</td>
<td>3.37</td>
<td>0.471</td>
<td>0.151</td>
<td>0.860</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>91</td>
<td>3.41</td>
<td>0.470</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>40</td>
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<td>0.575</td>
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<td>Total</td>
<td>244</td>
<td>3.39</td>
<td>0.487</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05
The three levels of academic staff reported positive attitudes towards e-learning. The data in Table 6.22 show there were no differences between the groups, except with regard to EL Confidence. However, a Scheffe test did not identify any particular group as significantly different from others for EL Confidence.

### Table 6.23: Student attitudes towards e-learning by study experience

<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>Study years</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL acceptance</td>
<td>5 and less</td>
<td>61</td>
<td>2.98</td>
<td>0.428</td>
<td>-2.216</td>
<td>0.028*</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>185</td>
<td>3.13</td>
<td>0.457</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL anxiety</td>
<td>5 and less</td>
<td>61</td>
<td>2.11</td>
<td>0.605</td>
<td>2.113</td>
<td>0.036*</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>185</td>
<td>1.94</td>
<td>0.527</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL confidence</td>
<td>5 and less</td>
<td>61</td>
<td>3.06</td>
<td>0.405</td>
<td>-1.358</td>
<td>0.176</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>184</td>
<td>3.15</td>
<td>0.461</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL liking</td>
<td>5 and less</td>
<td>61</td>
<td>3.00</td>
<td>0.448</td>
<td>-0.442</td>
<td>0.659</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>184</td>
<td>3.03</td>
<td>0.531</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL opportunity</td>
<td>5 and less</td>
<td>61</td>
<td>3.25</td>
<td>0.451</td>
<td>-0.402</td>
<td>0.688</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>185</td>
<td>3.27</td>
<td>0.434</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL productivity</td>
<td>5 and less</td>
<td>61</td>
<td>3.37</td>
<td>0.426</td>
<td>-0.220</td>
<td>0.826</td>
</tr>
<tr>
<td></td>
<td>More than 5</td>
<td>184</td>
<td>3.39</td>
<td>0.507</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

The students were categorised into two groups according to their study years in the university. The two groups of students reported positive attitudes towards e-learning in general. The data in Table 6.23 show significant differences between the two groups for EL Anxiety and EL Acceptance only. Students with more than five years of study experience had a significantly higher level of EL Acceptance (mean 3.13) than students with five years and less of study experience (mean 2.98). They also had lower EL Anxiety than the less experienced students.

#### 6.5.5 Attitude towards e-learning by IT experience

IT experience represented participants’ experience using computers, email and the internet. Experience was categorised into two groups, for both staff and students. The first group represented the less experienced group [Less] who were users with less than five years’ experience. The second group represented the more experienced group [More] who were users with five years’ experience or more. T-tests were used to compare the two groups for each attitude scale.
Both groups of academic staff reported positive attitudes towards e-learning. The t-tests on data in Table 6.24 suggest significant differences between academic staff. More experienced academic staff with computers had significantly higher EL Acceptance, EL Confidence, EL Liking and EL Opportunity and they had lower EL Anxiety than academic staff who had used computers less. This implies academic staff with more experience with computers were more positive towards e-learning than the less experienced academic staff. Analysis of email usage data suggested that there were
significant differences between the two groups of academic staff for EL Anxiety, EL Liking, and EL Opportunity. Academic staff with higher experience with email had significantly higher levels of EL Liking and EL Opportunity, and less EL Anxiety than less experienced academic staff. There were no significant attitude differences between the two groups of academic staff according to their experience of using the internet.

Table 6.25: Student attitudes towards e-learning by years of IT experience.

<table>
<thead>
<tr>
<th>Type of experience</th>
<th>Attitude sub-scales</th>
<th>IT Experience level</th>
<th>Student attitude description</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer</strong></td>
<td>EL Acceptance</td>
<td>Less</td>
<td>184</td>
<td>3.07</td>
<td>0.560</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>289</td>
<td>3.06</td>
<td>0.557</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Anxiety</td>
<td>Less</td>
<td>186</td>
<td>2.21</td>
<td>0.606</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>294</td>
<td>1.99</td>
<td>0.569</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Confidence</td>
<td>Less</td>
<td>183</td>
<td>2.90</td>
<td>0.605</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>294</td>
<td>3.14</td>
<td>0.544</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Liking</td>
<td>Less</td>
<td>184</td>
<td>2.71</td>
<td>0.596</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>293</td>
<td>2.89</td>
<td>0.589</td>
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<td>EL Opportunity</td>
<td>Less</td>
<td>185</td>
<td>3.05</td>
<td>0.559</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>291</td>
<td>3.10</td>
<td>0.552</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Productivity</td>
<td>Less</td>
<td>183</td>
<td>3.13</td>
<td>0.599</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
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<td>0.633</td>
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</tr>
<tr>
<td><strong>Email</strong></td>
<td>EL Acceptance</td>
<td>Less</td>
<td>266</td>
<td>3.10</td>
<td>0.551</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>More</td>
<td>207</td>
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<td>0.565</td>
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<td>EL Anxiety</td>
<td>Less</td>
<td>271</td>
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<td>0.613</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>209</td>
<td>1.99</td>
<td>0.556</td>
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<tr>
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<td>EL Confidence</td>
<td>Less</td>
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<td>0.528</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>209</td>
<td>2.87</td>
<td>0.595</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Opportunity</td>
<td>Less</td>
<td>268</td>
<td>3.09</td>
<td>0.554</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
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<td>3.08</td>
<td>0.558</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Productivity</td>
<td>Less</td>
<td>266</td>
<td>3.14</td>
<td>0.603</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
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<td>3.17</td>
<td>0.641</td>
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<td></td>
</tr>
<tr>
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<td>Less</td>
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<td>0.564</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
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<td>0.620</td>
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</tr>
<tr>
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<td>More</td>
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<td>1.96</td>
<td>0.542</td>
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<td></td>
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<tr>
<td></td>
<td>EL Confidence</td>
<td>Less</td>
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<td>0.629</td>
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<tr>
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<td>0.502</td>
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<td>0.597</td>
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<td></td>
<td>More</td>
<td>239</td>
<td>2.90</td>
<td>0.589</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Opportunity</td>
<td>Less</td>
<td>238</td>
<td>3.06</td>
<td>0.567</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>More</td>
<td>238</td>
<td>3.11</td>
<td>0.543</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EL Productivity</td>
<td>Less</td>
<td>234</td>
<td>3.15</td>
<td>0.617</td>
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<tr>
<td></td>
<td></td>
<td>More</td>
<td>238</td>
<td>3.16</td>
<td>0.622</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05
The data in Table 6.25 show that the two groups of students reported positive attitudes towards e-learning in general. EL Anxiety for both groups of students was below the neutral point (2.5 in a 4 point scale) which indicated that students had low levels of anxiety. Analysis of the data indicated that the more experienced students with computers and internet had significantly higher levels of EL Confidence and EL Liking than less experienced students. The more experienced students with IT in general (computers, email and internet) had less anxiety towards e-learning.

6.5.6 Satisfaction towards e-learning platforms

This section will provide information about the users’ levels of satisfaction towards e-learning platforms (Blackboard, Jusur, Moodle and WebCT).

Table 6.26: Academic staff satisfaction towards e-learning platforms

<table>
<thead>
<tr>
<th>EL system</th>
<th>V. low (1)</th>
<th>Low (2)</th>
<th>High (3)</th>
<th>V. high (4)</th>
<th>Mean 1 – 4</th>
<th>Std. deviation</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard N = 58</td>
<td>1</td>
<td>6</td>
<td>26</td>
<td>25</td>
<td>3.29</td>
<td>0.726</td>
<td>195</td>
</tr>
<tr>
<td>Jusur N = 28</td>
<td>1</td>
<td>3</td>
<td>13</td>
<td>11</td>
<td>3.21</td>
<td>0.787</td>
<td>225</td>
</tr>
<tr>
<td>Moodle N = 35</td>
<td>1</td>
<td>7</td>
<td>19</td>
<td>8</td>
<td>2.97</td>
<td>0.747</td>
<td>218</td>
</tr>
<tr>
<td>WebCT N = 50</td>
<td>1</td>
<td>6</td>
<td>23</td>
<td>20</td>
<td>3.24</td>
<td>0.744</td>
<td>203</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>22</td>
<td>81</td>
<td>64</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The data in Table 6.26 show that most academic staff had high or very high levels of satisfaction towards e-learning platforms. Satisfaction towards Blackboard was the highest while satisfaction towards Moodle was the lowest.

The data in Table 6.27 show that students’ mean satisfaction levels towards e-learning platforms were just above the neutral point (2.5 out of a 4 point scale).
Table 6.27: Student satisfaction towards e-learning platforms

<table>
<thead>
<tr>
<th>EL system</th>
<th>Level of satisfaction</th>
<th>Mean 1 – 4</th>
<th>Std. deviation</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard N = 103</td>
<td>V. low (1)</td>
<td>22</td>
<td>2.56</td>
<td>1.026</td>
</tr>
<tr>
<td></td>
<td>Low (2)</td>
<td>20</td>
<td>2.54</td>
<td>1.073</td>
</tr>
<tr>
<td></td>
<td>High (3)</td>
<td>42</td>
<td>2.53</td>
<td>0.990</td>
</tr>
<tr>
<td></td>
<td>V. high (4)</td>
<td>19</td>
<td>2.60</td>
<td>1.104</td>
</tr>
<tr>
<td>Jusur N = 63</td>
<td>V. low (1)</td>
<td>20</td>
<td>2.54</td>
<td>1.073</td>
</tr>
<tr>
<td></td>
<td>Low (2)</td>
<td>18</td>
<td>2.54</td>
<td>1.073</td>
</tr>
<tr>
<td></td>
<td>High (3)</td>
<td>15</td>
<td>2.54</td>
<td>1.073</td>
</tr>
<tr>
<td></td>
<td>V. high (4)</td>
<td>10</td>
<td>2.54</td>
<td>1.073</td>
</tr>
<tr>
<td>Moodle N = 82</td>
<td>V. low (1)</td>
<td>22</td>
<td>2.53</td>
<td>0.990</td>
</tr>
<tr>
<td></td>
<td>Low (2)</td>
<td>22</td>
<td>2.53</td>
<td>0.990</td>
</tr>
<tr>
<td></td>
<td>High (3)</td>
<td>29</td>
<td>2.53</td>
<td>0.990</td>
</tr>
<tr>
<td></td>
<td>V. high (4)</td>
<td>9</td>
<td>2.53</td>
<td>0.990</td>
</tr>
<tr>
<td>WebCT N = 83</td>
<td>V. low (1)</td>
<td>20</td>
<td>2.60</td>
<td>1.104</td>
</tr>
<tr>
<td></td>
<td>Low (2)</td>
<td>13</td>
<td>2.60</td>
<td>1.104</td>
</tr>
<tr>
<td></td>
<td>High (3)</td>
<td>30</td>
<td>2.60</td>
<td>1.104</td>
</tr>
<tr>
<td></td>
<td>V. high (4)</td>
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</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>73</td>
<td>116</td>
<td>58</td>
</tr>
</tbody>
</table>

6.5.7 Satisfaction towards e-learning platforms by gender

This section provides information about users’ levels of satisfaction towards different e-learning platforms as a function of their gender.

Table 6.28: Academic staff satisfaction by gender

<table>
<thead>
<tr>
<th>EL system</th>
<th>gender</th>
<th>Academic staff satisfaction</th>
</tr>
</thead>
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<td></td>
<td></td>
<td>N</td>
</tr>
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<td>Male</td>
<td>37</td>
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<td>Jusur</td>
<td>Male</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>17</td>
</tr>
<tr>
<td>Moodle</td>
<td>Male</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>5</td>
</tr>
<tr>
<td>WebCT</td>
<td>Male</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>13</td>
</tr>
</tbody>
</table>

* significant level is 0.05

The data in Table 6.28 show that the level of satisfaction of male academic staff was significantly higher than females for all e-learning platforms investigated.

Table 6.29: Student satisfaction by gender

<table>
<thead>
<tr>
<th>EL system</th>
<th>gender</th>
<th>Student satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Satisfaction mean</td>
</tr>
<tr>
<td>Blackboard</td>
<td>Male</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>48</td>
</tr>
<tr>
<td>Jusur</td>
<td>Male</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>38</td>
</tr>
<tr>
<td>Moodle</td>
<td>Male</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>51</td>
</tr>
<tr>
<td>WebCT</td>
<td>Male</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>35</td>
</tr>
</tbody>
</table>

* significant level is 0.05
The data in Table 6.29 show that male and female students reported relatively low levels of satisfaction towards most e-learning platforms. A t-test showed that male students were significantly more satisfied than females with regard to WebCT only.

6.5.8 Satisfaction towards e-learning platforms by IT experience
IT experience was expected to be one of the factors that would affect academic staff and student satisfaction towards e-learning platforms. The types of IT experience investigated by the present study were computer experience, email experience and internet experience. In the following tables IT experience has been categorised into two groups for analysis purposes (5 years or less; More than 5 years).

Table 6.30: Academic staff satisfaction by computer experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Computer experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>5 years or less</td>
<td>10</td>
<td>3.50</td>
<td>0.527</td>
<td>0.991</td>
<td>0.326</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>48</td>
<td>3.25</td>
<td>0.758</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>5 years or less</td>
<td>4</td>
<td>3.00</td>
<td>0.000</td>
<td>0.581</td>
<td>0.566</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>24</td>
<td>3.25</td>
<td>0.847</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>5 years or less</td>
<td>3</td>
<td>3.00</td>
<td>0.000</td>
<td>0.068</td>
<td>0.946</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>32</td>
<td>2.97</td>
<td>0.782</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>5 years or less</td>
<td>8</td>
<td>2.63</td>
<td>0.916</td>
<td>2.711</td>
<td>0.009*</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>42</td>
<td>3.36</td>
<td>0.656</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

Academic staff reported high satisfaction for all e-learning platforms. Table 6.30 shows that academic staff with more than five years’ computer experience had a significantly higher satisfaction with WebCT than those with less computer experience.

Table 6.31: Student satisfaction by computer experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Computer experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>5 years or less</td>
<td>41</td>
<td>2.44</td>
<td>1.074</td>
<td>0.991</td>
<td>0.321</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>62</td>
<td>2.65</td>
<td>0.993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>5 years or less</td>
<td>35</td>
<td>2.26</td>
<td>1.120</td>
<td>0.15</td>
<td>0.875</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>28</td>
<td>2.21</td>
<td>1.031</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>5 years or less</td>
<td>40</td>
<td>2.13</td>
<td>0.911</td>
<td>1.62</td>
<td>0.109</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>42</td>
<td>2.48</td>
<td>1.042</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>5 years or less</td>
<td>33</td>
<td>2.33</td>
<td>1.051</td>
<td>1.85</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>More than 5 years</td>
<td>50</td>
<td>2.78</td>
<td>1.112</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05
Levels of satisfaction reported by students were lower than for academic staff and were below the neutral point in many cases. The data in Table 6.31 show that there was no significant difference in students’ satisfaction between the different groups regarding their experience of using computers. This suggests there was no significant relationship between students’ computer experience and their level of satisfaction towards e-learning platforms.

Table 6.32: Academic staff satisfaction by email experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>email experience</th>
<th>Academic staff satisfaction</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>5 years or less</td>
<td>18</td>
<td>3.11</td>
<td>0.900</td>
<td></td>
<td>1.289</td>
<td>0.203</td>
</tr>
<tr>
<td>Blackboard</td>
<td>More than 5 years</td>
<td>40</td>
<td>3.38</td>
<td>0.628</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>5 years or less</td>
<td>8</td>
<td>2.50</td>
<td>0.756</td>
<td></td>
<td><strong>3.675</strong></td>
<td><strong>0.001</strong>*</td>
</tr>
<tr>
<td>Jusur</td>
<td>More than 5 years</td>
<td>20</td>
<td>3.50</td>
<td>0.607</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>5 years or less</td>
<td>7</td>
<td>2.57</td>
<td>0.787</td>
<td></td>
<td>1.622</td>
<td>0.114</td>
</tr>
<tr>
<td>Moodle</td>
<td>More than 5 years</td>
<td>28</td>
<td>3.07</td>
<td>0.716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>5 years or less</td>
<td>13</td>
<td>2.85</td>
<td>0.987</td>
<td></td>
<td><strong>2.316</strong></td>
<td><strong>0.025</strong>*</td>
</tr>
<tr>
<td>WebCT</td>
<td>More than 5 years</td>
<td>37</td>
<td>3.38</td>
<td>0.594</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

The data in Table 6.32 show that academic staff with more than five years of email experience had a significantly higher level of satisfaction towards Jusur than academic staff with five years or less of email experience. Academic staff with more than five years of email experience had a significantly higher level of satisfaction towards WebCT than academic staff with five years or less of email experience. This implies more experience with email had a positive relationship with satisfaction towards Jusur and WebCT.

Table 6.33: Student satisfaction by email experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>email experience</th>
<th>Students’ satisfaction</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>5 years or less</td>
<td>56</td>
<td>2.54</td>
<td>1.044</td>
<td></td>
<td>0.29</td>
<td>0.769</td>
</tr>
<tr>
<td>Blackboard</td>
<td>More than 5 years</td>
<td>47</td>
<td>2.60</td>
<td>1.014</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>5 years or less</td>
<td>45</td>
<td>2.31</td>
<td>1.083</td>
<td></td>
<td>0.85</td>
<td>0.398</td>
</tr>
<tr>
<td>Jusur</td>
<td>More than 5 years</td>
<td>18</td>
<td>2.06</td>
<td>1.056</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>5 years or less</td>
<td>52</td>
<td>2.17</td>
<td>0.901</td>
<td></td>
<td>1.60</td>
<td>0.113</td>
</tr>
<tr>
<td>Moodle</td>
<td>More than 5 years</td>
<td>30</td>
<td>2.53</td>
<td>1.106</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>5 years or less</td>
<td>48</td>
<td>2.46</td>
<td>1.051</td>
<td></td>
<td>1.40</td>
<td>0.165</td>
</tr>
<tr>
<td>WebCT</td>
<td>More than 5 years</td>
<td>35</td>
<td>2.80</td>
<td>1.158</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05
The data in Table 6.33 show that there were no significant differences in students’ satisfaction towards the platforms according to their experience of using email. This implies that there is no significant relationship between students’ email experience and their satisfaction towards e-learning platforms.

### Table 6.34: Academic staff satisfaction by internet experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Internet experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard 5 years or less</td>
<td>16</td>
<td>2.94</td>
<td>0.854</td>
<td>2.093</td>
<td>0.048*</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>42</td>
<td>3.43</td>
<td>0.630</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur 5 years or less</td>
<td>6</td>
<td>2.33</td>
<td>0.816</td>
<td>3.779</td>
<td>0.001*</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>22</td>
<td>3.45</td>
<td>0.596</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle 5 years or less</td>
<td>7</td>
<td>2.57</td>
<td>0.787</td>
<td>1.622</td>
<td>0.114</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>28</td>
<td>3.07</td>
<td>0.716</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT 5 years or less</td>
<td>12</td>
<td>2.83</td>
<td>0.937</td>
<td>2.261</td>
<td>0.028*</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>38</td>
<td>3.37</td>
<td>0.633</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

The data in Table 6.34 show that there was no significant relationship between academic staff internet experience and their level of satisfaction towards Moodle. However, staff who were more experienced with the internet had significantly higher levels of satisfaction towards Blackboard, WebCT, and Jusur.

### Table 6.35: Student satisfaction by internet experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Internet experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard 5 years or less</td>
<td>52</td>
<td>2.40</td>
<td>1.053</td>
<td>1.603</td>
<td>0.112</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>51</td>
<td>2.73</td>
<td>0.981</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur 5 years or less</td>
<td>39</td>
<td>2.15</td>
<td>1.136</td>
<td>0.792</td>
<td>0.432</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>24</td>
<td>2.38</td>
<td>0.970</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle 5 years or less</td>
<td>47</td>
<td>2.11</td>
<td>0.938</td>
<td>2.151</td>
<td>0.035*</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>35</td>
<td>2.57</td>
<td>1.008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT 5 years or less</td>
<td>41</td>
<td>2.27</td>
<td>1.049</td>
<td>2.840</td>
<td>0.006*</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>42</td>
<td>2.93</td>
<td>1.068</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

The data in Table 6.35 show that students with more internet experience had significantly higher levels of satisfaction towards WebCT and Moodle than the less experienced groups but that there were no differences for Blackboard and Jusur.
6.5.9 Satisfaction by teaching experience and study year level

Participants of the present study were varied in their teaching experience and in their study years at the university. This section presents the differences between satisfaction levels towards e-learning platforms for academic staff and students in relation to their teaching experience and study years respectively.

Table 6.36: Academic staff satisfaction by teaching experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Teaching experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>10 and less</td>
<td>25</td>
<td>3.40</td>
<td>0.764</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>22</td>
<td>3.45</td>
<td>0.510</td>
<td>4.699</td>
<td>0.013*</td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>11</td>
<td>2.73</td>
<td>0.786</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>58</td>
<td>3.29</td>
<td>0.726</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>10 and less</td>
<td>16</td>
<td>3.13</td>
<td>0.806</td>
<td>0.765</td>
<td>0.476</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>8</td>
<td>3.50</td>
<td>0.535</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>4</td>
<td>3.00</td>
<td>1.155</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>28</td>
<td>3.21</td>
<td>0.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>10 and less</td>
<td>18</td>
<td>3.00</td>
<td>0.767</td>
<td>1.330</td>
<td>0.279</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>6</td>
<td>3.33</td>
<td>0.516</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>11</td>
<td>2.73</td>
<td>0.786</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>35</td>
<td>2.97</td>
<td>0.747</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>10 and less</td>
<td>26</td>
<td>3.15</td>
<td>0.881</td>
<td>0.434</td>
<td>0.651</td>
</tr>
<tr>
<td></td>
<td>11 to 20</td>
<td>17</td>
<td>3.29</td>
<td>0.588</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 20</td>
<td>7</td>
<td>3.43</td>
<td>0.535</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50</td>
<td>3.24</td>
<td>0.744</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data in Table 6.36 show that according to the ANOVA tests, there was a significant relationship between teaching experience and satisfaction levels towards Blackboard. According to the Scheffe tests, academic staff with 11 to 20 years of teaching experience (the middle experienced academic staff) had a significantly higher level of satisfaction towards Blackboard than academic staff with more than 20 years of teaching experience (the more experienced academic staff).
Table 6.37: Student satisfaction by study experience

<table>
<thead>
<tr>
<th>EL system</th>
<th>Study experience</th>
<th>N</th>
<th>Satisfaction mean</th>
<th>Std. Deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard</td>
<td>5 and less</td>
<td>93</td>
<td>2.55</td>
<td>1.027</td>
<td>-0.442</td>
<td>0.659</td>
</tr>
<tr>
<td>Blackboard</td>
<td>More than 5</td>
<td>10</td>
<td>2.70</td>
<td>1.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur</td>
<td>5 and less</td>
<td>56</td>
<td>2.20</td>
<td>1.086</td>
<td>-0.870</td>
<td>0.388</td>
</tr>
<tr>
<td>Jusur</td>
<td>More than 5</td>
<td>7</td>
<td>2.57</td>
<td>0.976</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moodle</td>
<td>5 and less</td>
<td>72</td>
<td>2.22</td>
<td>0.953</td>
<td>-2.070</td>
<td>0.042*</td>
</tr>
<tr>
<td>Moodle</td>
<td>More than 5</td>
<td>10</td>
<td>2.90</td>
<td>1.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebCT</td>
<td>5 and less</td>
<td>74</td>
<td>2.59</td>
<td>1.109</td>
<td>-0.184</td>
<td>0.855</td>
</tr>
<tr>
<td>WebCT</td>
<td>More than 5</td>
<td>9</td>
<td>2.67</td>
<td>1.118</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

In general, there were positive relationships between students’ study years and their satisfaction towards e-learning platforms. Table 6.37 shows that according to t-tests, students with more than five years of study experience had significantly higher levels of satisfaction towards Moodle than students with less study experience.

### 6.6 Attitude in relation to the use of e-learning platforms

In this section, the relationships between attitude scales and the use of e-learning platforms are presented. The first sub-section compares the attitude scales of users and non-users of e-learning. The second sub-section compares the attitude scales of users of each e-learning platform, users of multiple e-learning platforms, and participants who did not use any of the e-learning platforms. The third sub-section presents the relationships between usage hours of each e-learning platform and the attitude scales.

#### 6.6.1 Attitudes of users and non-users of e-learning platforms

Tables 6.38 and 6.39 present the scale means for participants who were using one or more than one e-learning platform and participants who were not using any e-learning platform. The reason for this comparison was that a substantial proportion of the participants who answered the attitude section in the questionnaire were not using any e-learning, but their attitude still counted for the present study. It was therefore necessary to determine whether their responses were significantly different.
Table 6.38: Attitude of academic staff users and non-users of e-learning

<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>Use any EL</th>
<th>N</th>
<th>Attitude Mean 1 - 4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>do not use EL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Acceptance</td>
<td>use EL</td>
<td>129</td>
<td>3.12</td>
<td>0.429</td>
<td>0.945</td>
<td>0.332</td>
</tr>
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<td></td>
<td>Total</td>
<td>246</td>
<td>3.09</td>
<td>0.454</td>
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<td></td>
</tr>
<tr>
<td>EL Anxiety</td>
<td>do not use EL</td>
<td>129</td>
<td>1.96</td>
<td>0.569</td>
<td>0.297</td>
<td>0.586</td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>117</td>
<td>2.00</td>
<td>0.532</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>246</td>
<td>1.98</td>
<td>0.551</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Confidence</td>
<td>do not use EL</td>
<td>128</td>
<td>3.11</td>
<td>0.492</td>
<td>0.954</td>
<td>0.330</td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>117</td>
<td>3.16</td>
<td>0.397</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>245</td>
<td>3.13</td>
<td>0.449</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Liking</td>
<td>do not use EL</td>
<td>128</td>
<td>3.05</td>
<td>0.516</td>
<td>0.638</td>
<td>0.425</td>
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<td></td>
<td>use EL</td>
<td>117</td>
<td>3.00</td>
<td>0.505</td>
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</tr>
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<td>Total</td>
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<td>3.02</td>
<td>0.511</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Opportunity</td>
<td>do not use EL</td>
<td>129</td>
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<td>0.440</td>
<td>0.535</td>
<td>0.465</td>
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<td>0.434</td>
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<td></td>
</tr>
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<td>Total</td>
<td>246</td>
<td>3.27</td>
<td>0.437</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Productivity</td>
<td>do not use EL</td>
<td>129</td>
<td>3.37</td>
<td>0.495</td>
<td>0.377</td>
<td>0.540</td>
</tr>
<tr>
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<td>use EL</td>
<td>116</td>
<td>3.40</td>
<td>0.481</td>
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<td>3.38</td>
<td>0.488</td>
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<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

Academic staff in the investigated universities in general reported positive attitudes towards e-learning. Interestingly, the data in Table 6.38 showed that there were no significant differences between the attitudes of academic staff who used e-learning platforms and others who did not use e-learning platforms, for any of the attitude scales.

Both groups of students (users and non-users of e-learning) in general reported positive attitudes towards e-learning (means were above the neutral point 2.5 in a four-point scale for positive attitudes and less than the neutral point for EL Anxiety) for all of the attitude sub-scales. In contrast to the academic staff, the data in Table 6.39 show that there were significant differences between students who were using any e-learning platform and students who were not using any e-learning platform, for all attitude scales. Students who were using e-learning platforms had significantly higher EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity and they had less EL Anxiety, than students who were not using any e-learning platform. This indicated that the use of e-learning platforms has positive relationships with students’ attitudes towards e-learning.
### Table 6.39: Attitude of student users and non-users of e-learning

<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>Use any EL</th>
<th>N</th>
<th>Attitude Mean 1 - 4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Acceptance</td>
<td>do not use EL</td>
<td>353</td>
<td>3.02</td>
<td>0.566</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>120</td>
<td>3.21</td>
<td>0.506</td>
<td>11.038</td>
<td>0.001*</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>473</td>
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<td>0.558</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>355</td>
<td>2.11</td>
<td>0.595</td>
<td>4.989</td>
<td>0.026*</td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>125</td>
<td>1.97</td>
<td>0.576</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>480</td>
<td>2.07</td>
<td>0.592</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Confidence</td>
<td>do not use EL</td>
<td>354</td>
<td>2.97</td>
<td>0.598</td>
<td>28.871</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>123</td>
<td>3.29</td>
<td>0.449</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>477</td>
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<td>0.579</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Liking</td>
<td>do not use EL</td>
<td>354</td>
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<td>0.599</td>
<td>12.156</td>
<td>0.001*</td>
</tr>
<tr>
<td></td>
<td>use EL</td>
<td>123</td>
<td>2.98</td>
<td>0.566</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>477</td>
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<td>0.598</td>
<td></td>
<td></td>
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<tr>
<td>EL Opportunity</td>
<td>do not use EL</td>
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<td>0.565</td>
<td>9.805</td>
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<td>123</td>
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<td>0.504</td>
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<td></td>
</tr>
<tr>
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<td>Total</td>
<td>476</td>
<td>3.08</td>
<td>0.555</td>
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<td></td>
</tr>
<tr>
<td>EL Productivity</td>
<td>do not use EL</td>
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<td>0.629</td>
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<td>use EL</td>
<td>123</td>
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</tr>
</tbody>
</table>

* The significance level is 0.05

#### 6.6.2 Attitude of users of particular e-learning platforms towards e-learning

This section provides information about users of each e-learning platform. The data were divided into six groups for the analysis. Four groups represent users of the four e-learning platforms, Blackboard-only users, WebCT-only users, Moodle-only users, and Jusur-only users. One group represents the users who were using more than one platform, for example Blackboard plus WebCT. The last group represents participants who have not used any e-learning platform. The following tables provide the means for attitude scales in relation to the six groups. Means were compared using an ANOVA.

The data in Table 6.40 show that there were significant differences in attitudes between academic staff according to their use of e-learning platforms for EL Acceptance, EL Confidence and EL Liking. Scheffe tests indicated that academic staff using Jusur had significantly higher EL Acceptance than academic staff using WebCT. Academic staff using WebCT had significantly higher EL Liking than academic staff using Blackboard. However, according to the Scheffe test there was no particular group significantly different from the others for the attitude scale EL Confidence.
<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>E-learning platform users</th>
<th>N</th>
<th>Attitude Mean 1-4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>EL Acceptance</td>
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<td>16</td>
<td>3.15</td>
<td>0.423</td>
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<tr>
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<td>2.71</td>
<td>0.414</td>
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<td>3.19</td>
<td>0.266</td>
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<td></td>
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<td></td>
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<td></td>
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<td>3.12</td>
<td>0.429</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
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<td>0.447</td>
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<td>0.569</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>0.354</td>
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<td>0.266</td>
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* The significance level is 0.05
Table 6.41: Attitude of students using different e-learning platforms

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<th>Attitude Mean 1-4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
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<td>3.34</td>
<td>0.508</td>
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<td>0.514</td>
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</tr>
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<td>0.566</td>
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<td>1.84</td>
<td>0.508</td>
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<td></td>
</tr>
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<td></td>
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<td>3.33</td>
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* The significance level is 0.05
Table 6.41 shows that there were significant differences in attitudes between students according to their use of e-learning platforms. This applied to all the attitude scales except EL Opportunity. However, Scheffe tests did not identify any particular group as differing significantly from other groups.

6.6.3 Attitude towards e-learning platforms related to usage hours

In this section, the relationships between user attitudes (the six scales) and usage hours of each e-learning platform are presented. Most of these results are presented in (Appendix N), due to the large size of each table. However, Table 6.42 presents one example, which is the usage hours of Blackboard in relation to the attitudes of academic staff. The usage hours were categorised into seven groups. Six groups (0 to 5) represent the number of usage hours per week for each e-learning platform. The last group represents more than five usage hours per week. ANOVA tests were used to compare the means of the attitude scales for each group of usage hours.

The data in Table 6.42 show that there were significant relationships between Blackboard usage hours and academic staff attitude for EL Anxiety, EL Acceptance, EL Liking and EL Opportunity. Scheffe tests identified that academic staff with five hours per week usage of Blackboard had significantly higher EL Anxiety than users with more than five hours usage per week. For other scales there was no particular group different from the others. There were no significant differences between the different groups regarding usage hours of academic staff for Blackboard for EL Acceptance, EL Liking and EL Opportunity.

With reference to the tables in Appendix N, the following patterns were also identified. The data in Table 6.43 suggest that there were significant relationships between Blackboard usage hours and students’ attitude for EL confidence, EL liking and EL productivity. However, Scheffe tests did not show any difference between particular groups.
Table 6.42: Attitudes of academic staff using Blackboard

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<th>F</th>
<th>Sig.</th>
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* The significance level is 0.05
The data in Table 6.44 (Appendix N) suggest that there were significant relationships between WebCT usage hours and academic staff attitude towards e-learning. Scheffe tests showed that academic staff with three and five hours’ usage of WebCT per week had significantly less EL Anxiety than academic staff with one hour’s usage per week. Academic staff with one hour and two hours’ usage of WebCT per week had significantly less EL Liking than the five hours’ usage group. Moreover, one and zero usage hours groups had a lower EL Productivity than the group of five hours’ usage per week. These results imply a positive relationship between usage hours of Blackboard and WebCT and academic staff attitude towards e-learning. For the other attitude scales, Scheffe tests did not show any significant differences between any particular groups regarding WebCT usage hours. The data in Table 6.45 (Appendix N) suggest that there were significant relationships between WebCT usage hours and students’ attitudes for EL Confidence and EL Productivity. However, Scheffe tests did not show any significant difference between any particular groups.

The data in Table 6.46 (Appendix N) suggest that there was no significant relationship between academic staff attitude and their usage hours of Moodle for any of the attitude scales. The data in Table 6.47 suggest that there were significant relationships between student attitude and usage hours of Moodle for EL Liking and EL Productivity. However, Scheffe tests did not show any significant difference between any particular groups. The data in Table 6.48 (Appendix N) suggest that there was a significant relationship between academic staff attitude and Jusur usage hours for EL Liking. However, Scheffe tests did not show any significant difference between particular groups. The data in Table 6.49 (Appendix N) suggest that there was no significant relationship between student attitude towards e-learning and Jusur usage hours.

6.7 Attitude and level of satisfaction towards e-learning

In this study, attitude towards e-learning represented participant attitude towards the use of e-learning even they used it or not, while satisfaction represented user’s views in relation to their use of particular e-learning platforms. This section provides information about the relationship between attitudes towards e-learning and levels of satisfaction towards each specific e-learning platform used (Blackboard, WebCT, Moodle, and Jusur).
6.7.1 Attitude towards e-learning and level of satisfaction towards Blackboard
In this section the attitude differences between the different groups of Blackboard users in terms of their level of satisfaction are presented. The four possible levels of satisfaction were Very High (4), High (3), Low (2) and Very Low (1), and the attitudes of each of these groups were compared using ANOVA tests.

The data in Table 6.50 (Appendix O) show that there were significant differences among the four satisfaction groups for Blackboard in relation to EL Opportunity, but there were no significant differences for the other attitude scales. However, Scheffe tests did not show any significant differences between the four groups in relation to EL Opportunity.

The data in Table 6.51 (Appendix O) show that there were significant relationships between student satisfaction towards Blackboard and all six attitude scales. According to Scheffe tests, the Very High satisfaction group had significantly higher EL Confidence than the Low and Very Low satisfaction groups. The Low satisfaction group had significantly higher EL Confidence than the Very Low satisfaction group. Scheffe tests also showed that the Very High and High satisfaction groups had significantly higher EL Liking than the Very Low satisfaction group. In addition, the Very Low satisfaction group had a significantly lower EL Productivity mean than the three other groups. The Very High and Low satisfaction groups had significantly higher EL Opportunity means than the Very Low group. Thus, there were several cases in which students with higher levels of satisfaction towards Blackboard had more positive attitudes towards e-learning.

6.7.2 Attitude towards e-learning and level of satisfaction towards WebCT
In this section, the attitude differences between the different groups using WebCT in terms of their level of satisfaction are presented. The data in Table 6.52 (Appendix O) show that there were significant relationships between academic staff satisfaction towards WebCT and their attitudes EL Anxiety, EL Acceptance, EL Confidence and EL Opportunity. However, Scheffe tests did not show any group as being different to other groups.
The data in Table 6.53 (Appendix O) show that there were significant relationships between the four groups of students and the attitude scales EL Confidence, EL Liking, EL Productivity, and EL Opportunity. Scheffe tests showed that the Very Low satisfaction group had significantly less EL Confidence than the other three groups and also had significantly less EL Liking than the Very High and High satisfaction groups. It was also found that the Very High satisfaction group had a significantly higher EL Productivity mean than the Low and Very Low satisfaction groups. The High satisfaction group had a significantly higher EL Productivity than the Very Low satisfaction group. The Very High satisfaction group had a significantly higher EL Opportunity than the Very Low satisfaction. Thus, there were several examples in which students with higher levels of satisfaction towards WebCT had more positive attitudes towards e-learning in general.

6.7.3 Attitude towards e-learning and level of satisfaction towards Moodle

In this section the attitudes of the different groups of Moodle users are presented. The data in Table 6.54 (Appendix O) show that there were significant relationships between academic staff satisfaction towards Moodle and their attitude for the scales EL Liking, EL Productivity, and EL Opportunity. However, the Scheffe tests did not show any differences between specific groups.

The data in Table 6.55 (Appendix O) show that there were significant relationships between the four groups for all EL attitude scales. Scheffe tests showed that students with Very High satisfaction had significantly higher EL Acceptance and EL Productivity means than the Very Low satisfaction group. Students with Very Low satisfaction had significantly higher EL Anxiety and less EL Confidence and EL Liking than the High and Very High satisfaction groups. For EL Opportunity, Scheffe tests did not show any significant differences between specific groups. These data indicated that there was often a positive relationship between students’ attitude towards e-learning and their level of satisfaction towards Moodle.

6.7.4 Attitude towards e-learning and level of satisfaction towards Jusur

This section compares the attitudes of the different groups of Jusur users. The data in Table 6.56 (Appendix O) show that there were significant relationships between academic staff EL Opportunity means and their level of satisfaction towards Jusur.
However, according to Scheffe tests, no particular group was significantly different from the others.

The data in Table 6.57 (Appendix O) show significant relationships between the four groups for EL Acceptance, EL Anxiety, EL Confidence, EL Liking and EL Productivity. Scheffe tests showed that the Very High satisfaction students had significantly higher EL Acceptance than the Very Low group. The Very High and High satisfaction groups had significantly higher EL Confidence than the Very Low group. The Very High satisfaction group had a significantly higher EL Productivity mean than the Low and the Very Low groups. The Very Low satisfaction group had significantly higher EL Anxiety than the Very High satisfaction students. To sum up, there were several positive relationships between students’ attitudes towards e-learning and their level of satisfaction towards Jusur.

Table 6.58: Relationships between attitudes towards and of satisfaction

<table>
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<tr>
<th>EL systems</th>
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<th>Significant attitude differences between groups regarding their level of satisfaction</th>
<th>Attitude subscales</th>
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<td></td>
<td>Higher level of satisfaction</td>
<td>Lower level of satisfaction</td>
</tr>
<tr>
<td>Blackboard</td>
<td>Staff</td>
<td>No difference between specific groups</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Very high</td>
<td>Low – very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high – low</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – low</td>
<td>Very low</td>
</tr>
<tr>
<td>Jusur</td>
<td>Staff</td>
<td>No difference between specific groups</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Very low</td>
<td>Very high</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Low – very low</td>
</tr>
<tr>
<td>Moodle</td>
<td>Staff</td>
<td>No difference between specific groups</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Very low</td>
<td>High – very high</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Very low</td>
</tr>
<tr>
<td>WebCT</td>
<td>Staff</td>
<td>No difference between specific groups</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Students</td>
<td>Very high – high – low</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high – high</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Low – very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High</td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very high</td>
<td>Very low</td>
</tr>
</tbody>
</table>
Table 6.58 provides a summary of staff and student attitudes towards e-learning and their levels of satisfaction towards the four investigated e-learning platforms. Generally, there were no significant relationships between academic staff satisfaction towards the e-learning platforms involved in the study and their attitudes towards e-learning. On the other hand, there were significant differences between attitudes of higher and lower satisfaction groups of students. Students with a higher level of satisfaction had significantly more positive attitudes towards e-learning than students with a lower level of satisfaction towards e-learning platforms. For example, students with higher levels of satisfaction towards the Jusur e-learning platform had higher means for the scales EL Confidence, EL Acceptance, and EL Productivity, while they had lower levels of EL Anxiety.

6.8 The use of e-learning tools
E-learning tools are specific capabilities often offered by e-learning platforms, such as the email system, announcement system, and online assessment. This section focuses on e-learning tool usage at the four investigated Saudi Arabian universities. The first sub-section presents basic data about each particular tool, including the number of users, the usage hours and the level of satisfaction. The tools were then categorised into two groups based on the level of interaction enabled by the tool, and further analysed.

6.8.1 E-learning tools usage and satisfaction
This section provides information about e-learning tools, including users and non-users of e-learning tools, e-learning tool usage hour means, and levels of satisfaction towards e-learning tools.

Table 6.59 shows that some tools were used by high numbers of academic staff, including email, online announcements, online submitting and online course outlines. On the other hand, there were tools used by low numbers of academic staff, and these included Podcast software, Blogs or Wikis, and online video recording systems. The highest usage hours were for email (mean 4.58 hours per week) while the lowest usage hours were for Podcast software (mean 1.09 hours per week).
Table 6.59: Academic staff use of e-learning tools

<table>
<thead>
<tr>
<th>EL tools</th>
<th>Do you use the tool?</th>
<th>Usage hours mean (hrs/week)</th>
<th>Level of satisfaction mean (1 – 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Blogs or Wiki software</td>
<td>24</td>
<td>9.7</td>
<td>224</td>
</tr>
<tr>
<td>Email</td>
<td>214</td>
<td>85.6</td>
<td>36</td>
</tr>
<tr>
<td>Online announcement</td>
<td>149</td>
<td>59.8</td>
<td>100</td>
</tr>
<tr>
<td>Online assessment</td>
<td>76</td>
<td>30.6</td>
<td>162</td>
</tr>
<tr>
<td>Online calendar</td>
<td>91</td>
<td>36.7</td>
<td>157</td>
</tr>
<tr>
<td>Online chatting</td>
<td>75</td>
<td>30.2</td>
<td>173</td>
</tr>
<tr>
<td>Online course outline</td>
<td>149</td>
<td>60.6</td>
<td>97</td>
</tr>
<tr>
<td>Online discussion forum</td>
<td>75</td>
<td>30.2</td>
<td>173</td>
</tr>
<tr>
<td>Online feedback</td>
<td>55</td>
<td>22.4</td>
<td>191</td>
</tr>
<tr>
<td>Online links</td>
<td>127</td>
<td>51.4</td>
<td>120</td>
</tr>
<tr>
<td>Online resources</td>
<td>131</td>
<td>52.8</td>
<td>117</td>
</tr>
<tr>
<td>Online student information</td>
<td>114</td>
<td>46.0</td>
<td>134</td>
</tr>
<tr>
<td>Online submitting</td>
<td>165</td>
<td>66.5</td>
<td>83</td>
</tr>
<tr>
<td>Online video recording</td>
<td>24</td>
<td>9.7</td>
<td>223</td>
</tr>
<tr>
<td>Podcast software</td>
<td>12</td>
<td>4.8</td>
<td>236</td>
</tr>
<tr>
<td>Social networking tools</td>
<td>60</td>
<td>24.3</td>
<td>178</td>
</tr>
</tbody>
</table>

The levels of satisfaction for all e-learning tools were higher than neutral point (2.5 in a 4 points scale). The highest level of satisfaction was towards email (mean 3.34) and the lowest was towards Podcast software (mean 2.33).

Table 6.60: Student use of e-learning tools

<table>
<thead>
<tr>
<th>EL tools</th>
<th>Do you use the tool?</th>
<th>Usage hours mean (hrs/week)</th>
<th>Level of satisfaction mean (1 – 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>Blogs or Wiki software</td>
<td>86</td>
<td>18.4</td>
<td>381</td>
</tr>
<tr>
<td>Email</td>
<td>351</td>
<td>72.7</td>
<td>132</td>
</tr>
<tr>
<td>Online announcement</td>
<td>244</td>
<td>51.3</td>
<td>232</td>
</tr>
<tr>
<td>Online assessment</td>
<td>135</td>
<td>28.7</td>
<td>335</td>
</tr>
<tr>
<td>Online calendar</td>
<td>101</td>
<td>21.5</td>
<td>368</td>
</tr>
<tr>
<td>Online chatting</td>
<td>90</td>
<td>18.9</td>
<td>386</td>
</tr>
<tr>
<td>Online course outline</td>
<td>262</td>
<td>55.6</td>
<td>209</td>
</tr>
<tr>
<td>Online discussion forum</td>
<td>230</td>
<td>48.6</td>
<td>243</td>
</tr>
<tr>
<td>Online feedback</td>
<td>94</td>
<td>20.2</td>
<td>372</td>
</tr>
<tr>
<td>Online links</td>
<td>199</td>
<td>42.7</td>
<td>267</td>
</tr>
<tr>
<td>Online resources</td>
<td>247</td>
<td>53.0</td>
<td>219</td>
</tr>
<tr>
<td>Online staff information</td>
<td>354</td>
<td>74.8</td>
<td>119</td>
</tr>
<tr>
<td>Online submitting</td>
<td>296</td>
<td>61.9</td>
<td>182</td>
</tr>
<tr>
<td>Online video recording</td>
<td>105</td>
<td>22.4</td>
<td>363</td>
</tr>
<tr>
<td>Podcast software</td>
<td>26</td>
<td>5.7</td>
<td>433</td>
</tr>
<tr>
<td>Social networking tools</td>
<td>225</td>
<td>47.9</td>
<td>245</td>
</tr>
</tbody>
</table>
Table 6.60 shows that some e-learning tools were used by a high number of students, including email, online announcements, online staff information and online submitting. On the other hand, other e-learning tools were used by low numbers of students, including Podcast and Blogs and Wikis. Email had the highest usage hours (mean 4.33 hours per week) while Podcast software had the lowest usage hours (mean 2.00 hours per week). Similarly, email had the highest level of satisfaction (mean 3.21) while Podcast software had the lowest (mean 2.06).

In summary, email had the highest number of users, usage hours per week and level of satisfaction among both academic staff and students. On the other hand, Podcast software had the lowest number of users, usage hours per week and level of satisfaction among both academic staff and students.

6.8.2 Grouping of e-learning tools

For analysis purposes the e-learning tools were categorised into two groups based on the level of interaction enabled by the tool. The two groups were high interaction tools and low interaction tools. Table 6.61 presents the way that e-learning tools were categorised.

<table>
<thead>
<tr>
<th>Group name</th>
<th>E-learning tools included in group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Interaction tools</td>
<td>Online announcement - Online course outline - Online staff information - Online links - Online resources - Online calendar - Online submitting - Online assessment - Online feedback</td>
</tr>
<tr>
<td>High Interaction tools</td>
<td>Email - Podcast software - Online video recording - Online discussion forum - Online chatting - Blogs or Wiki software - Social networking tools</td>
</tr>
</tbody>
</table>

In Table 6.61, the first group represents e-learning tools that have low levels of interaction with the user. The low interaction tools are the online tools which enable users to receive information only, with limited interaction between users and the online system. For example, the online course outline is a low interaction tool because the user can only access the course outline to read it, and cannot send and respond. Similarly, the online announcement system is a one-way tool in that students and academic staff can read the announcements but cannot respond or send any information. The second group of e-learning tools are the High Interaction tools. These are the online tools that enable users to interact with each other and to interact with the system by sending and
receiving information. For example, an online chatting system is a High Interaction tool because it enables more than one user to participate and interact with others to send and receive information. Similarly, email and social networking tools also enable users to interact with each other by sending and receiving information online, so they were categorised as High Interaction tools.

6.8.3 E-learning tools groups

The following tables present information about the grouped e-learning tools. The data compare the use of e-learning tools, usage hours and level of satisfaction for Low Interaction tools versus High Interaction tools. T-tests were used to compare the means in each case.

Table 6.62: Differences between academic staff using e-learning tools

<table>
<thead>
<tr>
<th>Measures</th>
<th>EL tools groups</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>Low Interaction tools</td>
<td>4.18</td>
<td>2.449</td>
<td>17.554</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>1.91</td>
<td>1.263</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage hours</td>
<td>Low Interaction tools</td>
<td>11.74</td>
<td>12.301</td>
<td>6.260</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>7.76</td>
<td>7.278</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction level</td>
<td>Low Interaction tools</td>
<td>3.17</td>
<td>0.520</td>
<td>-0.285</td>
<td>0.776</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>3.18</td>
<td>0.621</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The significance level is 0.05

The data in Table 6.62 show that there were significant differences between low and high interaction e-learning tools in terms of use and usage hours. In each case, the use of Low Interaction tools was significantly higher than the use of High Interaction tools. Satisfaction levels for both groups were high, in that the means for both groups were above the neutral point (2.5 in a 4 points scale). However, there was no significant difference in levels of satisfaction between academic staff using Low versus High Interaction tools.

Table 6.63: Differences between students using e-learning tools

<table>
<thead>
<tr>
<th>Measures</th>
<th>EL tools groups</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>Low Interaction tools</td>
<td>3.90</td>
<td>2.424</td>
<td>19.934</td>
<td>0.000*</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>2.24</td>
<td>1.708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Usage hours</td>
<td>Low Interaction tools</td>
<td>13.09</td>
<td>19.157</td>
<td>2.048</td>
<td>0.042*</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>11.25</td>
<td>13.398</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction level</td>
<td>Low Interaction tools</td>
<td>3.02</td>
<td>0.676</td>
<td>2.117</td>
<td>0.035*</td>
</tr>
<tr>
<td></td>
<td>High Interaction tools</td>
<td>2.96</td>
<td>0.737</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The data in Table 6.63 show that the use, usage hours and satisfaction level of the Low Interaction tools were significantly higher than those of the High Interaction tools.

6.9 General summary

This chapter provided the study findings regarding academic staff and student attitudes towards e-learning related to several factors. In this summary, the main and most important findings are highlighted in the form of individual points:

- **General differences between attitudes towards e-learning:**
  1- In general, academic staff involved in the study had significantly higher EL Liking, EL Opportunity and EL Productivity than students. On the other hand, students had higher EL Anxiety than academic staff, while there were no significant differences between academic staff and students for the other attitude scales (EL Acceptance and EL Confidence).
  2- Academic staff at University A had the highest EL Acceptance, EL Opportunity and EL Productivity means compared to other universities. Students at University C had the highest EL Acceptance, EL Confidence and EL Productivity means compared to other universities.
  3- Male academic staff had higher EL Confidence and EL Liking than females, who in turn had higher EL Anxiety. Female students had higher EL Acceptance than males.

- **Relationships between experience and attitudes towards e-learning:**
  1- There were no significant differences between academic staff attitudes regarding their teaching experience (years of experience). However, academic staff with low teaching experience had a significantly higher level of satisfaction towards Blackboard than more experienced academic staff. Students with higher study experience had significantly higher EL Acceptance than students with less study experience, who in turn had significantly higher EL Anxiety. In addition, students with more study experience had a significantly higher level of satisfaction towards Moodle than less experienced students.
  2- Academic staff with more computer experience had significantly higher means for EL Acceptance, EL Confidence, EL Liking, EL Opportunity and less EL Anxiety. In addition, they had a higher level of satisfaction towards WebCT than staff who were
less experienced with computers. Students with more experience with computers had significantly higher EL Confidence, EL Liking and less EL Anxiety than students who were less experienced with computers. There was no significant relationship between computer experience for students and their satisfaction towards e-learning platforms.

3- Academic staff with more email experience had higher EL Liking, EL Opportunity and less EL Anxiety. In addition, they had higher levels of satisfaction towards WebCT and Jusur than staff who were less experienced with email. Students with high experience with email had significantly less EL Anxiety than students who were less experienced with email. There was no significant relationship between email experience for students and their satisfaction towards e-learning platforms.

4- While there was no relationship between academic staff attitudes and their internet experience, academic staff with high experience with the internet had significantly higher levels of satisfaction towards Jusur, Blackboard and WebCT. Students with high experience with the internet had significantly higher EL Confidence, EL Liking and less Anxiety than less experienced students. In addition, they had significantly higher levels of satisfaction towards WebCT and Moodle than students who were less experienced with the internet.

5- There was no significant difference in attitudes between academic staff who were using e-learning platforms and those who were not using any. Students who were using one or more e-learning platforms had significantly higher EL Acceptance, EL Confidence, EL Liking, EL Opportunity, EL Productivity and less EL Anxiety.

- Satisfaction towards e-learning platforms:
  1- Academic staff and student satisfaction towards e-learning platforms were above the neutral point (2.5 in a 4 point scale).
  2- Male academic staff had significantly higher levels of satisfaction towards Jusur, Blackboard, WebCT and Moodle than females. Male students had significantly higher levels of satisfaction towards WebCT than females.
  3- Academic staff with more teaching experience had a significantly lower level of satisfaction towards Blackboard. Students with more study experience had a significantly higher level of satisfaction towards Moodle.
  4- Academic staff who were using Blackboard had a significantly higher level of EL Acceptance. Academic staff who were using WebCT had a significantly higher level of
EL Liking. For students, there was no significant relationship between use of e-learning platforms and their attitudes.

5- Academic staff with higher usage hours of Blackboard had significantly less EL Anxiety. Academic staff with higher usage hours of WebCT had significantly higher levels of EL Liking and EL Productivity and less EL Anxiety. For students, there was no significant relationship between usage hours of e-learning platforms and their attitudes.

6- There was no significant relationship between academic staff satisfaction towards e-learning platforms and their attitudes. Students who had higher levels of satisfaction towards Blackboard and WebCT had higher means for EL Confidence, EL Liking, EL Opportunity and EL Productivity. Students who had higher levels of satisfaction towards Moodle had significantly higher EL Acceptance, EL Confidence, EL Liking and less EL Anxiety. Students who had higher levels of satisfaction towards Jusur, had significantly higher EL Acceptance, EL Confidence, EL Productivity and less EL Anxiety.

The next chapter discusses the multivariate analysis of a model developed to show linkages between academic staff and student background variables, intervening variables related to usage of platforms and tools, six criterion variables, e-learning and attitudes.
Chapter 7
Developing a model and analysing relationships between variables

7.1 Introduction
A model was developed to represent hypothesised relationships between sets of variables considered likely (Creswell, 2008; Gelman & Hill 2007) to be related to attitudinal outcomes for academic staff and students in the samples from the four universities. The analyses described below have been done separately for teachers and students, and results for the teacher analyses have been shown first. The model is now described.

7.2 Regression analysis model
The model has four stages, three explanatory stages and one outcome stage (see Figure 7.1). The first explanatory stage consists of two blocks of background variables. The first block consists of two demographic variables: gender, and teaching experience (for academic staff) and year level at the university (for students). The second block consists of four dummy institutional identification variables, one for each university: academic staff and students at University A in 2010 have a value of 1 recorded for the variable labelled UA (teachers and students) and all others have a value of 0 for this variable. If at University B they have a 1 for UB, if at University C they have a 1 for UC, if at University D they have a 1 for UD. As individual academic staff and students can be at only one university, only three of the four dummy variables representing each university can be entered into a regression equation. UD became the omitted category.

The second explanatory stage consists of two intervening variable blocks. The first block at this stage has four variables representing e-learning platforms (Learning Management Systems) used: Blackboard, Jusur, Moodle and WebCT. A value of 1 is given for each if the academic staff or student used that platform in 2010. It is possible for academic staff and students to have used more than one platform, so all are included in the regression analyses. The second block at this stage represents the IT experience of
the academic staff or student. Three variables record years of experience using computers, email and the internet.

The third explanatory stage consists of a single block of two variables, representing the use of e-learning tools by academic staff and students. The two variables represent the estimated weekly usage hours in 2010 of high interaction learning tools (such as email system, online video recording and online discussion forums) and low interaction e-learning tools (such as online announcement system, online course outline and online calendar).

The fourth stage of the model consists of the six outcome or dependent variables which were measures of academic staff or student affect. These variables are e-learning Acceptance, Anxiety, Confidence, Liking, Opportunity and Productivity. The regression analyses were conducted separately for each outcome variable, thus producing six models for academic staff and six for students. The results of these analyses are described below, beginning with the academic staff.

In analysing the model in Figure 7.1, first we examine relationships between the background variables and the stage 2 intervening variables. We then examine the relationships between all the variables in stages 1 and 2 with the stage 3 variables separately: the high and low tool interactions as dependent variables. To this point the models are the same for each of the six outcome variables. Finally, the relationships of all variables in stages 1, 2 and 3 are examined for each of the outcomes, beginning with EL Acceptance. For each analysis, all appropriate explanatory variables are entered into the regression equation, then, using the Backward elimination method, available in SPSS (Alzobi & Altalaafha, 2006; Coakes, Steed & Price, 2008), non-significant variables are progressively removed from the equation until only significant variables remain.

The resulting models, including only independent variables that are significantly related to each outcome in turn, are then displayed in two ways:
1. The model is shown with only the standardised regression coefficients (or path coefficients) for the significant relationships.
2. A table presents the explanatory variables including background and intervening variables showing their relationships with the dependent variables (e-learning attitudes) at each stage of the model.

<table>
<thead>
<tr>
<th>Background Variables (Independent only)</th>
<th>Intervening Variables (Both dependent and independent)</th>
<th>Outcome Variables (Dependent only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAGE 1</td>
<td>STAGE 2</td>
<td>STAGE 3</td>
</tr>
<tr>
<td>Gender (T/S)</td>
<td>Blackboard use</td>
<td>EL Acceptance</td>
</tr>
<tr>
<td>Teaching experience or year level</td>
<td>Jusur use</td>
<td>EL Anxiety</td>
</tr>
<tr>
<td>UT (T/S)</td>
<td>Moodle use</td>
<td>EL Confidence</td>
</tr>
<tr>
<td>UB (T/S)</td>
<td>WebCT use</td>
<td>EL Liking</td>
</tr>
<tr>
<td>UC (T/S)</td>
<td>Computer experience</td>
<td>EL Opportunity</td>
</tr>
<tr>
<td>UD (T/S)</td>
<td>Email experience</td>
<td>EL Productivity</td>
</tr>
<tr>
<td>Internet experience</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 7.1: The model to be analysed

### 7.3 Teacher analyses

The results of the regression analyses of the data from academic staff in the four investigated universities are presented first. Three universities include males and females while University D is a male-only university. The results described begin with e-learning acceptance as outcome.
7.3.1 Regression analyses with EL Acceptance as outcome variable

The model including only significant paths is shown as Figure 7.2 while Table 7.1 (Appendix P) included significant and insignificant relationships (ns in the tables means not significant relationship). Teacher gender, being an academic staff member at University A, University B, University C, Jusur use, Moodle use and WebCT use were related to EL Acceptance, either directly or indirectly, or both. Other relationships which were not significant were omitted from the analysis model of academic staff EL Acceptance.

Male academic staff had higher EL Acceptance and academic staff at the three universities shown had higher EL Acceptance compared with academic staff at the fourth, comparison university, University D. Academic staff using Jusur had higher EL Acceptance while those using Moodle and WebCT had lower EL Acceptance. There was no relationship between EL Acceptance and any of the following: teaching experience, Blackboard use, the IT experience and EL tool use. Accordingly, these variables have been omitted from the model shown in Figure 7.2. The pattern of significant direct relationships is also shown in Table 7.2. The strongest direct relationship was a negative one between WebCT use and EL Acceptance (-0.365), indicating that use of WebCT was linked with lower EL Acceptance.

![Figure 7.2: Regression Analysis Model of academic staff EL Acceptance](image)

R square = 0.206
There were also some complex indirect relationships between the four background variables shown in Figure 7.2 and EL Acceptance. The strongest total relationship was between being an academic staff at University A and EL Acceptance with a total coefficient of 0.413. Another strong total relationship was between being an academic staff at University B and EL Acceptance (0.297).

It should be noted that, in some cases, direct and indirect relationships between two variables differ in sign, indicating opposing relationships. For example, a direct positive relationship indicated academic staff at University B had greater EL Acceptance, but one of the two indirect relationships (through the use of Moodle) resulted in a negative relationship, indicating lower EL Acceptance, while the other indirect relationship (through use of WebCT) was positive, indicating higher EL Acceptance. When all paths for the relationship between being an academic staff at University B and EL Acceptance are added, the overall result is a positive relationship with a coefficient of 0.297. Overall, 20.6 % of the variance in EL Acceptance by academic staff was explained by the relationships in the model.

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>EL Acceptance</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>-0.280</td>
<td>-0.366 x -0.185 = 0.068</td>
<td>-0.212</td>
</tr>
<tr>
<td>UA staff</td>
<td>0.297</td>
<td>0.222 x 0.162 = 0.036</td>
<td></td>
<td>0.413</td>
</tr>
<tr>
<td></td>
<td>0.253 x -0.185 = -0.047</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.349 x -0.365 = 0.127</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UB staff</td>
<td>0.295</td>
<td>0.589 x -0.185 = -0.109</td>
<td></td>
<td>0.297</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.303 x -0.365 = 0.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UC staff</td>
<td>-</td>
<td>0.301 x 0.162 = 0.049</td>
<td>-0.382 x -0.365 = 0.139</td>
<td>0.188</td>
</tr>
<tr>
<td>Jusur use</td>
<td>0.162</td>
<td></td>
<td></td>
<td>0.162</td>
</tr>
<tr>
<td>Moodle use</td>
<td>-0.185</td>
<td></td>
<td></td>
<td>-0.185</td>
</tr>
<tr>
<td>WebCT use</td>
<td>-0.365</td>
<td></td>
<td></td>
<td>-0.365</td>
</tr>
</tbody>
</table>

7.3.2 Regression analyses with EL Anxiety as outcome variable

The regression model for EL Anxiety, including only significant paths, is shown as Figure 7.3 and Table 7.3 (Appendix P). Academic staff gender, teaching experience, being at three of the four universities, use of Jusur, use of Moodle, use of WebCT, computer experience and the use of high interaction tools were related to EL Anxiety, either directly or indirectly, or both. There were no significant relationships between
other explanatory variables which were omitted from the analysis model for academic staff EL Anxiety.

Female academic staff had higher EL Anxiety and academic staff at the three universities shown had lower EL Anxiety compared with academic staff at the fourth, comparison university, University D. Academic staff using Moodle and WebCT had higher EL Anxiety while those using Jusur had lower EL Anxiety. The academic staff with more computer experience had lower EL Anxiety. Academic staff using high interaction tools had lower EL Anxiety. There was no relationship between EL Anxiety and any of the following: Blackboard use, email and internet experience and low EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.3. The pattern of significant direct relationships is also shown in Table 7.4. The strongest direct relationship was a positive one between gender and EL Anxiety (0.450), indicating that female academic staff had higher EL Anxiety.

![Regression Analysis Model of academic staff EL Anxiety](image)

Figure 7.3: Regression Analysis Model of academic staff EL Anxiety
There were also some complex indirect relationships between the five background variables shown in Figure 7.3 and EL Anxiety. The strongest total relationship was a negative one between being an academic staff at University A and EL Anxiety with a total coefficient of (-0.358). Another strong total relationship was between academic staff gender and EL Anxiety (0.311). Again relationships can differ in sign, in this case a direct negative relationship indicated academic staff at University A had lower EL Anxiety, but one of the two indirect relationships (through the use of WebCT) resulted in a negative relationship, indicating lower EL Anxiety, while the other indirect relationship (through use of Moodle) was positive, indicating higher EL Anxiety. When all paths for the relationship between being an academic staff at University A and EL Anxiety are added, the overall result is a negative relationship with a coefficient of -0.358. Overall, 25.2% of the variance in EL Anxiety by academic staff was explained by the relationships in the model.

Table 7.4: Direct and indirect relationships from explanatory variables towards EL Anxiety (academic staff)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.450</td>
<td>0.138 x -0.225 = -0.031</td>
<td>0.311</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.366 x 0.157 = -0.057</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.296 x 0.162 x -0.225 = -0.011</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.296 x -0.135 = -0.040</td>
<td></td>
</tr>
<tr>
<td>Teaching years</td>
<td>-</td>
<td>-0.199 x -0.225 = 0.045</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.147 x 0.162 x -0.225 = -0.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.147 x -0.135 = -0.020</td>
<td></td>
</tr>
<tr>
<td>UA staff</td>
<td>-0.284</td>
<td>0.222 x 0.145 x -0.225 = -0.007</td>
<td>-0.358</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.190 x -0.225 = -0.043</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.253 x 0.159 = 0.040</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.349 x 0.115 x -0.225 = 0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.349 x 0.208 = -0.073</td>
<td></td>
</tr>
<tr>
<td>UB staff</td>
<td>-0.268</td>
<td>0.589 x 0.159 = 0.094</td>
<td>-0.229</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.303 x 0.115 x -0.225 = 0.008</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.303 x 0.208 = -0.063</td>
<td></td>
</tr>
<tr>
<td>UC staff</td>
<td>-</td>
<td>0.301 x 0.145 x -0.225 = -0.010</td>
<td>-0.079</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.382 x 0.115 x -0.225 = 0.010</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.382 x 0.208 = -0.079</td>
<td></td>
</tr>
<tr>
<td>Jusur use</td>
<td>-</td>
<td>0.145 x -0.225 = -0.033</td>
<td>-0.033</td>
</tr>
<tr>
<td>Moodle use</td>
<td>0.159</td>
<td>-</td>
<td>0.159</td>
</tr>
<tr>
<td>WebCT use</td>
<td>0.208</td>
<td>0.115 x -0.225 = -0.026</td>
<td>0.182</td>
</tr>
<tr>
<td>Computer experience</td>
<td>-0.153</td>
<td>0.162 x -0.225 = -0.036</td>
<td>-0.189</td>
</tr>
<tr>
<td>High interaction tools</td>
<td>-0.225</td>
<td>-</td>
<td>-0.225</td>
</tr>
</tbody>
</table>
7.3.3 Regression analyses with EL Confidence as outcome variable

The regression model for EL Confidence, including only significant paths, is shown as Figure 7.4. Academic staff gender, teaching experience, being at three of the four universities, use of Jusur, use of WebCT, computer experience and the use of high interaction tools were related to EL Confidence, either directly or indirectly, or both. Other relationships were not significant which were omitted from the analysis model for academic staff EL Confidence. Table 7.5 (Appendix P) provides all relationships related to EL Confidence including the significant and insignificant relationships.

Figure 7.4: Regression Analysis Model of academic staff EL Confidence

Male academic staff had higher EL Confidence and academic staff at the three universities shown had greater EL Confidence compared with academic staff at the fourth, comparison university, University D. Academic staff using Jusur had higher EL Confidence while those using WebCT had lower EL Confidence. The academic staff with more computer experience had higher EL Confidence. Academic staff using high interaction tools had higher EL Confidence. There was no relationship between EL Confidence and any of the following: Blackboard and Moodle use, email and internet experience and low EL tools use. Accordingly, these variables have been omitted from
the model shown in Figure 7.4. The pattern of significant direct relationships is also shown in Table 7.6. The strongest direct relationship was a negative one between gender and EL Confidence (-0.576), indicating that male academic staff had higher EL Confidence.

There were also some complex indirect relationships between the five background variables shown in Figure 7.4 and EL Confidence. The strongest total relationship was between academic staff gender and EL Confidence with a negative total coefficient of -0.553. Another strong total relationship was being an academic staff at University B and EL Confidence (0.392). In this case, direct and indirect relationships between two variables also differ in direction, indicating opposing relationships. For example, a direct positive relationship indicated academic staff using WebCT had less EL Confidence, but the indirect relationships (through the use of high interaction EL tools) resulted in a positive relationship, indicating greater EL Confidence. When all paths for the relationship between using WebCT and EL Confidence are added, the overall result is a negative relationship with a coefficient of 0.162. Overall, 32.2 % of the variance in EL Confidence by academic staff was explained by the relationships in the model.

Table 7.6: Direct and indirect relationships from explanatory variables towards EL Confidence (academic staff)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>EL Confidence</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct relationship</td>
<td>Indirect relationships</td>
<td>Total</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.576</td>
<td>0.138 x 0.255 = 0.035</td>
<td>-0.296 x 0.162 x 0.255 = -0.012</td>
</tr>
<tr>
<td>Teaching years</td>
<td>-</td>
<td>-0.199 x 0.255 = -0.051</td>
<td>0.174 x 0.162 x 0.255 = 0.007</td>
</tr>
<tr>
<td>UA Staff</td>
<td>0.274</td>
<td>0.222 x 0.145 x 0.255 = 0.008</td>
<td>0.190 x 0.255 = 0.048</td>
</tr>
<tr>
<td>UB Staff</td>
<td>0.340</td>
<td>-0.303 x 0.115 x 0.255 = -0.009</td>
<td>-0.303 x -0.202 = 0.061</td>
</tr>
<tr>
<td>UC Staff</td>
<td>0.210</td>
<td>0.301 x 0.154 x 0.255 = 0.012</td>
<td>-0.382 x 0.115 x 0.255 = -0.011</td>
</tr>
<tr>
<td>Jusur use</td>
<td>-</td>
<td>0.154 x 0.255 = 0.039</td>
<td>0.039</td>
</tr>
<tr>
<td>WebCT use</td>
<td>-0.202</td>
<td>0.155 x 0.255 = 0.040</td>
<td>-0.162</td>
</tr>
<tr>
<td>Computer experience</td>
<td>-</td>
<td>0.162 x 0.255 = 0.041</td>
<td>0.041</td>
</tr>
<tr>
<td>High interaction tools</td>
<td>0.255</td>
<td>-</td>
<td>0.255</td>
</tr>
</tbody>
</table>
7.3.4 Regression analyses with EL Liking as outcome variable

The regression model for EL Liking, including only significant paths, is shown as Figure 7.5. Teacher gender, teaching experience, being at three of the four universities, use of Blackboard, computer experience and the use of low interaction tools were related to EL Liking, either directly or indirectly, or both. Table 7.7 (Appendix P) provides all relationships with EL Liking.

Male academic staff had higher EL Liking and academic staff at the three universities shown had higher EL Liking compared with academic staff at the fourth, comparison university, University D. Teachers using Blackboard had less EL Liking while there were no direct relationships between EL Liking and other e-learning platforms. The academic staff with more computer experience had higher EL Liking. Academic staff using low interaction EL tools had higher EL Liking. There was no relationship between EL Liking and any of the following: Moodle use, Jusur use, WebCT use, email and internet experience and high interaction EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.5. The pattern of significant direct relationships is also shown in Table 7.8. The strongest direct relationship was a negative one between gender and EL Liking (-0.498), indicating that male academic staff had higher EL Liking.

![Figure 7.5: Regression Analysis Model of academic staff EL Liking](image-url)
There were also some complex indirect relationships between the five background variables shown in Figure 7.5 and EL Liking. The strongest total relationship was a negative one between academic staff gender and EL Liking (-0.472). Another strong total relationship was between being an academic staff at University A and EL Liking with a total coefficient of 0.460. Similarly in this case, different direction of relationships proposed between variables. For example, a direct positive relationship indicated academic staff at University A had greater EL Liking, but one of the two indirect relationships (through high computer experience and the use of low interaction EL tools) resulted in a negative relationship, indicating lower EL Liking, while the other indirect relationship (through use of high interaction EL tools) was positive, indicating higher EL Liking. When all paths for the relationship between being an academic staff at University A and EL Liking are added, the overall result is a positive relationship with a coefficient of 0.460. Overall, 30.9 % of the variance in EL Liking by academic staff was explained by the relationships in the model.

Table 7.8: Direct and indirect relationships from explanatory variables towards EL Liking (academic staff)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>EL Liking</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.498</td>
<td>0.195 x 0.179 = 0.035</td>
<td>-0.296 x 0.170 x 0.179 = -0.009</td>
<td>-0.472</td>
</tr>
<tr>
<td>Teaching years</td>
<td>-</td>
<td>0.147 x 0.170 x 0.179 = 0.004</td>
<td>-0.150 x 0.179 = -0.027</td>
<td>-0.023</td>
</tr>
<tr>
<td>UA Staff</td>
<td>0.356</td>
<td>-0.276 x 0.170 x 0.179 = -0.008</td>
<td>0.203 x 0.179 = 0.036</td>
<td>0.460</td>
</tr>
<tr>
<td>UB Staff</td>
<td>0.173</td>
<td>-0.405 x -0.219 = 0.089</td>
<td>-0.348 x -0.219 = 0.076</td>
<td>0.262</td>
</tr>
<tr>
<td>UC Staff</td>
<td>-</td>
<td>-0.412 x -0.219 = 0.090</td>
<td>-0.090</td>
<td></td>
</tr>
<tr>
<td>Blackboard use</td>
<td>-0.219</td>
<td>-</td>
<td>-0.219</td>
<td></td>
</tr>
<tr>
<td>Computer experience</td>
<td>-</td>
<td>0.170 x 0.179 = 0.030</td>
<td>-0.030</td>
<td></td>
</tr>
<tr>
<td>Low interaction tools</td>
<td>0.179</td>
<td>-</td>
<td>0.179</td>
<td></td>
</tr>
</tbody>
</table>

7.3.5 Regression analyses with EL Opportunity as outcome variable

The regression model for EL Opportunity, including only significant paths, is shown as Figure 7.6. Teacher gender, teaching experience, being at three of the four universities, use of Jusur and WebCT, computer experience, email experience, internet experience and the use of high interaction EL tools were related to EL Opportunity, either directly or indirectly, or both. Table 7.9 (Appendix P) presents all relationships with EL Opportunity. Male teachers had higher EL Opportunity attitude and academic staff at the three universities shown had higher EL Opportunity attitude compared with
academic staff at the fourth, comparison university, University D. Therefore, there were no direct relationships between using Jusur and WebCT and EL Opportunity; the indirect relationships indicated that academic staff using Jusur had higher EL Opportunity attitude than academic staff using WebCT. The academic staff with more computer experience and email experience had higher EL Opportunity attitude while those with more internet experience had lower EL Opportunity attitude. Academic staff using high interaction EL tools had higher EL Opportunity attitude. There was no relationship between EL Opportunity and any of the following: Blackboard and Moodle use and low interaction EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.6. The pattern of significant direct relationships is also shown in Table 7.10. The strongest direct relationship was a positive one between being an academic staff at University A and EL Opportunity with a total coefficient of 0.449.

Figure 7.6: Regression Analysis Model of academic staff EL Opportunity

There were also some complex indirect relationships between the five background variables shown in Figure 7.6 and EL Opportunity. The strongest total relationship was
between being an academic staff at University A and EL Opportunity with a total coefficient of 0.548. Another strong total relationship was between being an academic staff at University B and EL Opportunity (0.340). In this case, direct and indirect relationships between variables differ in direction, indicating opposing relationships. A direct positive relationship indicated academic staff at University B had greater EL Opportunity, but one of the two indirect relationships (the use of WebCT) resulted in a positive relationship, indicating higher EL Opportunity, while the other indirect relationship (through use of WebCT and the use of high interaction EL tools) was negative, indicating lower EL Opportunity.

When all paths were added for the relationship between being an academic staff at University B and EL Opportunity are added, the overall result is a positive relationship with a coefficient of 0.340. Overall, 28.3 % of the variance in EL Opportunity by academic staff was explained by the relationships in the model.

Table 7.10: Direct and indirect relationships from explanatory variables towards EL Opportunity (academic staff)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Gender</td>
<td>-0.256</td>
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<td>-0.261</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.329 x 0.243 = -0.080</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.264 x -0.204 = 0.054</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.296 x 0.162 x 0.229 = -0.011</td>
<td></td>
</tr>
<tr>
<td>Teaching years</td>
<td>-</td>
<td>-0.199 x 0.229 = -0.046</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.136 x 0.243 = 0.033</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.109 x -0.204 = -0.022</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.147 x 0.162 x 0.229 = 0.005</td>
<td></td>
</tr>
<tr>
<td>UB Staff</td>
<td>0.449</td>
<td>0.190 x 0.229 = 0.044</td>
<td>0.548</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.222 x 0.145 x 0.229 = 0.007</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.349 x 0.115 x 0.229 = -0.009</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.349 x -0.231 = 0.081</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.311 x 0.243 = -0.076</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.305 x -0.204 = 0.062</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.276 x 0.162 x 0.229 = -0.010</td>
<td></td>
</tr>
<tr>
<td>UC Staff</td>
<td>0.278</td>
<td>-0.303 x 0.115 x 0.229 = -0.008</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.303 x -0.231 = 0.070</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.301 x 0.145 x 0.229 = 0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.382 x 0.115 x 0.229 = -0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.382 x -0.231 = 0.088</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jusur use</td>
<td>-</td>
<td>0.145 x 0.229 = 0.033</td>
<td>0.033</td>
</tr>
<tr>
<td>WebCT use</td>
<td>-0.231</td>
<td>0.115 x 0.229 = 0.026</td>
<td>-0.205</td>
</tr>
<tr>
<td>Computer experience</td>
<td>-</td>
<td>0.162 x 0.229 = 0.037</td>
<td>0.037</td>
</tr>
<tr>
<td>Email experience</td>
<td>0.243</td>
<td>-</td>
<td>0.243</td>
</tr>
<tr>
<td>Internet experience</td>
<td>-0.204</td>
<td>-</td>
<td>-0.204</td>
</tr>
<tr>
<td>High interaction tools</td>
<td>0.229</td>
<td>-</td>
<td>0.229</td>
</tr>
</tbody>
</table>
7.3.6 Regression analyses with EL Productivity as outcome variable

The regression model for EL Productivity, including only significant paths, is shown as Figure 7.7. Teacher gender, teaching experience, being at three of the four universities, use of WebCT, computer experience, email experience and the use of low interaction EL tools were related to EL Productivity, either directly or indirectly, or both. Table 7.11 (Appendix P) presents all direct relationships including the significant and insignificant ones.

Male academic staff had higher EL Productivity attitude and academic staff at the three universities shown had higher EL Productivity attitude compared with academic staff at the fourth, comparison university, University D. Academic staff using WebCT had less EL Productivity attitude while there were no direct relationships between other e-learning platforms and EL Productivity. The academic staff with more email experience had higher EL Productivity attitude while the academic staff with more computer experience had lower EL Productivity attitude. Academic staff using low interaction EL tools had higher EL Productivity attitude. There was no relationship between EL Productivity and any of the following: Blackboard use, Moodle use, Jusur use, internet experience and high interaction EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.7.

Figure 7.7: Regression Analysis Model of academic staff EL Productivity
The pattern of significant direct relationships is also shown in Table 7.12. The strongest direct relationship was between being an academic staff at University A and EL Productivity with a coefficient of 0.384, indicating that academic staff in University A had higher EL Productivity attitude.

There were also some complex indirect relationships between the five background variables shown in Figure 7.7 and EL Productivity. The strongest total relationship was between being an academic staff at University A and EL Productivity with a total coefficient of 0.474. Another strong total relationship was between being an academic staff at University B and EL Productivity with a total coefficient of 0.301. In terms of negative and positive relationships, a direct positive relationship indicated academic staff at University A had greater EL Productivity attitude, but three of the five indirect relationships (through the use of WebCT or low interaction e-learning tools or computer experience and the use of low interaction EL tools together) resulted in a positive relationships, indicating higher EL Productivity, while the other two indirect relationships (through computer experience or email experience) were negative, indicating lower EL Productivity.

<table>
<thead>
<tr>
<th>Table 7.12: Direct and indirect relationships from explanatory variables towards EL Productivity (academic staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanatory variables</strong></td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Teaching years</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>UA Staff</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>UB Staff</td>
</tr>
<tr>
<td>UC Staff</td>
</tr>
<tr>
<td>WebCT use</td>
</tr>
<tr>
<td>Computer experience</td>
</tr>
<tr>
<td>Email experience</td>
</tr>
<tr>
<td>Low interaction tools</td>
</tr>
</tbody>
</table>
When all paths for the relationship between being an academic staff at University A and EL Productivity are added, the overall result is a positive relationship with a coefficient of 0.474 which is higher than the direct relationship. Overall, 20.3% of the variance in EL Productivity by academic staff was explained by the relationships in the model.

7.3.7 Academic staff regression summary
The data from the six regression models suggested that gender had a strong relationship with academic staff attitude towards e-learning. Male academic staff had higher EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity while female academic staff had higher EL Anxiety, indicating that male academic staff had generally higher positive attitudes towards e-learning. The data also suggested that there was no strong relationship between teaching experience and attitude towards e-learning in general. The indirect relationships between teaching experience and e-learning attitude were weak, indicating negative relationships between teaching experience and attitude towards e-learning.

Academic staff at the three universities shown had higher positive attitude towards e-learning and less anxiety compared with academic staff at the fourth, comparison university, University D. Academic staff at University A had the highest EL Acceptance, EL Opportunity and EL Productivity while they had the lowest EL Anxiety, indicating the strongest relationship with attitude towards e-learning. Academic staff at University B had high EL Acceptance, EL Confidence, EL Opportunity and EL Productivity than the other two universities (University C and University D) which was the second strongest relationships with EL attitudes. Academic staff at University C had only a higher level of EL Confidence than the comparison university.

The use of Blackboard had no relationship to academic staff attitude towards e-learning except that academic staff using Blackboard had lower EL Liking. Academic staff using Jusur had higher EL Acceptance and EL Confidence and less Anxiety toward e-learning, indicating a positive relationship with attitude towards e-learning. Academic staff using Moodle had higher EL Anxiety and less EL Acceptance, indicating a negative attitude towards e-learning. Academic staff using WebCT had higher EL
Anxiety and less EL Acceptance, EL Confidence and EL Productivity, indicating a negative relationship with attitude towards e-learning.

Academic staff with high computer experience had higher EL Confidence, EL Liking, EL Opportunity and less EL Anxiety indicating a positive relationship with attitude towards e-learning. Email experience and internet experience had no relationships with attitude towards e-learning except that academic staff with higher email experience had higher EL Opportunity than academic staff with high experience with computers and internet.

Using interactive e-learning tools (high interaction e-learning tools and low interaction e-learning tools) had a positive relationship with attitude towards e-learning in general. Academic staff with higher usage hours of high interaction e-learning tools had higher EL Confidence and EL Opportunity and less EL Anxiety. Academic staff using low interaction e-learning tools had higher EL Liking and EL productivity. Table 7.25 at the end of this chapter summarises academic staff regression analysis data, in comparison with students in the following table.

### 7.4 Student analyses

This section reports the results of analyses of the student data in the four investigated universities. Three universities include male and female students while University D is a male only university. The results of student analyses are described below, beginning with e-learning acceptance.

#### 7.4.1. Regression analyses with EL Acceptance as outcome variable

The regression model for EL Acceptance, including only significant paths, is shown as Figure 7.8. Student gender, being a student at three of the four universities and three of the e-learning platforms were related to EL Acceptance, either directly or indirectly, or both. Table 7.13 (Appendix P) presents all variables related to EL Acceptance for students.

Female students had higher EL Acceptance and students at the three universities shown had higher EL Acceptance compared with students at the fourth, comparison university, University D. Students using WebCT had higher EL Acceptance while there were no
direct relationships between other e-learning platforms and EL Acceptance. Students using high interaction EL tools had higher EL Acceptance. There was no relationship between EL Acceptance and any of the following: Blackboard use, Moodle use, Jusur use, IT experience and the use of low interaction EL tools. Accordingly, these variables have been omitted from the model shown in Figure 7.8. The pattern of significant direct relationships is also shown in Table 7.14. The strongest direct relationship was between being a student at UC (0.671) and EL Acceptance, indicating that students in University C had higher EL Acceptance.

There were also some complex indirect relationships between the four background variables shown in Figure 7.8 and EL Acceptance. The strongest total relationship was between being a student at University C and EL Acceptance with a total coefficient of 0.640. Another strong total relationship was between being a student at University A and EL Acceptance with a total coefficient of 0.382. Similar to academic staff models, direct and indirect relationships between two variables can differ in direction of relationship, indicating opposing relationships. For example, a direct positive relationship indicated students at University B had greater EL Acceptance, but the other two indirect relationships with EL Acceptance (through the use of WebCT or high interaction e-learning tools) resulted in a negative relationships, indicating lower EL Acceptance. When all paths for the relationship between being a student at University B and EL Acceptance are added, the overall result is a positive relationship with a
coefficient of 0.296 which is less than the direct relationship. Overall, 16.0 % of the variance in EL Acceptance by students was explained by the relationships in the model.

Table 7.14: Direct and indirect relationships from explanatory variables towards EL Acceptance (students)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>EL Acceptance</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct relationship</td>
<td>Indirect relationships</td>
<td>Total</td>
</tr>
<tr>
<td>Gender</td>
<td>0.301</td>
<td>-</td>
<td>0.301</td>
</tr>
<tr>
<td>UA students</td>
<td>0.454</td>
<td>-0.485 x 0.149 = -0.072</td>
<td>0.382</td>
</tr>
<tr>
<td>UB students</td>
<td>0.354</td>
<td>-0.392 x 0.149 = -0.058</td>
<td>0.296</td>
</tr>
<tr>
<td>UC students</td>
<td>0.671</td>
<td>-0.208 x 0.149 = -0.031</td>
<td>0.640</td>
</tr>
<tr>
<td>WebCT use</td>
<td>0.149</td>
<td>-</td>
<td>0.149</td>
</tr>
<tr>
<td>High interaction tools</td>
<td>0.096</td>
<td>-</td>
<td>0.096</td>
</tr>
</tbody>
</table>

7.4.2 Regression analyses with EL Anxiety as outcome variable

The regression model for EL Anxiety, including only significant paths, is shown as Figure 7.9. Student gender, study years, being a student at three of the four universities, Jusur use and computer experience were related to EL Anxiety, either directly or indirectly, or both. Table 7.15 (Appendix P) presents the direct relationships including the significant and insignificant ones.

Students with more university experience had lower EL Anxiety and students at University C had lower EL Anxiety compared with students at the other three universities. Students using Jusur had lower EL Anxiety while there were no direct relationships between other e-learning platforms and EL Anxiety. Students with high computer experience had lower EL Anxiety. There was no relationship between EL Anxiety and any of the following: Blackboard use, Moodle use, WebCT use, email experience, internet experience and the use of EL tools. Accordingly, these variables have been omitted from the model shown in Figure 7.9. The pattern of significant direct relationships is also shown in Table 7.16. The strongest direct relationship was a negative one between study experience and EL Anxiety with a coefficient of -0.189, indicating that students who spent more years at university had lower EL Anxiety.

There were also some complex indirect relationships between the five background variables shown in Figure 7.9 and EL Anxiety. The strongest total relationship was a positive one between being a student at University A and EL Anxiety with a total coefficient of 0.076, indicating higher EL Anxiety for students at University A.
In this case, opposite relationships direction proposed indicating opposite relationships directions. A direct positive relationship indicated students at University C had less EL Anxiety, but one of the two indirect relationships with EL Anxiety (through high computer experience) resulted in a positive relationship, indicating higher EL Anxiety, while the other indirect relationship with EL Anxiety (through the use of Jusur) was negative, indicating lower EL Anxiety. When all paths for the relationship between being a student at University C and EL Anxiety are added, the overall result is a negative relationship with a coefficient of -0.075 which is less than the direct relationship. Overall, only 1.50% of the variance in EL Anxiety by students was explained by the relationships in the model.

Table 7.16: Direct and indirect relationships from explanatory variables towards EL Anxiety (students)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-</td>
<td>0.186 x -0.111 = -0.021</td>
<td>-0.021</td>
</tr>
<tr>
<td>Study years</td>
<td>-0.189</td>
<td>-</td>
<td>-0.189</td>
</tr>
<tr>
<td>UA students</td>
<td>-</td>
<td>-0.591 x -0.129 = 0.076</td>
<td>0.076</td>
</tr>
<tr>
<td>UB students</td>
<td>-</td>
<td>-0.999 x -0.111 = 0.011</td>
<td>0.074</td>
</tr>
<tr>
<td>UC students</td>
<td>-0.104</td>
<td>0.144 x -0.111 = -0.016</td>
<td>-0.075</td>
</tr>
<tr>
<td>Jusur use</td>
<td>-0.111</td>
<td>-</td>
<td>-0.111</td>
</tr>
<tr>
<td>Computer experience</td>
<td>-0.129</td>
<td>-</td>
<td>-0.129</td>
</tr>
</tbody>
</table>
7.4.3 Regression analyses with EL Confidence as outcome variable

The regression model for EL Confidence, including only significant paths, is shown as Figure 7.10. Student gender, study years, being a student at three of the four universities, Moodle use, computer and email experience were related to EL Confidence, either directly or indirectly, or both. Table 7.17 (Appendix P) presents all possible direct relationships between explanatory variables and EL Confidence.

Female students had higher EL Confidence and students with more university experience had higher EL Confidence. University C students had higher EL Confidence while students at University A had lower EL Confidence. Students using Moodle had higher EL Confidence and there were no direct relationships between other e-learning platforms and EL Confidence. The students with more computer and email experience had higher EL Confidence. Students using high interaction EL tools had higher EL Confidence. There was no relationship between EL Confidence and any of the following: Blackboard use, Jusur use, WebCT use, internet experience and low interaction EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.10. The pattern of significant direct relationships is also shown in Table 7.18. The strongest direct relationship was between student gender and EL Confidence with a coefficient of 0.204, indicating that female students had higher EL Confidence. Overall, 9.30% of the variance in EL Confidence by students was explained by the relationships in the model.

![Figure 7.10: Regression Analysis Model of student EL Confidence](image-url)
There were also some complex indirect relationships between the five background variables shown in Figure 7.10 and EL Confidence. The strongest total relationship was a negative one between being a student at University A and EL Confidence with a total coefficient of -0.292, indicating lower EL Confidence for students at University A. Another strong total relationship was between student gender and EL Confidence (0.226), indicating higher acceptance for female students. In this case, a direct positive relationship indicated students at University C had greater EL Confidence, but the three indirect relationships with EL Confidence (through Moodle and high interaction EL tools, computer experience or email experience) resulted in negative relationships, indicating lower EL Confidence. When all paths for the relationship between being a student at University C and EL Confidence are added, the overall result is a positive relationship with a coefficient of 0.083 which is less than the direct relationship but in the same direction.

Table 7.18: Direct and indirect relationships from explanatory variables towards EL Confidence (students)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.204</td>
<td>0.245 x 0.108 = 0.026</td>
<td>0.226</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.109 x 0.216 x 0.166 = - 0.004</td>
<td></td>
</tr>
<tr>
<td>Study years</td>
<td>0.153</td>
<td>0.117 x 0.108 = 0.013</td>
<td>0.166</td>
</tr>
<tr>
<td>UA students</td>
<td>-0.136</td>
<td>- 0.231 x 0.108 = - 0.025</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.613 x 0.216 x 0.166 = - 0.022</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.591 x 0.184 = - 0.109</td>
<td></td>
</tr>
<tr>
<td>UB students</td>
<td>-</td>
<td>- 0.331 x 0.108 = - 0.036</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.442 x 0.216 x 0.166 = - 0.016</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.111 x 0.166 = - 0.018</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.490 x 0.184 = - 0.090</td>
<td></td>
</tr>
<tr>
<td>UC students</td>
<td>0.162</td>
<td>- 0.121 x 0.108 = - 0.013</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.385 x 0.216 x 0.166 = - 0.014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0.352 x 0.148 = - 0.052</td>
<td></td>
</tr>
<tr>
<td>Moodle use</td>
<td>0.108</td>
<td>-</td>
<td>0.108</td>
</tr>
<tr>
<td>Computer experience</td>
<td>0.148</td>
<td>-</td>
<td>0.148</td>
</tr>
<tr>
<td>Email experience</td>
<td>0.216 x 0.166 = 0.036</td>
<td>0.036</td>
<td></td>
</tr>
<tr>
<td>High interaction tools</td>
<td>0.166</td>
<td>-</td>
<td>0.166</td>
</tr>
</tbody>
</table>

7.4.4 Regression analyses with EL Liking as outcome variable

The regression model for EL Liking, including only significant paths, is shown as Figure 7.11 while Table 7.19 (Appendix P) presents all possible relationships. Student gender, study years, being a student at three of the four universities, Moodle use, computer and email experience were related to EL Liking, either directly or indirectly, or both.
Female students had higher EL Liking and students with more university experience at university had higher EL Liking. Students at University C had higher EL Liking compared with the other three universities. Students using Blackboard and Moodle had higher EL Liking while students using Jusur had lower EL Liking. The students with more computer experience had higher EL Liking. Students using high interaction EL tools had higher EL Liking. There was no relationship between EL Liking and any of the following: WebCT use, internet experience and low interaction EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.11.

The pattern of significant direct relationships is also shown in Table 7.20. The strongest direct relationship was between being a student at University C and EL Liking with a coefficient of 0.229, indicating that students at University C had higher EL Liking. Overall, 15.20 % of the variance in EL Liking by students was explained by the relationships in the model.

There were also some complex indirect relationships between the five background variables shown in Figure 7.11 and EL Liking. The strongest total relationship was a negative one between being a student at University A and EL Liking with a total coefficient of -0.266, indicating lower EL Liking for students at University A. A direct positive relationship indicated students at University C had greater EL Liking, but the five indirect relationships with EL Liking (through Blackboard use, Jusur use, Moodle
use, computer experience or email experience) resulted in negative relationships, indicating lower EL Liking. When all paths for the relationship between being a student at University C and EL Liking are added, the overall result becomes a negative relationship with a coefficient of -0.013 which is the opposite of the positive direct relationship.

Table 7.20: Direct and indirect relationships from explanatory variables towards EL Liking (students)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.146</td>
<td>0.101 x 0.133 = 0.013</td>
<td>0.154</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.186 x -0.208 = -0.039</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.245 x 0.157 = 0.038</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.109 x 0.216 x 0.161 = -0.004</td>
<td></td>
</tr>
<tr>
<td>Study years</td>
<td>0.205</td>
<td>0.117 x 0.175 = 0.020</td>
<td>0.225</td>
</tr>
<tr>
<td>UA students</td>
<td>-</td>
<td>-0.231 x 0.157 = -0.036</td>
<td>-0.266</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.592 x 0.166 = -0.098</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.613 x 0.216 = -0.132</td>
<td></td>
</tr>
<tr>
<td>UB students</td>
<td>-</td>
<td>-0.099 x -0.201 = 0.020</td>
<td>-0.232</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.331 x 0.175 = -0.058</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.490 x 0.166 = -0.081</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.442 x 0.216 = -0.095</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.111 x 0.161 = -0.018</td>
<td></td>
</tr>
<tr>
<td>UC students</td>
<td>0.229</td>
<td>-0.921 x 0.133 = -0.122</td>
<td>-0.013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.144 x -0.201 = -0.029</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.212 x 0.157 = -0.033</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.352 x 0.166 = -0.058</td>
<td></td>
</tr>
<tr>
<td>Blackboard use</td>
<td>0.133</td>
<td>-</td>
<td>0.133</td>
</tr>
<tr>
<td>Jusur use</td>
<td>-0.201</td>
<td>-</td>
<td>-0.201</td>
</tr>
<tr>
<td>Computer use</td>
<td>0.157</td>
<td>-</td>
<td>0.157</td>
</tr>
<tr>
<td>Email experience</td>
<td>0.166</td>
<td>-</td>
<td>0.166</td>
</tr>
<tr>
<td>High interaction tools</td>
<td>0.161</td>
<td>-</td>
<td>0.161</td>
</tr>
</tbody>
</table>

7.4.5 Regression analyses with EL Opportunity as outcome variable

The regression model for EL Opportunity, including only significant paths, is shown as Figure 7.12. Student gender, study years, being a student at three of the four universities and Moodle use were related to EL Opportunity, either directly or indirectly, or both. Table 7.21 (Appendix P) presents all possible relationships with EL Opportunity for students.

Female students had higher EL Opportunity attitude and students with more university experience had higher EL Opportunity attitude. Students at University C had higher EL Opportunity attitude compared with the other three universities. Students using Moodle
had higher EL Opportunity attitude while there were no relationships between EL Opportunity and other e-learning platforms. There was no relationship between EL Opportunity and any of the following: Blackboard use, Jusur use, WebCT use, IT experience and EL tools use. Accordingly, these variables have been omitted from the model shown in Figure 7.12. The pattern of significant direct relationships is also shown in Table 7.22. The strongest direct relationship was between study year level and EL Opportunity with a coefficient of 0.157, indicating that students who spent more years at university level had higher EL Opportunity attitude. Overall, 3.30% of the variance in EL Opportunity by students was explained by the relationships in the model.

![Figure 7.12: Regression Analysis Model of student EL Opportunity](image)

There were also some complex indirect relationships between the five background variables shown in Figure 7.12 and EL Opportunity. The strongest total relationship was a positive one between study year level and EL Opportunity with a total coefficient of 0.172, indicating higher EL Opportunity attitude for students who spent more years at university. Regarding the direct and indirect relationships between two variables, a direct positive relationship indicated students at University C had greater EL Opportunity attitude, but the indirect relationship with EL Opportunity (through Moodle use) resulted in a negative relationship, indicating lower EL Opportunity attitude. When all paths for the relationship between being a student at University C and EL Opportunity are added, the overall result is a positive relationship with a coefficient of 0.114 which is less than the direct relationship.
Table 7.22: Direct and indirect relationships from explanatory variables towards EL Opportunity (students)

<table>
<thead>
<tr>
<th>Explanatory variables</th>
<th>EL Opportunity</th>
<th>Direct relationship</th>
<th>Indirect relationships</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-</td>
<td>0.245 x 0.130 = 0.032</td>
<td>0.032</td>
<td>0.032</td>
</tr>
<tr>
<td>Study years</td>
<td>0.157</td>
<td>0.117 x 0.130 = 0.015</td>
<td>0.172</td>
<td></td>
</tr>
<tr>
<td>UA students</td>
<td>-</td>
<td>-0.231 x 0.130 = -0.030</td>
<td>-0.030</td>
<td></td>
</tr>
<tr>
<td>UB students</td>
<td>-</td>
<td>-0.331 x 0.130 = -0.043</td>
<td>-0.043</td>
<td></td>
</tr>
<tr>
<td>UC students</td>
<td>0.142</td>
<td>-0.212 x 0.130 = -0.028</td>
<td>0.114</td>
<td></td>
</tr>
<tr>
<td>Moodle use</td>
<td>0.130</td>
<td>-</td>
<td>0.130</td>
<td></td>
</tr>
</tbody>
</table>

7.4.6 Regression analyses with EL Productivity as outcome variable

The regression model for EL Productivity, including only significant paths, is shown as Figure 7.13 while Table 7.23 (Appendix P) presents all possible relationships. Student gender, study years, being a student at three of the four universities, Blackboard and Moodle use and internet experience were related to EL Productivity, either directly or indirectly, or both.

![Figure 7.13](image.png)

Figure 7.13: Regression Analysis Model of student EL Productivity

Students at University B had higher EL Productivity attitude compared with the other three universities. Students using Blackboard and Moodle had higher EL Productivity attitude while there were no relationships between other e-learning platforms and EL Productivity. Students with more internet experience had lower EL Productivity attitude. There was no relationship between EL Productivity and any of the following: Jusur use, WebCT use, computer and email experience and EL tools use. Accordingly,
these variables have been omitted from the model shown in Figure 7.13. The pattern of significant direct relationships is also shown in Table 7.24. The strongest direct relationship was between Moodle use and EL Productivity with a coefficient of 0.169, indicating that students using Moodle had higher EL Productivity attitude. Overall, 7.10% of the variance in EL Productivity by students was explained by the relationships in the model.

There were also some complex indirect relationships between the five background variables shown in Figure 7.13 and EL Productivity. The strongest total relationship was a positive one between being a student at University B and EL Productivity with a total coefficient of 0.194, indicating higher EL Productivity attitude for students at University B. A direct positive relationship indicated students at University B had greater EL Productivity attitude, but one of the indirect relationships with EL Productivity (through Moodle use) resulted in a negative relationship, indicating lower EL Productivity attitude while the other indirect relationship with EL Productivity is a positive one (through internet experience) indicating lower EL Productivity. When all paths for the relationship between being a student at University B and EL Productivity are added, the overall result is a positive relationship with a coefficient of 0.194 which is higher than the direct relationship.

| Table 7.24: Direct and indirect relationships from explanatory variables towards EL Productivity (students) |
|---|---|---|---|
| Explanatory variables | EL Productivity | | |
| | Direct relationship | Indirect relationships | Total |
| Gender | - | 0.101 x 0.145 = 0.015 | 0.073 |
| | | 0.245 x 0.169 = 0.041 | |
| | | -0.136 x -0.123 = 0.017 | |
| Study years | - | 0.117 x 0.169 = 0.020 | 0.020 |
| UA students | - | -0.231 x 0.169 = -0.039 | 0.020 |
| | | -0.479 x -0.123 = 0.059 | |
| UB students | 0.166 | -0.133 x 0.169 = -0.022 | 0.194 |
| | | -0.403 x -0.123 = 0.050 | |
| UC students | - | -0.921 x 0.145 = -0.134 | -0.131 |
| | | -0.212 x 0.169 = -0.036 | |
| | | -0.314 x -0.123 = 0.039 | |
| Blackboard use | 0.145 | - | 0.145 |
| Moodle use | 0.169 | - | 0.169 |
| Internet experience | -0.123 | - | -0.123 |
7.4.7 Students regression summary

The data from the six regression models suggested that gender had a strong relationship with student attitudes towards e-learning, but in the opposite direction to teacher attitudes. Female students had higher EL Acceptance, EL Confidence, EL Liking and EL Opportunity, indicating that female students had a higher positive attitude towards e-learning. The data also suggested that there was a strong positive relationship between study year level and attitude towards e-learning, indicating that students in the higher levels at university had higher EL Confidence, EL Liking, EL Opportunity and less EL Anxiety.

Students at the three universities shown had in general higher positive attitude towards e-learning compared with students at the fourth, comparison university, University D. Students at University C had the highest EL Acceptance, EL Confidence, EL Liking, EL Opportunity and less EL Anxiety, indicating that students at UC had the highest positive attitude towards e-learning. Students at University B had higher EL Acceptance and EL Productivity while those at University A had higher EL Anxiety and less EL Confidence and EL Liking. Accordingly, students at University C and University B were more positive towards e-learning than students in University A and University D.

Students using Blackboard had higher EL Liking and EL Productivity while students using WebCT had higher EL Acceptance. Students using Moodle had higher EL Confidence, EL Liking, EL Opportunity and EL Productivity, indicating a positive relationship with students’ attitude towards e-learning.

Students with high computer experience had higher EL Confidence and EL Liking while those with high email experience had higher EL Confidence. Students with high internet experience had less EL Productivity. Students using high interaction e-learning tools had higher EL Acceptance, EL Confidence and EL Liking while there was no relationship between the use of low interaction e-learning tools and students’ attitude towards e-learning.
7.5 Regression summary

The data from regression models for academic staff and students suggested that gender had a strong relationship with their attitude towards e-learning. Male academic staff had higher positive attitudes towards e-learning while female students had higher e-learning attitudes towards e-learning. The data also suggested that there was no strong relationship between teaching experience and attitude towards e-learning in general while there was a stronger positive relationship between study year level (or study experience) and student attitude towards e-learning. Students in a higher level at university had a higher positive attitude towards e-learning.

Academic staff and students at the three universities shown had a higher positive attitude towards e-learning compared with academic staff and students at the fourth, comparison university, University D. Academic staff at University A and University B had a higher positive attitude towards e-learning than academic staff at University C. On the other hand, students at University C had a higher positive attitude towards e-learning than University A and University B.

The use of Blackboard had no strong relationship with academic staff attitude towards e-learning except academic staff that used Blackboard had less EL Liking. Academic staff using Jusur had a higher positive attitude towards e-learning while the use of Jusur had no strong relationship with students’ attitude towards e-learning. In addition, there is a negative relationship between academic staff attitude towards e-learning and their use of Moodle and WebCT. Students using Blackboard and Moodle had a higher positive attitude towards e-learning.

The data from regression models for academic staff and students suggested that there was a strong relationship between computer experience with both academic staff and student attitudes towards e-learning. Academic staff with high computer experience had a higher positive attitude towards e-learning for EL Confidence, EL Opportunity and less EL Anxiety. Students with high computer experience had a higher positive attitude towards e-learning for EL Confidence and EL Liking. On the other hand, there were no strong relationships between email experience and internet experience and academic staff and students’ attitude towards e-learning except in a few cases. For example, academic staff with higher email experience had higher EL Productivity while those
with higher internet experience had less EL Productivity. Students with high internet experience had less EL Productivity.

Using interactive e-learning tools (high interaction e-learning tools and low interaction e-learning tools) had a positive relationship with academic staff and student attitudes towards e-learning. Academic staff and students using high interaction e-learning tools had a higher positive attitude towards e-learning. There was no relationship between the use of low interaction e-learning tools and students’ attitude towards e-learning except academic staff using low interaction tools had higher EL Productivity than those who were not using low interaction tools. Table 7.25 and Table 7.26 summarise these findings.

Note that the model developed and tested was more successful in explaining variance in the EL attitude outcomes for staff than for students. The variance explained for each one of the staff EL attitudes was higher than for each one of the student EL attitudes, and the mean variance explained for the six EL attitudes was approximately 23 % for staff and 9 % for students. The smallest difference in EL attitudes between staff and students was for EL Acceptance where the variance explained was 21 % for staff and 16 % for students. Table 7.25 presents the summary of academic staff regression analysis model with values of each relationship and the variance of each EL attitude.

Table 7.25: Academic staff regression analysis summary

<table>
<thead>
<tr>
<th>EL Attitude</th>
<th>Variance exp. %</th>
<th>Academic Staff Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Acceptance</td>
<td>20.6</td>
<td><strong>Gender</strong>: Male academic staff had higher EL Acceptance (-0.212) than female academic staff. <strong>University</strong>: Academic staff in University A (0.413) and University B (0.297) had higher EL Acceptance level than academic staff in University C (0.188). <strong>EL platforms</strong>: Academic staff using Jusur (0.162) had higher EL Acceptance than academic staff using WebCT (-0.365) and Moodle (-0.185)</td>
</tr>
<tr>
<td>EL Anxiety</td>
<td>25.2</td>
<td><strong>Gender</strong>: Female academic staff had higher EL Anxiety level with regression coefficient (0.311) than male academic staff. <strong>University</strong>: Academic staff in University A (-0.358) and University B (-0.229) had lower EL Anxiety level than academic staff in University C (-0.079). <strong>IT experience</strong>: Academic staff with more experience with computers (-0.189) had lower level of EL Anxiety than academic staff with low experience using computers.</td>
</tr>
</tbody>
</table>
**EL platforms:** Academic staff using WebCT (0.182) and Moodle (0.159) had higher EL Anxiety than academic staff using Jusur (-0.033).

**EL tools:** Academic staff with more usage hours of high interaction tools (-0.225) had lower level of EL Anxiety.

**Gender:** Male academic staff had higher EL Confidence (-0.553) than female academic staff.

**University:** Academic staff in University B (0.392), in University A (0.379) and in University C (0.288) had higher EL Confidence level than academic staff in University D.

**EL platforms:** Academic staff using Jusur (0.039) had higher EL Confidence than academic staff using WebCT (-0.162)

**IT experience:** Academic staff with more experience with computers (0.041) had higher level of EL Confidence than academic staff with low experience using computers.

**EL tools:** Academic staff with more usage hours of high interaction tools (0.225) had higher level of EL Confidence.

**EL Liking**

<table>
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<tr>
<th>32.2</th>
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</table>

**Gender:** Male academic staff had higher EL Liking (-0.472) than female academic staff.

**University:** Academic staff in University A (0.460) and University B (0.262) had higher EL Liking level than academic staff in University C (0.090).

**EL platforms:** Academic staff using Blackboard (-0.365) had lower EL Liking level than academic staff using other e-learning platforms.

**EL Opportunity**

<table>
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<th>28.3</th>
</tr>
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</table>

**Gender:** Male academic staff had higher EL Opportunity (-0.261) than female academic staff.

**University:** Academic staff in University A (0.548) and University B (0.340) had higher EL Opportunity level than academic staff in University C (0.088).

**EL platforms:** Academic staff using Jusur (0.033) had higher EL opportunity than academic staff using WebCT (-0.205).

**IT experience:** Academic staff with more experience with using email (0.243) and using computers (0.037) had higher level of EL Opportunity than academic staff with experience using internet (-0.204).

**EL tools:** Academic staff with more usage hours of high interaction tools (0.229) had higher level of EL Opportunity.

**EL Productivity**

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<th>20.3</th>
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</table>

**Gender:** Male academic staff had higher EL Productivity (-0.250) than female academic staff.

**University:** Academic staff in University A (0.474) and University B (0.301) had higher EL Productivity level than academic staff in University C (0.057).

**EL platforms:** Academic staff using WebCT (-0.251) had lower EL Productivity level than academic staff using other e-learning platforms.

**IT experience:** Academic staff with more experience with using email (0.184) had higher level of EL Productivity than academic staff with experience using computers (-0.189).

**EL tools:** Academic staff with more usage hours of high interaction tools (0.146) had higher level of EL Productivity.
Table 7.26: Student regression analysis summary

<table>
<thead>
<tr>
<th>EL Attitude</th>
<th>Variance exp. %</th>
<th>Student Analysis</th>
<th>Strongest Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Acceptance</td>
<td>16.0</td>
<td><strong>Gender</strong>: Female students had higher EL Acceptance level (0.301) than male students.</td>
<td><strong>University</strong>: Students in University C (0.640) had higher EL Acceptance level than students in University A (0.382) and University B (0.296). <strong>EL platforms</strong>: Students using WebCT (0.149) had higher level of EL Acceptance than students using others. <strong>EL tools</strong>: Students with more usage hours of high interaction tools (0.096) had higher level of EL Acceptance than students with less usage hours.</td>
</tr>
<tr>
<td>EL Anxiety</td>
<td>1.5</td>
<td><strong>Study year level</strong>: High study experience at university (-0.189) is related to lower level of EL Anxiety than less study experience at the university.</td>
<td><strong>University</strong>: Students in University C (-0.075) had lower EL Anxiety than students in University A (0.076). <strong>EL platforms</strong>: Students using Jusur (-0.111) had lower EL Anxiety than students using others.</td>
</tr>
<tr>
<td>EL Confidence</td>
<td>9.3</td>
<td><strong>Gender</strong>: Female students had higher level of EL Confidence (0.226) than male students.</td>
<td><strong>University</strong>: Students in University C (0.083) had higher EL Confidence level than students in University A (-0.292) and University B (-0.160). <strong>Study year level</strong>: High study experience at university (0.166) is related to higher level of EL Confidence than less study experience at the university. <strong>IT experience</strong>: Students with more experience with using computers (0.148) and email (0.036) had higher level of EL Confidence than students with less experience. <strong>EL platforms</strong>: Students using Moodle (0.108) had higher level of EL Confidence than students using others. <strong>EL tools</strong>: Students with more usage hours of high interaction tools (0.166) had higher level of EL Confidence than students with less usage hours of high interaction tools.</td>
</tr>
<tr>
<td>EL Liking</td>
<td>15.2</td>
<td><strong>Gender</strong>: Female students had higher EL Liking level (0.154) than male students.</td>
<td><strong>University</strong>: Students in University C (-0.013) had higher level of EL Liking than students in University A (-0.266) and University B (-0.232). Being a student at the three universities is related to low EL Liking. <strong>EL platforms</strong>: Students using Jusur (-0.201) had lower level of EL Liking than students using Moodle (0.157) and students using Blackboard (0.133). <strong>IT experience</strong>: Students with more experience with using email (0.216) and students with more experience using computers (0.166) had higher level of EL Liking than others with no experience.</td>
</tr>
<tr>
<td></td>
<td>Study year level: High study experience at university (0.225) is more related to higher level of EL Liking than less study experience at the university.</td>
<td></td>
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<td>----------------</td>
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<tr>
<td>EL tools:</td>
<td>Students with more usage hours of high interaction tools (0.161) had higher level of EL Liking than students with less usage hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>EL Opportunity</strong> 3.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender:</td>
<td>Female students had higher EL Opportunity (0.032) than male students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University:</td>
<td>Students in University C (0.114) had higher level of EL Opportunity than students in University A (-0.030) and University B (-0.043).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study year level: High study experience at university (0.175) is strongly related to higher level of EL Opportunity than less study experience.</td>
<td></td>
<td></td>
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<tr>
<td>EL platforms:</td>
<td>Students using Moodle (0.130) had higher level of EL Productivity than students using other platforms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>EL Productivity</strong> 7.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University:</td>
<td>Students in University B (0.194) had higher level of EL Productivity than students in University A (0.020) and in University C (-0.131).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT experience:</td>
<td>Students with more experience with using internet (-0.123) had lower level of EL Productivity than others with no experience.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL platforms:</td>
<td>Students using Moodle (0.169) and students using Blackboard (0.145) had higher level of EL Productivity than students using other platforms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Mean (6 scales) 8.8</strong></td>
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</table>
Chapter 8
Discussion

8.1 Introduction

The aim of this research was to examine academic staff and student attitudes towards e-learning in four universities in the Kingdom of Saudi Arabia. In particular, the study aimed to investigate the influence of demographic and experience factors on these attitudes. It also aimed to identify their satisfaction with e-learning platforms, and any relationships between satisfaction and attitudes. There were five research questions that guided this study:

Q1. What is the current situation of e-learning in Saudi universities?
Q2. What are the main characteristics that distinguish the e-learning systems used in Saudi universities?
Q3. What e-learning systems are used in Saudi universities and what are the features and tools of these systems?
Q4. What factors can affect the attitude towards the use of e-learning systems from students’ and teachers’ perspectives?
Q5. Do e-learning systems used in Saudi universities enhance teachers’ and students’ satisfaction?

This chapter consists of two main sections in order to answer the research questions. The first section addresses the answers to research questions. It summarises the background information about e-learning in Saudi universities. Literature related to e-learning in Saudi universities is compared in this section with data collected from the websites of seven governmental organisations: The Saudi Arabian Ministry of Higher Education, The National Center for E-learning and Distance Learning, The E-learning & Training Resources Center, University A, University B, University C and University D.

The second section of this chapter consists of seven sub-sections which develop answers for research questions with regard to attitudes and satisfaction. The successive sub-sections and their foci are:
1- Examines the relationship between attitudes towards e-learning and experience with IT and e-learning.
2- Describes the differences between the attitudes of males and females.
3- Examines the relationship between the use of different e-learning platforms and attitudes towards e-learning.
4- Analyses the differences between Saudi Arabian universities in terms of attitudes towards e-learning.
5- Describes the differences between academic staff and student attitudes towards e-learning.
6- Examines the influence of teaching/study experience on attitudes towards e-learning.
7- Describes satisfaction with platforms, and its relationship with attitudes towards e-learning.

8.2 E-learning in Saudi Arabian universities

This section addresses the first three research questions, providing background information about the current situation of e-learning in Saudi Arabian universities. The section consists of three sub-sections. The first sub-section summarises the data collected from universities and government websites providing information about e-learning in Saudi Arabian universities. The second sub-section discusses the use of e-learning platforms in Saudi Arabian universities. The third section provides information about academic staff and students’ usage of e-learning tools.

8.2.1 The current situation of e-learning in Saudi Arabian universities

This sub-section addresses research question one. It summarises the information about e-learning in Saudi Arabian universities, and provides evidence from current research, including the present study, about the amount of e-learning occurring. There are three main aspects which are strongly related to e-learning in Saudi Arabian universities. Firstly, each university was providing at least one e-learning platform, such as Blackboard and WebCT in order to offer e-learning courses for university students. Secondly, each university was providing online and face-to-face sessions in order to provide training for academic staff and students to use e-learning. Thirdly, each university was providing online tools through the university websites, such as SMS systems, email systems and online magazines.
Importantly, the four universities were providing support for academic staff and students in order to facilitate the use of e-learning. For example, all four universities provided personal computers for academic staff, including their maintenance and all software needed. Similarly, Yushau (2006) stated that “at King Fahd University of Petroleum and Minerals there is a policy in which all faculty of the University are provided a personal computer in their offices that is upgradeable or changeable after every two years. Similarly, internet access and e-mail facilities are free” (p. 12). Computer laboratories were also offered at all university campuses with high quality internet connections in order to support students using e-learning. The four universities also provided face-to-face and online training sessions for both academic staff and students at different times during the study year. Yushau (2006) stated that academic staff at King Fahd University for Petroleum and Minerals reported the importance of periodic training and workshops for academic staff to increase their familiarity and to enhance their use of computers and technology in teaching. Online manuals were also offered through the university websites in order to provide self-training support in the use of e-learning.

The three universities provided comparable online services and facilities through their websites. This included information about the faculties and departments, academic and administration staff, and online and face-to-face courses. Each university offered an online magazine to provide university news and other important news related to higher education students. One of the most interesting and helpful services provided was the SMS communicating system which allowed the administration to send updated information to students’ mobile phones. M-learning (mobile learning), according to Georgiev et al. (2004) and Brown (2003), is a new stage of the progress of e-learning as it offers more flexible opportunities for learners. Al-Fahad (2009) examined students’ attitudes towards the effectiveness of mobile learning at King Saud University. He stated that “Mobile phones seem the best device to use in the learning of high students ownership” (p. 4). He added that “mobile technologies such as mobile phones can be used to enrich students’ learning environment by providing timely information” (p. 4). Online forums and chatting facilities were also offered through the university website in order to facilitate communication between students. Each university had links to social networking software such as Facebook, YouTube and Twitter to maximise communication and transfer of knowledge.
In spite of this extensive support, data obtained in the present study (Tables 6.7 and 6.8) suggested that the use of e-learning was still relatively low. Only 46.2% of academic staff and 25.8% of students who participated in the study were using e-learning. These findings are to some extent in line with what has been reported in the literature and governmental reports. For example, the Saudi Arabian Communication and Information Technology Commission (CITC, 2007) conducted a study of over 7,500 Saudi individuals, which revealed that only 49% of the society were aware of e-learning, while only 5% of those who were aware of e-learning were using it. Although that study of course referred to the general population rather than academic staff and students, it still suggested a low use of e-learning in Saudi Arabia. Similar findings have been made by other authors in the Saudi context. There were several possible reasons regarding the low awareness and usage of e-learning in Saudi Arabia. The low access to the internet (Al-Kahtani et al., 2006), low quality connections and the fear that the internet will import immoral values (Mirza & Al-Abdulkareem, 2011), and the lower value placed on studying online by Saudi Arabian students (Kensarah & Attaar, 2009; Mirza & Al-Abdulkareem, 2011). Alqurashi (2011) studied academic staff perceptions at Umm Al-Qura University and concluded that one of the problems was that the reward system did not give significant incentives for using technology in instruction.

It should be noted however, that some recent studies have argued that the Saudi Arabian online market is growing dramatically after the development of better internet providers (Al-Dosari, 2011; Alkhalaf et al., 2011). In addition, parents and families are now developing more positive perceptions of the internet (Al-Mosaa, 2002; Mirza & Al-Abdulkareem, 2011) and one reason for this is that the internet in Saudi Arabia is controlled by King Abdul-Aziz Center for Communication and Technology which is a government scientific and research organisation and has the ability to filter prohibited materials.

These reasons may perhaps continue to affect the awareness and usage of e-learning in Saudi Arabian universities. However, increasingly some of these reasons may become less important and consequently less effective in the use of e-learning in Saudi Arabia. For example, the change of access to the internet was made for several reasons. When the internet started to be available to the public in the Kingdom of Saudi Arabia in 1997
(Al-Fahad, 2009; Sait, 2003), there was one internet provider which was the Ministry of Post, Telephone and Telecommunication in Saudi Arabia (Ministry of Communications and Information Technology, 2011). It later became the Ministry of Communications and Information Technology which gave rise to the opportunity for communication commercial institutions to provide services for the Saudi nation. Al-Fahad (2009) argued that in recent times major network providers in the Kingdom of Saudi Arabia have announced commercial packages in discounted prices offering internet connection. Consequently, in the last few years, internet users in Saudi Arabia increased dramatically in all areas including main cities and urban areas (Al-Fahad, 2009; Alkhalaf et al., 2011; Sait, 2003). The chance for more people to be online is increasing and the chance to access online learning and training is increasing as well. To sum up, the increase of access to the internet is one of the reasons which positively affected the use of e-learning in the Kingdom of Saudi Arabia, especially in higher education institutions.

Finally, although the average e-learning usage level revealed in the present study was not high, it did vary significantly from one university to another. For example, the percentage of academic staff participants using e-learning in University B and University D was around 55 %, while the percentages at University A and University C were around 37 %. Students at some institutions reported less usage than academic staff. For example, about 31 % of student participants from University C, 25 % of student participants from University A, and 14.6 % of student participants at University B were using e-learning. A much higher proportion (85.0 %) was reported at University D.

8.2.2 The use of e-learning platforms in Saudi Arabian universities

Website information revealed that each of the four universities in this study was providing a different platform. University A used Jusur, which is an Arabic learning management system widely available in Saudi Arabia. University B was using EMES, which is an Arabic learning management system not used in any other university. University C was using UCLMS, which is also an Arabic learning management system not used in any other university. University D was using Blackboard, which was provided in English, and is widely available elsewhere. However, other platforms such as Moodle and WebCT are also widely available in Saudi Arabia. For the purposes of
the present study, it was decided to focus attention on the most widely available platforms (Blackboard, Jusur, Moodle and WebCT) in order to make the findings of wider interest.

Results from the present study (Table 6.13) suggested that academic staff were using Moodle and Jusur more than Blackboard and WebCT. Interestingly, both Moodle and Jusur are available in Arabic, whereas Blackboard and WebCT are available in English. It has been proposed by some authors that this language difference may be critical. Zaitoon (2005) for example, argued that e-learning platforms providing Arabic interface encourage Arabic students to use e-learning and increase their curiosity to use more e-learning options and tools. This issue will be addressed later in this chapter when discussing staff and student satisfaction levels in relation to each of the e-learning platforms.

A second possibility is that higher usage may be partly due to the level of support and training, and ease of use. For example, Zouhair (2010) focused on the use of Jusur at Prince Sultan University in Saudi Arabia. According to her study, instructors made the following comments about Jusur: “It is a simple and intuitive front page, with an engaging interface; it doesn’t take very long to learn how to navigate the system” (p. 119). In general, instructors were highly satisfied with using Jusur in teaching at Prince Sultan University. The university websites revealed that all four universities were providing training for academic staff and students. This usually took the form of online and face-to-face training sessions and tutorials to improve academic staff and students’ usage of e-learning. However, the lack of further detailed information about the training sessions for particular platforms makes it very difficult to compare and contrast the effects on numbers of users of particular platforms.

The results in Table 6.14 suggested that students’ use of Moodle and Jusur was also higher than Blackboard and WebCT. Jusur was actually provided officially by University A and it was available for students in all Saudi Arabian higher education institutions by the National Center for E-learning and Distance Learning. Moodle was not offered officially at any of the four investigated universities. However, some academic staff were recommending Moodle to be used by students as a supplementary program. The reason for the higher use of Moodle and Jusur by students probably is
that students’ use would be partly determined by staff preferences. Moodle and Jusur were available for students in Arabic which may increase their confidence and ease of use. On the other hand, Table 6.27 showed that student satisfaction with Blackboard and WebCT was just above the neutral point while their satisfaction with Moodle and Jusur was below the neutral point. However, the differences were not significant. These results revealed that there was no relationship between the students’ high use of these two e-learning platforms and their levels of satisfaction towards them.

8.2.3 E-learning tools in Saudi Arabian universities

E-learning tools are the online tools which enable users to interact with study content, academic staff, other students and the administration. These e-learning tools include for example, email system, forums, announcement system, online calendars, academic staff profiles, student profiles and online assessment systems. According to the university websites, all four universities were providing an extensive range of online tools to support students’ use of e-learning. In general, the tools were comparable between different universities, although there were some differences in names. For example, the terms “online calendar” and “student timetable” both referred to tools providing the same function of helping students to plan and manage their time.

The present study examined 16 online tools that were commonly available to support e-learning systems at universities. Table 6.59 shows that some tools were used by a high proportion of academic staff, including email, online announcements, online submitting and online course outlines. On the other hand, there were tools used by a low proportion of academic staff, and these included Podcast software, Blogs or Wikis, and online video recording systems. For academic staff, the highest usage hours was for email (mean 4.58 hours per week) while the lowest usage hours was for Podcast software (mean 1.09 hours per week). The levels of satisfaction for all e-learning tools were higher than neutral point (2.5 in a 4 points scale). The highest level of satisfaction was towards email (mean 3.34) and the lowest was towards Podcast software (mean 2.33). Table 6.60 shows that some e-learning tools were used by a high number of students, including email, online announcements, online staff information and online submitting. On the other hand, other e-learning tools were used by low numbers of students, including Podcast, Blogs and Wikis. For students, email had the highest usage hours (mean 4.33 hours per week) while Podcast software had the lowest usage hours.
Similarly, email had the highest level of satisfaction (mean 3.21) while Podcast software had the lowest (mean 2.06). In summary, email had the highest number of users, usage hours per week and level of satisfaction among both academic staff and students. On the other hand, Podcast software had the lowest number of users, usage hours per week and level of satisfaction among both academic staff and students.

For the purposes of the present study, the e-learning tools were categorised into two groups based on the level of interaction enabled by the tool (see Table 6.61). The high interaction tools were those, such as the email system and online forums, that enabled users to interact with each other by sending and receiving information. Some of these were designed to allow multiple clients to interact synchronously or asynchronously with the system and with others by sending or receiving several kinds of data, for example, the online chatting system and social networking softwares. Low interaction tools were the online tools which enabled users to receive information only with limited interaction between users and the online system. These included the online course outline and staff profile system. The results in Tables 6.62 and 6.63 showed that academic staff and students were both using low interaction tools significantly more than high interaction tools. It is difficult to identify a clear reason for this because it may have been related to multiple factors such as ease of use, training or demand. However, it is a potential issue for higher education in Saudi Arabia as it indicates there are a number of highly interactive e-learning tools that could perhaps be used to a greater extent to enhance the quality of e-learning at universities.

8.3 Attitudes towards e-learning

This section finalizes the answers to research questions four and five. It consists of seven sections which focus upon, respectively: (1) experience in IT and e-learning and their effects on attitudes and satisfaction; (2) the effects of gender on attitudes; (3) e-learning platforms and their relationships to satisfaction and attitudes; (4) differences between universities in terms of attitudes towards e-learning; (5) differences between academic staff and student attitudes towards e-learning; (6) the influence of teaching/study experience on attitudes towards e-learning; (7) the relationships between
satisfaction and attitudes. In each section, the main findings will be described and supported by evidence from the results.

8.3.1 Experience with IT and e-learning and their effects on attitudes and satisfaction
The results indicated in general, greater experience with IT and e-learning is generally associated with more positive attitudes and satisfaction. There were several pieces of evidence that supported this pattern:

- First, academic staff who were more experienced in using IT had more positive attitudes. Table 6.24 showed that staff who were more experienced with computers had significantly higher levels of EL Acceptance, EL Confidence, EL Liking and EL Opportunity and they had less EL Anxiety. The regression analyses indicated a similar pattern, as Figures 7.3, 7.4, 7.5 and 7.6 indicated significant positive relationships between computer experience and EL Confidence, EL Liking, and EL Opportunity, and a negative relationship to EL Anxiety. Similarly, academic staff with more email experience had more positive attitudes. Table 6.24 showed that the academic staff who were more experienced with email had significantly higher levels of EL Liking, and EL Opportunity than less experienced academic staff. The regression analysis models (Figures 7.6 and 7.7) also indicated that academic staff with more email experience had higher EL Opportunity and EL Productivity means.

- Second, students’ results showed a similar pattern. Table 6.25, for example, showed that students who were more experienced with computer, email and internet had less EL Anxiety than less experienced students. A regression analysis (Figure 7.9) found a significant negative relationship between students’ experience with computers and EL Anxiety, with a coefficient of -0.129. Students who were more experienced with computers had significantly higher levels of EL Confidence and EL Liking, while the regression analyses (Figures 7.10 and 7.11) also found significant direct relationships between EL Confidence and students’ experience with computers (coefficient of 0.148), and a significant direct relationship between EL Liking and students’ experience with computers (coefficient of 0.166). In addition, students with more email experience had higher EL Confidence and EL Liking than students with lower email experience.
• Third, staff who had more IT experience (which consists of computer experience, email experience and internet experience) had higher levels of satisfaction towards e-learning platforms (Blackboard, Jusur, Moodle and WebCT). Table 6.30 indicated that academic staff with more than five years’ computer experience had significantly higher levels of satisfaction towards WebCT than academic staff with less computer experience. Table 6.32 showed that academic staff with more than five years of email experience had significantly higher levels of satisfaction towards Jusur and WebCT than academic staff with less email experience. Table 6.34 showed that staff who were more experienced with the internet had significantly higher levels of satisfaction towards Blackboard, WebCT and Jusur than less experienced staff.

• Results in Table 6.35 showed that students with more internet experience had a significantly higher level of satisfaction towards WebCT and Moodle than the less experienced groups. However, the results in Tables 6.31 and 6.33 showed that there was no significant relationship between students’ computer experience and email experience with their level of satisfaction towards e-learning platforms, implying that they were equally satisfied with all platforms.

• The use of e-learning platforms has positive relationships with students’ attitudes towards e-learning. Students’ results revealed that both groups of students (users and non users of e-learning platforms) reported in general positive attitudes towards e-learning (the means were above the neutral point 2.5 in a four points Likert scale) and low anxiety towards e-learning (the means were below the neutral point 2.5 in a four point Likert scale). However, while all students had positive attitudes towards e-learning, findings in Table 6.39 revealed significant differences between students who were using an e-learning platform and students who were not using any e-learning platform, for all six attitude scales. Students who were using e-learning platforms had significantly higher levels of EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity and they had less EL Anxiety, than students who were not using any e-learning platform.

In summary, where significant relationships were found, they formed a pattern indicating that greater experience in computers leads to more positive attitudes and satisfaction. This result is consistent with a number of other studies that have found that
computer experience has a positive effect on attitudes. For example, Loyd and Gressard (1986) examined the effects of computer experience on the attitudes of computer anxiety, computer confidence, computer liking and computer usefulness through a staff development course. In general, they found that teachers as a whole had fairly positive attitudes towards computers. They found that “anxiety significantly decreased and positive computer attitudes significantly increased as a result of this experience with computers” (p. 302). Yushau (2006) studied academic staff in the mathematics department at King Fahd University for Petroleum and Minerals. He found that the high use of computers and technology had developed positive attitudes towards their use in teaching. Similar findings were obtained by Gurbuz, Yildirim and Ozden (2000), Anderson and Hornby (1996), Uzunboylu (2007) and Alenazi et al. (2010).

Possible reasons for this pattern are as follows. Increased experience with IT can be expected to develop skills for using e-learning tools, and this may in turn lead to increased confidence and reduced anxiety towards these tools. These positive attitudes may carry over to their other attitudes as well. For example, Kirby et al. (2010) found that “students felt that they developed important and highly useful skills as a result of their online learning experience” (p. 172). Similarly, Nehari-Talet (2007) examined students’ perceptions of the benefits and the efficient use of Online Teaching and Learning (OTL) in King Fahd University for Petroleum and Minerals. He found that the use of online learning increased students’ study skills, including self study responsibility and critical thinking. He also found that the use of online learning increased students’ confidence. In addition, Al-Dosari (2011) stated that “students’ responses indicate that learning overall could improve in e-learning conditions much better that in traditional fashions” (p. 405). Yushau (2006) stated that “at King Fahd University of Petroleum and Minerals there is a policy in which all faculty of the University are provided a personal computer in their offices that is upgradeable or changeable after every two years. Similarly, Internet access and e-mail facilities are free” (p.12). He stated that this influenced academic staff confidence to use ICT which may influence their attitudes positively towards ICT in education. In addition, Yushau (2006) stated that academic staff at King Fahd University for Petroleum and Minerals reported the importance of periodic training and workshops for academic staff to increase their familiarity and to enhance their use of computers and technology in teaching.
A possible reason for the positive relationship between internet experience and students’ levels of satisfaction is that experience with the internet develops students’ experience of using online tools and features. The experience with internet also increases their opportunities to interact with their instructors and other students. Koh and Hill (2009) emphasised that social interaction among students significantly affects students’ satisfaction towards online learning. In addition, the use of the internet and the interaction with others and with the course activity increase students’ feeling of being involved and active. Melton et al. (2009) ascribed high student satisfaction towards online learning to the active learning and active teaching environments offered by blended learning which includes high levels of internet and online materials. Furthermore, the interaction through the internet between students and instructors increases their satisfaction with the instructor and the course which possibly affects their satisfaction and attitudes towards e-learning. According to Hermans et al. (2009) these interactions may be the key to ensuring students’ satisfaction; the reason being that “social interactions are an integral part of satisfaction with others and removing opportunities for interaction between the student and instructor may inadvertently reduce a student’s satisfaction with the instructor and the class” (p. 14).

In summary, the evidence indicates that in general, experience in computers, IT and e-learning is a good thing for students and staff, because it leads to more positive attitudes towards e-learning and higher levels of satisfaction with e-learning platforms. Of course, in the results there were many instances in which no significant relationships were identified, but the important point is that when significant relationships were identified, they tended to follow this pattern. This is a significant finding because positive attitudes towards computers is widely recognised as a necessary condition for effective use of ICT in education (Christensen & Knezek, 2009).

The Saudi government as documented previously is strongly committed to the implementation of information and communication technology (ICT) and e-learning in higher education. The positive relationship between IT and EL experience with academic staff and student attitudes and satisfaction can provide evidence that the trend of Saudi universities of implementing ICT and e-learning is largely successful. For example, Saudi universities have developed the infrastructure to implement e-learning.
They provide computers, internet connection, technical support and training for academic staff and students to facilitate their use of information technology and e-learning. In addition, they develop individual administration for e-learning such as e-learning centers and deanships that specifically target the skills in e-learning. These efforts promote the use of information technology and e-learning in Saudi universities. According to the present study, this affects academic staff and student attitudes, satisfaction and use of e-learning positively in Saudi universities. At the same time, the success of academic staff and students with information technology and e-learning has the potential to encourage decision makers at Saudi higher education to commit further resources to the development and support for e-learning. In addition, the present study found positive relationships between academic staff and students and their use of Blackboard, Jusur, Moodle and WebCT. This is a positive indication that the Saudi higher education institutions have selected appropriate e-learning platforms. Appropriate selection of e-learning platforms in conjunction with an adequate amount of support is expected to achieve successful implementation of information technology and e-learning.

8.3.2 The effects of gender on attitudes towards e-learning

The difference between the attitudes of males and females is important because academic staff and students are separated by gender in Saudi Arabian universities. As reported in the literature review, males and females in the Kingdom of Saudi Arabia study in segregated environments for religious and traditional reasons (Al-Jarf, 2007, Mirza, 2007) and males cannot physically attend any lectures on female campuses and vice versa. The separate environment makes the circumstances for each group different which may affect their attitudes towards e-learning. Some research has found significant differences between males and females for academic staff or students (Al-Jarf, 2007; Loyd & Gressard, 1986; Selwyn, 1997). On the other hand, other research (Dooleen et al. 2003; Francis, 1993, 1994; Sang et al., 2009; Uzunboyla, 2007) found that there was no direct significant relationship between teacher attitudes towards ICT integration and their gender. However, researchers for both points of view recommended further research to clarify the relationship between gender and attitude.

In the present study there was evidence of the significant relationship between gender and attitudes towards e-learning. Male academic staff had more positive attitudes
towards e-learning than females while female students had more positive attitudes than males. There were several pieces of evidence for this pattern:

- The results in Table 6.20, revealed that male and female academic staff reported positive attitudes for all attitude scales, as the means were above the neutral point. However, female academic staff had significantly higher anxiety towards e-learning than males. The regression analysis model revealed that the strongest direct relationship was between gender and EL Anxiety, indicating that female teachers had higher EL Anxiety than male academic staff. Regression analysis revealed that male academic staff had higher EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity than female academic staff.

- Academic staff results as presented in Table 6.28 showed that male and female academic staff reported positive satisfaction towards e-learning platforms, as the means were above the neutral point. However, t-tests indicated that the level of satisfaction of male academic staff was significantly higher than females towards Blackboard, Jusur, Moodle and WebCT.

- For students, once all other independent variables were considered in a multiple regression analysis, female students were found to have higher EL Acceptance, EL Confidence, EL Liking and EL Opportunity than male students.

- Students’ results in Table 6.29 showed that male and female students reported high levels of satisfaction towards most of the e-learning platforms. However, t-tests showed that male students were significantly more satisfied than females towards WebCT. There was no significant difference between male and female students with regard to their levels of satisfaction towards other e-learning platforms (Blackboard, Jusur and Moodle).

These results suggest that in many cases the attitudes and satisfaction levels of male academic staff in Saudi universities can be higher than those of females. These findings are consistent with some of the previous research in this area, including Loyd and Gressard (1986) who found that female teachers were significantly more anxious than males, and that male teachers were significantly more confident than females. Other
research findings (Doolen et al. 2003; Francis, 1993, 1994; Sang et al., 2010; 
Uzunboyla, 2007) found that there were no significant differences between males and 
female attitudes towards e-learning. Importantly though, these studies were not carried 
out in Saudi Arabia, where gender segregation is the norm. The Saudi government 
supports male and female academic staff equally with information technology and e-
learning facilities. Campuses for both are provided with sufficient infrastructure to 
enable academic staff to use information technology and e-learning. The same 
resources are duplicated for academic staff and students in separate campuses for males 
and females in Saudi universities. In addition, every male and female academic staff 
can obtain a personal computer in all Saudi universities. Online resources are the same 
for all academic staff provided by the university websites with no any difference 
between males and females. However, gender significantly related to academic staff 
attitudes and satisfaction towards information technology and e-learning.

Students’ results in Table 6.21 showed that female students had higher EL Acceptance 
than males (i.e. they accept they will need e-learning in their studies). Regression 
analysis of the student model (Figures 7.8, 7.9, 7.10, 7.11, 7.12, 7.13) supported this 
finding, indicating that female students had more positive attitudes towards e-learning 
than males. This is a very significant finding as there are less female academic staff in 
many Saudi Arabian universities and students are segregated, so female students may 
depend more on e-learning. It will therefore be important for academic staff to 
recognise that the female students may be more accepting of e-learning in their courses 
and this will enhance their opportunities to attend higher education. Similarly, Al-
Fahad (2010) investigated the satisfaction towards e-learning of 201 female students in 
King Saud University. She reported that “participants were highly satisfied with the 
opportunity to interact with the distance learning context, which can be a viable option 
to increase student satisfaction” (p. 70). More than 70 % of these female students 
strongly agreed that e-learning will contribute to improved education in Saudi Arabia.

One possible reason for this pattern is as follows. E-learning has been suggested by 
some educators (e.g., Mirza, 2007) as a way of reducing the problem of low 
opportunities for female students in Saudi universities for two reasons. The first reason 
is that e-learning will increase the chance for women to get higher education by offering 
opportunities for them to study online from home. The second reason which is
suggested by Mirza (2007) is that male lecturers are allowed to teach female students from a distance with no physical face-to-face meeting if there are not enough female lecturers (which was the case in Saudi universities). The communication technologies used in e-learning therefore allow males and females to communicate for educational purposes with no physical meeting. As documented in Chapter 5, administration centers and deanships of e-learning in Saudi universities provide support for students through such initiatives as computers, internet connections, technical support and training. This is to facilitate student use of information technology and e-learning which will help them to communicate without physical contact. This kind of online communication can help students to overcome cultural and religious obstacles which may be present in the Saudi Arabian context and communicate easily for educational purposes.

8.3.3 Use of e-learning platforms and tools and relationships with satisfaction and attitudes

The e-learning platforms investigated in this study were Jusur, WebCT, Blackboard and Moodle. These were selected because they were widely available in Saudi Arabia. The results for academic staff indicated that use of Jusur was related to positive attitudes. For example:

- Table 6.40 showed a significant relationship between academic staff attitude towards e-learning and their use of different e-learning platforms. Scheffe tests indicated that academic staff using Jusur had significantly higher EL Acceptance (the acceptance or avoidance of using and the training on e-learning to enhance teaching and learning) than academic staff using WebCT. The regression analysis for the academic staff EL Acceptance model (Figure 7.2) indicated that the use of Jusur had a direct positive relationship with EL Acceptance (0.162). Regression analysis revealed that academic staff who used Jusur had less EL Anxiety (-0.033). These results in total indicated that academic staff had positive attitudes towards Jusur.

- Regression analysis revealed that the use of WebCT had a negative relationship with academic staff attitudes towards e-learning for EL Acceptance (-0.365), EL Anxiety (0.182), EL Confidence (-0.162), EL Opportunity (-0.205) and EL Productivity (-0.251). It also found a negative relationship between the use of Blackboard and academic staff attitude for EL Liking (-0.365).
These results suggest that staff who use Jusur, in preference to the other platforms, are more likely to have positive attitudes towards e-learning. It is possible that this is at least partly due to Jusur being an Arabic language platform, so it may be more likely to appeal to Arabic speakers (e.g., Zaitoon, 2005).

However, the results for students did not follow the same pattern. Instead, the findings generally indicated that students had positive attitudes towards e-learning regardless of which e-learning platform they used:

- The regression analysis model (Figure 7.8) indicated that students who used WebCT had higher EL Acceptance (0.149). Regression analysis models (Figures 7.10, 7.11, 7.12 and 7.13) indicated that students who used Moodle had higher EL Confidence (0.108), EL Liking (0.157), EL Opportunity (0.130) and EL Productivity (0.169). Regression analysis models (Figures 7.11 and 7.13) indicated that students who used Blackboard had higher EL Liking (0.133) and EL Productivity (0.145). Regression analysis model (Figure 7.9) indicated that students who used Jusur had less EL Anxiety (-0.111).

These results show that each of the four platforms, Jusur, WebCT, Blackboard and Moodle were positively related to student attitudes and satisfaction in some cases. This suggests that all four of them were generally acceptable. This result was somewhat surprising as previous researchers (e.g., Zaitoon, 2005) have proposed that Arabic language platforms, such as Jusur, EMES and Moodle are more preferable for Arabic students than non-Arabic platforms, such as Blackboard and WebCT.

One possible reason for this discrepancy is as follows. In line with many other countries worldwide (Wells, 2003) English is becoming more and more widely understood in Saudi Arabia. This is possibly accelerated by the more widespread use of the internet in Saudi Arabia, by which students are able to access English language sites. Thus, although earlier studies have indicated a preference for Arabic platforms (Zaitoon, 2005) the results from the present study would suggest that this is becoming less of an issue for students.

An additional contributing factor may be that each of these platforms is of good quality and offers advantages to Saudi students. The following are some examples of studies
that have confirmed the suitability of these platforms. The positive relationship between the use of Blackboard and student attitude is consistent with the findings of Al-Jarf (2002) who examined the effect of the use of Blackboard for online learning on students’ achievement and attitudes in one of the Saudi Arabian universities. She found that the online course had a positive effect on students’ attitudes and they enjoyed learning through Blackboard. The students experienced enhanced self-esteem, motivation and sense of achievement and improvement. Bajahzer, Al-Ajlan and Zedan (2008) analysed Moodle as an e-learning management system and identified a range of positive features that would be likely to affect student satisfaction towards this platform. They stated that users of Moodle are free to download, use, modify and distribute Moodle. Moodle runs without modifications on operation systems such as Windows, UNIX and Linux. Teachers are able to provide and share documents, graded assignments and quizzes with their students easily to create online courses. Moodle also is available in Arabic and 75 other languages. Zouhair (2010) evaluated the level of student satisfaction towards e-learning after using Jusur at Prince Sultan University in Saudi Arabia. Overall, 92% of students reported positive satisfaction, and ease of use and usefulness were the main reasons given. Yushau (2006) examined the attitudes of students towards e-learning after using WebCT at King Fahd University for Petroleum and Minerals. Students reported positive attitudes towards e-learning, as it gave them the opportunity to interact with the course activities and to learn much more than in traditional lectures.

Regression analysis revealed a positive relationship between the use of high interaction tools and academic staff attitudes towards e-learning. The model indicated that the larger number of hours of using high interaction tools had positive relationships with EL Confidence (0.225), EL Opportunity (0.229), EL Productivity (0.146) and a negative relationship with EL Anxiety (-0.225). Regression analysis revealed a positive relationship between the use of high interaction tools and student attitude towards e-learning. The model indicated that the more hours of using high interaction tools were related to higher EL Acceptance (0.096), EL Confidence (0.166) and EL Liking (0.161).

According to Chapter 5 the National Center for E-learning and Distance Learning which is established by the Saudi Arabian Ministry of Higher Education, has developed the Jusur e-learning platform for Saudi universities. The National Center for E-learning and
Distance Learning is a government institution that focused generally on implementing e-learning and information and communication technologies (ICT) in Saudi higher education. The Custodian of The Two Holy Mosques, King Abdullah bin Abdul-Aziz Al-Saud, had issued a decree to establish a national plan for the utilisation of information technology (IT). Jusur is developed in Arabic through the extensive work of academic staff and students needs in Saudi universities. Consequently, the National Center provides technical support as well as the tools and means necessary for the development of Jusur for higher education institutions. This strong support from the Saudi government for (NCEL) to provide e-learning is possibly one of the reasons of the successful implementation of Jusur in Saudi universities. The degree of “ownership” which is present in such ICT development is often important in the attitudes and utilisation these programs.

8.3.4 Differences between universities in terms of attitudes towards e-learning

The results indicated that there were some differences between universities in staff and student attitudes towards e-learning:

- The results in Table 6.18 showed that there were significant differences between academic staff attitudes across the four universities for EL Acceptance, EL Opportunity, and EL Productivity while there were no significant differences between them for EL Anxiety, EL Confidence and EL Liking. The Scheffe test indicated that academic staff in University A had significantly higher EL Acceptance, EL Opportunity and EL Productivity than academic staff in other universities. The regression analysis as shown in (Table 7.2, Table 7.4, Table 7.6, Table 7.8, Table 7.10 and Table 7.12) indicated strong positive relationships between being an academic staff at University A and EL Acceptance, EL Anxity, EL Confidence, EL Liking, EL Opportunity and EL Productivity. The conclusion is that academic staff at University A had the highest positive attitudes towards e-learning and the lowest EL Anxiety compared to other universities. Regression analysis also revealed a second strong positive relationship between being an academic staff member at University B and EL Acceptance (0.297), EL Confidence (0.392), EL Liking (0.262), EL Opportunity (0.340), EL Productivity (0.301) and negative relationship with EL Anxiety (-0.229) indicating more positive attitudes than University C and University D.
To sum up, these results indicated that academic staff at University A had more positive
atitudes than staff at the other universities. Interestingly, University A used the Jusur
e-learning platform, and the results in Section 8.3.3 suggested that its use is associated
with positive attitudes amongst staff, probably because it is an Arabic language
platform.

However, the results for students showed a different pattern, as follows:

- Students’ results in Table 6.19 showed significant differences among the universities
for EL Acceptance, EL Anxiety, EL Confidence, EL Liking, EL Opportunity and EL
Productivity. Scheffe testing revealed that students at University C had significantly
higher EL Acceptance than students at University D. As shown in Table 7.14, the
regression analysis for the students’ EL Acceptance model indicated that the strongest
total relationship was between being a student at University C and EL Acceptance, with
a total coefficient of 0.640. Scheffe testing also indicated that students at University C
had significantly higher EL Confidence than students at University A. According to the
students’ EL Confidence analysis model (Figure 7.10), the direct relationship between
EL Confidence and being a student at University C (coefficient of 0.162) was stronger
than the direct relationship between EL Confidence and being a student at University A.
Regression analysis also revealed that being a student at University A had positive
relationships with EL Liking (with total coefficient of 0.013), EL Opportunity (with
total coefficient of 0.114) and negative relationship with EL Anxiety (with total
coefficient of -0.075).

To sum up, the students at University C had the highest levels of EL Acceptance,
Confidence, Liking and Productivity and the lowest EL Anxiety compared with students
at the other three Saudi Arabian universities. Although there is a scarcity of
comparative studies among Saudi universities this result is consistent with Al-Fahad’s
(2010) research study which also reported positive perceptions of students at this
particular university. Al-Fahad (2010) stated that “participants were highly satisfied
with the opportunity to interact with distance learning context” (p. 70) at this university.
Particularly, more than 70 % of them strongly agreed that e-learning will contribute to
improving education in Saudi Arabia and it will be able to substitute the conventional
way of learning in the future. They also agreed that e-learning is becoming more
acceptable and they prefer to study all courses in electronic form in the future. Similarly, Al-Jarf (2005) investigated the use of e-learning to teach English at this university. She reported that e-learning heightened students’ motivation and raised their self-esteem, and “it created a warm-climate between the students and instructor and among students themselves” (p. 178). Interestingly, the e-learning platform used at University C was UCLMS, which was an Arabic language platform that had been specifically designed and developed for this university, so it is possible that this platform may have particularly suited the students.

The documentary data presented in Chapter 5 reported that the four universities investigated provided information technology and e-learning services for academic staff and students. The four investigated universities each provided three main online dimensions that were relevant to e-learning: online services, e-learning platforms, and training and support. The details of these provisions are as follows. Each university provided general online services such as an online application forms system, SMS messaging system, electronic libraries, university forum, online calendar, email system and university news. In addition, all university websites had their own links to web pages on Facebook, Twitter, and YouTube. The four universities also provided training programs and support for students and staff in order to improve the use of e-learning systems. Online and face-to-face training were provided in the four universities for academic staff and students. However, attitude and satisfaction of academic staff and students were different between the four investigated universities. This possibly related to demographic conditions which also strongly related to culture and traditions in each area. In addition, the infrastructures are slightly different between different areas and cities in Saudi Arabia. These differences may possibly contribute to the explanation of the differences in attitudes and satisfaction toward information technology and e-learning between academic staff and students in the different universities.

8.3.5 Difference between academic staff and student attitudes towards e-learning

Note that the model developed and tested was more successful in explaining variance in the EL attitude outcomes for staff than for students. The variance explained for each one of the staff EL attitudes was higher than for each one of the student EL attitudes, and the mean variance explained for the six EL attitudes was approximately 23% for staff and 9% for students. The smallest difference in EL attitudes between staff and students was
for EL Acceptance where the variance explained was 21% for staff and 16% for students. Academic staff and students reported positive attitudes towards e-learning, but the attitudes of academic staff were more positive than those of the students. The evidence for this is as follows:

- Table 6.17 showed that the attitudes of academic staff and students were both above the neutral point. When the means were compared using t-tests, it was found that academic staff had significantly higher means for the attitude scales EL Liking, EL Productivity and EL Opportunity. While the means of EL Anxiety for both academic staff and students were less than the neutral point (2.5 in 4 points scale), academic staff were significantly less anxious (EL Anxiety mean = 1.98) towards e-learning than students (EL Anxiety mean = 2.07). Thus, where significant differences were identified they tended to support the idea that academic staff were more positive than students in terms of their attitudes towards e-learning.

Data collected from websites and government reports previously indicated that universities support both academic staff and students to facilitate their use of information technology and e-learning. The universities provide computers (personal computers and computer labs), internet connections, technical support and training for both. However, the present study found significant differences between academic staff and students. A possible reason for the difference between staff and students is that the academic staff may have had more experience with IT and e-learning than the majority of the students, and this difference in experience may have created the difference in attitudes. For example, it was found in this study that many academic staff had been using IT in their teaching for many years, whereas the majority of students may have only experienced IT during their five years or less of university studies (Tables 6.5, 6.6, 6.11 and 6.12). Importantly, it was also found in this study (see Section 8.3.1 above) that increased experience with IT and e-learning generates more positive attitudes. Thus, the more positive attitudes among the staff may have been a direct result of their greater experience with e-learning.

8.3.6 The influence of teaching/study experience on attitudes towards e-learning
Academic staff and students had generally positive attitudes towards e-learning, with means above the neutral point. For academic staff there was no strong pattern to
indicate that teaching experience influenced attitudes, but there was a significant negative effect of teaching experience on satisfaction. On the other hand, student results indicated a significant positive relationship between learning experience and attitudes. The evidence for this is as follows:

- The results in Table 6.22 showed a significant difference only in EL Confidence between the three groups of teaching experience for academic staff (sig = 0.016). However, Scheffe testing did not identify any particular level of teaching experience as being significantly different from the others. This result is consistent with the regression analysis of the academic staff EL Confidence analysis model which indicated no direct relationship between teaching experience and EL Confidence. These findings are not consistent with Uzunboylu’s (2007) finding. Uzunboylu (2007) found that teachers with higher teaching experience had significantly greater positive attitudes towards e-learning.

- Table 6.36 showed that academic staff with less than 20 years of teaching experience had significantly higher levels of satisfaction towards Blackboard than academic staff with more than 20 years’ teaching experience. This indicated that teaching experience had a negative relationship with level of satisfaction towards Blackboard. The reason for this negative relationship probably is that older academic staff with higher teaching experience are usually less likely to wish to become involved with new methods, including IT and e-learning. This is especially if they were successfully achieving their goals with students by traditional ways of teaching and the students were getting good results. This may make them less motivated to change their successful way of teaching to a new method that needs more time and effort. Uzunboylu (2007) argued that “this attitude difference could be related to age instead of teaching experience. It is reasonable to expect that older teachers would be more likely to lack a familiarity with online education and technology that younger teachers have acquired” (p. 274).

- The students’ results in Table 6.23 showed significant differences between the two groups of students for EL Anxiety and EL Acceptance. Students with more than five years of study experience had a significantly higher level of EL Acceptance than students with five years and less of study experience. Students with five years and less of study experience were significantly more anxious than students with more than five
years of study experience. The regression analysis for the student EL Anxiety model (Figure 7.9) found a significant direct negative relationship between student anxiety towards e-learning and their study years at university, with a coefficient of -0.189, indicating lower EL Anxiety for more experienced students at university. Regression analysis also revealed that study experience had a positive relationship with EL Confidence (0.166), EL Liking (0.225) and EL Opportunity (0.175). These results indicated that students with more years of study experience at the university had a more positive attitude towards e-learning.

● The results in Table 6.37 showed that students with more than five years of study experience had a significantly higher satisfaction towards Moodle than students with less study experience. The reason for the positive pattern among students may be related to features of the Saudi education system. Rush (2008) reported that in the Middle East “this society’s primary and secondary schools rely heavily on rote memorization, pen and paper exams and require few critical skills, group work, or independent learning activities” (p. 668). This emphasis on rote learning means that most of the research skills, assignment skills, and computer and technology skills are missing. According to Junaidu (2004), this means “our students are not as instructor-independent as should be online learners” (p. 8). Similarly, Al-Jarf (2005) reported that for Saudi Arabian students, using the internet as a learning tool was not part of some students’ culture, as many were used to traditional instruction based on books. Thus, university level education is a big shift for many Saudi students, as they need to develop more independent learning skills. In most cases they start to learn these skills when they start studying at university, and they further develop as they spend more time at university. This in turn can lead to the positive attitudes which were observed for more experienced students in the present study. However, there are other possible explanations for this relationship between study experience and students’ attitudes towards e-learning. For example, the students with more study experience may in fact be less successful students because they have taken a longer time than usual to attain their degree, so they may not be as focussed on their studies, making them less anxious.

● In addition, students’ results revealed that there was a positive relationship between study experience years and students’ satisfaction towards e-learning platforms. The results in Table 6.37 showed that students with more study experience had a
significantly higher level of satisfaction towards Moodle than students with less study experience. This indicated that learning experience had a positive relationship with students’ satisfaction towards Moodle. Moodle was one of the first e-learning platforms used in Saudi higher education institutions. Some academic staff were encouraging students to use Moodle optionally through academic staff web pages on the university websites. They developed some course materials with Moodle and provide the links in their websites. This probably makes students more familiar with Moodle than other e-learning platforms which may have affected students’ satisfaction positively towards Moodle.

8.3.7 Satisfaction with platforms, and its relationship to attitudes towards e-learning

Satisfaction with particular platforms was measured as either very high, high, low or very low for each student. The results of this study indicated that, for students, there was a very close positive relationship between satisfaction and attitudes. However, this pattern was not as evident for academic staff. The evidence was as follows:

- Academic staff results (as shown in Tables 6.50, 6.52, 6.54 and 6.56) indicated significant relationships between academic staff attitudes towards e-learning and their satisfaction with Blackboard, Moodle, Jusur and WebCT. However, the differences were not significant enough to distinguish between particular groups. Teaching experience was found in the literature as significantly affecting attitude towards e-learning. In this study, the possible reason for the high satisfaction of all academic staff with no regard to their teaching experience is that, as reported in sub-section 8.2.1 in this chapter, academic staff at Saudi Arabian universities had access to good training and the universities provided support to them in order to facilitate e-learning (Yushau, 2006).

- Students’ results (as shown in Table 6.51) indicated that those with higher levels of satisfaction towards Blackboard had more positive attitudes towards e-learning (EL Confidence, EL Liking, EL Opportunity and EL Productivity) than students with lower levels of satisfaction towards Blackboard. According to Scheffe tests, students with a very high level of satisfaction towards Blackboard had significantly higher EL Confidence than students with low and very low levels. Students with low satisfaction
towards Blackboard had significantly higher EL Confidence than students with very low satisfaction. Students with very high and high satisfaction towards Blackboard had significantly higher EL Liking than students with very low satisfaction. Students with very high and low levels of satisfaction towards Blackboard had significantly higher EL Opportunity means than students with very low satisfaction. In addition, students with very low satisfaction towards Blackboard had significantly less EL Productivity means than students with low satisfaction. These results indicated a positive relationship between students’ attitudes towards e-learning and their level of satisfaction towards Blackboard.

● Results in Table 6.53 showed that students with higher levels of satisfaction towards WebCT had higher EL Confidence, EL Liking, EL Opportunity and EL Productivity than students with lower levels of satisfaction towards WebCT. Students with very low satisfaction towards WebCT had significantly less EL Confidence than students with higher satisfaction towards WebCT and also had significantly less EL Liking than students with very high and high satisfaction. Students with very high satisfaction towards WebCT had significantly higher EL Opportunity means than students with very low satisfaction. The results also illustrated that students with very high satisfaction towards WebCT had significantly higher EL Productivity means than students with low and very low satisfaction. Students with high satisfaction towards WebCT had significantly higher EL Productivity means than students with very low satisfaction. These results indicated a positive relationship between students’ attitudes towards e-learning and their satisfaction with WebCT.

● Table 6.55 showed that students with higher levels of satisfaction towards Moodle had more positive attitudes towards e-learning than students with lower levels of satisfaction towards Moodle. Students with very high satisfaction towards Moodle had significantly higher EL Acceptance and EL Productivity means than the very low satisfaction group. Students with very low satisfaction towards Moodle had significantly higher EL Anxiety and less EL Confidence and EL Liking than students with high and very high satisfaction. These results indicated a positive relationship between students’ attitudes towards e-learning and their level of satisfaction towards Moodle.
In addition, students’ results in Table 6.57 showed that students with higher levels of satisfaction towards Jusur had more positive attitudes towards e-learning (higher EL Acceptance, EL Confidence, EL Productivity and less EL Anxiety) than students with lower levels of satisfaction towards Jusur. Students with very high satisfaction towards Jusur had significantly higher EL Acceptance than students with very low satisfaction. Students with very high and high satisfaction towards Jusur had significantly higher EL Confidence than students with very low satisfaction. Students with very high satisfaction towards Jusur had significantly higher EL Productivity means than students with low and very low satisfaction. Students with very low satisfaction towards Jusur had significantly higher EL Anxiety than students with very high satisfaction. These results indicated a positive relationship between students’ attitudes towards e-learning and their level of satisfaction towards Jusur.

To sum up, these results indicated positive relationships between students’ attitude towards e-learning and their levels of satisfaction towards Blackboard, Moodle, WebCT and Jusur. This finding is in line with previous research which has indicated that student satisfaction with particular software can lead to positive attitudes towards learning in related courses. For example, Chen et al. (2008) argued that “high satisfaction reflects that learners are more willing to continue in online instructional programmes, resulting in lower attrition rates, more referrals from enrolled students, greater motivation, better learning achievement and increased commitment to the programme” (p. 115). Moallem (2007) stated that “it seems that in online learning environments where social interaction, collaboration and problem solving are highly emphasized, it is likely that students’ perception of their positive learning experience influence their motivation and willingness to adjust their preferred learning style” (p. 238). They emphasised also that offering different learning styles according to users’ satisfaction might have a positive impact on student motivation and their level of effort and engagement in e-learning courses. On the other hand, Chen et al. (2008) also argued that negative satisfaction, which may be caused by negative critical incidents, helps educators and e-learning systems’ designers to know exactly where the problems lie, or what they should do to correct weaknesses. The present study recommends that universities should choose platforms that students have been highly satisfied with, as this will hopefully lead to positive attitudes towards e-learning.
Chapter 9
Conclusion

9.1 Introduction

Universities in the Kingdom of Saudi Arabia have a relatively short history of experience with Information and Communication Technology (ICT) in general, and with e-learning in particular. E-learning was established after the release of the Saudi Arabian National ICT plan by Saudi Arabia’s King Abdullah in 2003. The Saudi Arabian Ministry of Higher Education then started to encourage higher education institutions to provide e-learning. It has established the National Center for E-learning and Distance Learning as the main provider of e-learning in Saudi Arabia. The Ministry also encouraged universities and other educational organisations to establish e-learning centres and deanships in order to implement e-learning.

Social and cultural norms affect the use of the internet and e-learning in Saudi Arabian higher education. Anxiety about the internet and the new communications technologies was strongly related to traditional norms which to some extent have slowed the uptake of these modern technologies. For example, communication through the internet (chatting, emails and social networking) was unacceptable for many Saudi people because the removal of boundaries between males and females was prohibited. However, the pace of change was imposed on Saudi Arabian higher education through modernisation programs by the Saudi Arabian government. Higher education was one of the leading fields which implemented ICT and e-learning in order to improve the quality of higher education and increase the opportunities for students to participate. One of the effective strategies was the utilisation of e-learning in universities. Most of the Saudi universities established deanships and supporting centres for e-learning and encouraged academic staff and students to use e-learning in teaching and learning. Flexibility of time and place was one of the most important aspects which may have motivated many of them to use e-learning.

In order to develop e-learning at Saudi Arabian universities, many Saudi researchers have been investigating e-learning and its effects on academic staff and students or on teaching and learning. Studies have focussed on the effects on academic achievement,
quality e-learning, e-learning evaluation, satisfaction and attitudes towards e-learning. This study investigated the attitudes and satisfaction of academic staff and students with e-learning at Saudi Arabian universities.

The previous chapter presented a summary of the findings of this study. It presented information on academic staff and student attitudes and satisfaction with respect to e-learning, examined the current situation in Saudi Arabian universities regarding use of e-learning and the perceptions of staff and students and considered factors that significantly affect attitudes and satisfaction towards e-learning. This chapter presents the major conclusions of this study with a particular focus on the research questions. It begins with a summary of the thesis, followed by the conclusions from the research and recommendations for implementing e-learning in Saudi Arabian universities. The chapter also highlights the main strengths and limitations of this study. The final section provides suggestions for further research.

9.2 Summary of the Study
The study had two main aims in order to understand the status of e-learning in Saudi Arabian universities. The first aim was to provide a background overview about the current position of e-learning in Saudi higher education, especially universities. The second aim was to examine staff and student attitudes towards e-learning and satisfaction with its platforms, identifying the factors which significantly related to attitude and satisfaction. The study began with an introduction which provided several subsections including discussion of the significance of the study. The literature had provided evidence that attitudes and satisfaction were factors which affected the use of e-learning in tertiary education. In order to investigate the successful implementation and use of e-learning in Saudi universities, the current study aimed to focus mainly on academic staff and student attitudes and satisfaction with e-learning.

Chapter 2 was the first part of the literature review, which provided a background view about e-learning. It provided the different definitions of e-learning focussing on the main aspects of the definition of e-learning. The more detailed definitions, which include the objective, the delivery media, types and levels of e-learning, were the definitions most preferred because they clarify the understanding of e-learning.
compared with other definitions. E-learning in this study is the learning and teaching style which uses computers, information and communication technology (ICT), and online technologies including the internet to enable the learners to interact actively with other students, with instructors, and with the educational content synchronously and asynchronously to gain new skills, behaviours, knowledge, and experiences in a flexible learning environment in terms of time and place. There are several concepts that are strongly related to e-learning, including Distance-learning, Online learning or Web-based instruction, Online distance learning, Learning Management System (LMS), Virtual Learning Environment (VLE), Blended learning and Mobile learning (m-learning). Types and levels of e-learning from the literature were also provided which were related to three main classification criteria: flexibility, level of interaction and teaching strategy. In addition, the advantages and disadvantages of e-learning were strongly related to two main aspects, which were learning and flexibility. A summary of different strategies and standards of evaluation which were used by researchers and educators to evaluate and select appropriate e-learning systems were also important in order to understand e-learning.

The second part of the literature review, in Chapter 3, provided a background view about attitude towards e-learning in higher education. The research in the literature had examined several attitude scales, including acceptance, anxiety, confidence, liking, usefulness, productivity and impact on society. Researchers also identified factors that affected these attitudes, including demographic and experience factors. Research studies also investigated satisfaction of academic staff and students with e-learning and its relationship to their use, success and acceptance of e-learning. The chapter then reviewed the literature about attitudes towards e-learning in Saudi Arabian universities in particular. Satisfaction with e-learning platforms in Saudi Arabian universities was also summarised. The chapter summarised the main issues related to the implementation of e-learning in Saudi Arabian universities. These including the issue of meeting the demand for higher education in Saudi Arabia, organisational support issues, and skills and pedagogical techniques required. In short, this chapter provided background information about the current situation of e-learning in Saudi Arabian universities according to the literature.
The second main aim of the study was to investigate academic staff and student attitudes towards e-learning in four Saudi Arabian universities. The information about academic staff and student attitudes was collected by two instruments developed for this study. A descriptive-correlational research design was used to accomplish the objectives of this part of the study which was finally brought together in a path model linking demographic and experience variables with user attitudes towards e-learning (see Chapter 4). Descriptive statistical procedures (frequencies, percentages, means, and standard deviation) were used to describe user attitudes. Correlations were used to analyse relationships, and T-tests and ANOVAs were used to determine the differences between the demographic and experience factors in relation to attitudes and satisfaction towards e-learning. In addition, multiple regression analyses were used to explain the degree to which the variables, singly and collectively, were predictive of users’ attitudes to e-learning use. The study investigated the relationships between participants’ attitudes and demographic and experience factors. These factors include gender, institutional identification, study/teaching experience, IT experience, and use of e-learning platforms. It also investigated the relationships between attitudes towards e-learning and levels of satisfaction with e-learning platforms: Blackboard, Moodle, Jusur and WebCT. Participants’ attitudes were measured by six attitude scales adapted from previous research studies’ instruments. The attitude scales adapted were: EL Anxiety, EL Confidence, EL Liking, EL Acceptance, EL Productivity and EL Opportunity.

As stated previously, one of the aims of the study was to provide background information about e-learning in Saudi Arabian higher education. The data required to accomplish this aim of the study were mainly collected from university websites and websites of governmental institutions which are in charge of producing and developing e-learning for Saudi Arabian higher education institutions. The information was documented and summarised in Chapter 5. It summarised the information provided in the university websites, the Ministry of Higher Education website and other governmental websites (involved in the national plan to develop e-learning). The national plan of implementing e-learning was supported by decision makers in the Saudi Arabian government. According to Al-Dosari (2011) “Saudi Arabia’s King Abdullah has called for national plan to adopt information technology across the country. The plan recommends implementation of e-learning and distance learning and their prospective applications in higher education” (p. 291). Administration of e-learning in
Saudi Arabia was managed by three government organisations. First, the Saudi Arabian Higher Education Ministry which was placed in charged of providing e-learning for higher education institutions. The other two organisations were the National Center for E-learning and Distance Learning and the E-learning & Training Resources Center who were providing and developing e-learning for educational institutions under the supervision of the Ministry of Higher Education. The four universities included in this study were selected from the leading universities in Saudi Arabia. Investigation of e-learning at these four universities focussed on four main aspects: online services, e-learning platforms, training and support. In addition, there were different aspects about e-learning including the growth of e-learning in Saudi Arabia, administration of e-learning in Saudi Arabia and e-learning in Saudi Arabian universities. E-learning in Saudi Arabia had been increasing dramatically for many reasons. The high growth of higher education demand was one of the reasons for establishing e-learning in Saudi Arabian higher education.

In order to meet the main aim, the research study provided information about academic staff and student attitudes and the factors influencing their attitudes (see Chapter 6). The overall response rate was around 60 % for both academic staff and students from the four universities, but differed considerably by gender, teaching or study experience and IT experience (see section 6.2). It also provided information about the use of e-learning platforms and e-learning tools in terms of number of users for each platform, usage hours and level of satisfaction. A comparison between participants’ attitudes was also provided and significant relationships were found between attitudes towards e-learning and other factors. These factors included gender, IT experience and satisfaction towards e-learning platforms. Furthermore, academic staff with higher levels of computer and email experience had more positive attitudes towards e-learning, while students with higher internet experience had more positive attitudes.

Chapter 7 developed the regression analysis model for the study. The model was developed to represent hypothesised relationships between sets of variables considered likely to be related to attitudinal outcomes for academic staff and students in the samples (Creswell, 2008; Gelman & Hill 2007). The analyses were made separately for academic staff and students. The model has four stages: three explanatory stages and one outcome stage (see Figure 7.1). The regression analyses were conducted separately
for each outcome variable, thus producing six models for academic staff and six for students. The data from regression models for academic staff and students suggested that gender had a strong relationship with their attitude towards e-learning. Male academic staff had higher positive attitudes towards e-learning while female students had more positive attitudes towards e-learning. The data also suggested that there was no strong relationship between teaching experience and attitude towards e-learning in general while there was a stronger positive relationship between study year level and student attitude towards e-learning. Students with more study experience at university had a higher positive attitude towards e-learning. Academic staff and students at three of the universities had higher positive attitudes towards e-learning compared with academic staff and students at the fourth university. Academic staff at University A and University B had higher positive attitudes towards e-learning than academic staff at University C. On the other hand, students at University C had higher positive attitudes towards e-learning than those at University A and University B. The data from regression models for academic staff and students suggested that there was a strong relationship between IT experience and academic staff and student attitudes towards e-learning. Using e-learning tools (both high interaction e-learning tools and low interaction e-learning tools) had a positive relationship with academic staff and student attitudes towards e-learning. The regression analysis model was successful in explaining attitudes towards e-learning. The variance explained for each one of the staff EL attitudes was higher than for each one of the student EL attitudes, and the mean variance explained for the six EL attitudes was approximately 23 % for staff and 9 % for students. Note that the model developed and tested was more successful in explaining variance in the EL attitude outcomes for staff than for students.

Chapter 8 discussed the most important findings of the study and compared these with the relevant literature. The first section provided the answers to the first three research questions and summarised the background information about e-learning in Saudi universities. In this section literature related to e-learning in Saudi universities was compared with data collected from websites (which was provided in Chapter 5). The five sub-sections of this chapter revealed the five main findings of the study with regard to attitudes and satisfaction. The five main findings were: the positive relationship between attitudes towards e-learning and experience with IT and e-learning, the significant differences between the attitudes of males and females, the significant
differences between Saudi Arabian universities in terms of attitudes towards e-learning, the significant differences between academic staff and students regarding their attitudes towards e-learning, and the positive effect of satisfaction with e-learning platforms on attitudes towards e-learning generally.

**9.3 Conclusions and Recommendations**

This section draws conclusions and recommendations from the findings of the study. The conclusions are presented first and the recommendations follow, as suggestions to the Ministry of Higher Education regarding the progress of e-learning in Saudi Arabian universities. The recommendations are intended to provide some suggestions for higher education institutions that could help educators and decision makers to implement e-learning successfully.

**9.3.1 Conclusions**

This thesis investigated academic staff and students’ attitude towards e-learning in order to identify influencing factors. Demographic and experience factors were investigated in relation to six e-learning attitudes scales. The study found several significant relationships between participants’ attitudes towards e-learning and other factors as reported in Chapter 6 and Chapter 7. This section concluded the most important factors related to attitude towards e-learning with regard to a review of the literature and personal experience as the researcher had experiences as both student and lecturer in Saudi universities. Data documented in Chapter 5 completed the big picture of the situation of e-learning in Saudi universities in addition to the statistical results contributing to the developing answers to the research questions.

Positive attitudes towards computers were widely recognised as a necessary condition for effective use of ICT in education (Christensen & Knezek; 2009). Mitchell and Geva-May (2009) emphasised the importance of positive attitudes to influence online learning implementation. Yushau (2006) justified the role of attitude that “in most cases, positive attitudes are interpreted as an indicator the program may succeed. Otherwise, there is a tendency of failure, and so, the attitude needs to be modified or possibly changed” (p. 176). In general, this study found that academic staff had more positive attitudes towards e-learning than students. The most probable reason was that
academic staff had had more experience with IT than had the students, and increased experience with IT was found to be linked to more positive attitudes. There is a scarcity of studies that have compared the attitudes of staff and students at universities in Saudi Arabia. However, the finding that academic staff have more positive attitudes than students is a welcome result as it is generally acknowledged that academic staff attitudes can affect students’ attitudes. For example, when academic staff attitudes towards e-learning are positive, they will share this positivity with students and encourage them to use this new method of learning (Al-Sharhan, 2003).

The study revealed that male academic staff had higher positive attitudes towards e-learning than female academic staff. Male academic staff had significantly higher EL Confidence and EL Liking and less EL Anxiety than females. This result is similar to Loyd and Gressard (1986) results who found a significant difference in computer attitude between male and female teachers. Selwyn (1997) added that students’ gender was a factor which significantly affected computer attitudes. On the other hand, female students had more positive attitudes towards e-learning. Regression analysis revealed significant relationships between gender and student EL Acceptance, EL Confidence, EL Liking and EL Opportunity. These results are consistent to some extent with Alkhalaf et al.’s (2011) results that in one of the Saudi universities “female students tend to feel confident and comfortable with using e-learning technology” (p. 52). This may be related to the segregated environment in Saudi Arabia (Baki, 2004; Elebiary, 2012; Mirza, 2007).

A possible reason for the female students’ high acceptance of e-learning is the segregated educational environment in Saudi Arabia and the shortage of female instructors in Saudi Arabian universities. Females were traditionally responsible for taking care of children and home responsibilities while males were responsible for providing income to the family for living. This encouraged many females to stay at home as a housewife after they are married and most of them did not complete their study at university or sometimes even at high school. In addition, females in Saudi Arabia are traditionally not allowed to communicate with males in most cases, especially face-to-face interaction. Driving and travelling are also not allowed for females in Saudi Arabia owing to traditional and religious restrictions.
For these reasons, females may prefer to study from home more than males which may positively affect their acceptance of e-learning. E-learning can eliminate females’ need to go out, travel, and interact with males by using the modern communication tools in terms of place flexibility. In addition, it gives them the maximum flexibility of time, so they can manage their time between home and family duties and study. Al Lily (2011) stated that “online learning methods can help Saudi women to maintain domestic responsibilities whilst gaining an education” (p.124). Alkhalaf et al. (2011) investigated the perceptions of students at two Saudi Arabian universities and they also emphasised this point. The study stated that female students “recognized the important role that e-learning can play in helping women to overcome possible obstacles to higher education” (p. 50). However, it is recommended to improve academic staff and students’ knowledge about the value of e-learning and its potential role in improving their teaching and learning. The Saudi government supports universities to implement information technology and e-learning. The administration panels in Saudi universities are encouraged to make plans and policies to develop their use of information technology and e-learning for both academic staff and students.

Academic staff at University A had the highest EL Acceptance, Opportunity and Productivity and the lowest EL Anxiety compared with the other three Saudi Arabian universities. Regression analysis also found a significant positive impact of being an academic staff member at University A on attitude towards e-learning. The main reason for the high positive attitude towards e-learning is possibly that Jusur is the official e-learning platform provided at University A. Offering an Arabic e-learning platform (such as Jusur) with good support and training probably is the main reason for the high usage of Jusur and for the higher level of satisfaction towards Jusur and consequently the positive attitudes towards e-learning and lower EL Anxiety. On the other hand, the results indicated that students at University C who were using UCLMS had higher EL Acceptance, Confidence and Productivity than the other three Saudi Arabian universities. The analysis also indicated a significant positive relationship between being a student at University C and student attitudes. The e-learning platform used (UCLMS) is probably one of the main reasons that increased students’ EL Acceptance at University C compared with students at other universities. The platform was provided in Arabic, similarly to Jusur. In addition, it was designed and developed especially for students at University C. Accordingly, its development was expected to
involve their special needs and preferences more than other platforms. As reported in Chapter 5, the National Center for E-learning and Distance Learning supports both University A and University C with their development of e-learning. The National Center offers Jusur for Saudi universities and provides supports to universities to develop their local e-learning platform. The main reason for establishing the National Center was to develop e-learning in universities and provide support for them with high level of experience and professionalism. Its support may possibly enhance the quality of e-learning services that affect academic staff and student attitudes and satisfaction positively.

The study findings indicated that staff with less teaching experience had a higher level of satisfaction with Blackboard, indicating a negative relationship between teaching experience and satisfaction towards Blackboard only. There were no significant relationships between teaching experience and satisfaction levels with other e-learning platforms. This negative relationship may have been related to age instead of teaching experience, as authors such as Uzunboylu (2007) have suggested that “teachers with more classroom experience may require help to understand the value of technologies and instruction and their use” (p. 274).

Study experience at the university had a significantly positive relationship with students’ attitude towards e-learning. Students who had been longer at the university developed their study skill and gained new skills with e-learning which consequently affected their attitudes towards e-learning positively. There was a significant positive impact of study experience on student attitudes, with highly experienced students having higher EL Confidence, EL Liking, EL Opportunity and less EL Anxiety.

There was a significant positive impact of experience with computers and email on academic staff and students’ attitudes towards e-learning. Internet experience had a positive impact on students’ attitudes only, while there was no significant relationship with academic staff attitudes. It is obvious that IT experience, including computers, email and internet, had in general a positive impact on attitudes towards e-learning. Increased experience with IT can be expected to develop skills for using e-learning tools, and this may in turn lead to increased confidence and reduced anxiety towards these tools. According to the university websites and other educational organisations,
the government is strongly supporting the use of IT in Saudi universities. This is likely to encourage academic staff and students to use e-learning more and benefit from this use. Loyd and Gressard (1986) also reported that computer experience was found to be significantly related to teachers’ attitude towards computers. Anderson and Hornby (1996) stated that experience with computers affects students’ attitudes and “the high level of involvement with computers in a course that dealt with on-line experimentation clearly led to more positive changes in computer attitudes than did courses in which computers were more of a tool for teaching the course content” (p. 346). Loyd and Gressard (1986) also reported a significant relationship between teaching experience and teachers’ attitude.

Results showed a significant relationship between academic staff use of different e-learning platforms and their attitude towards e-learning. The study findings suggested that academic staff attitudes towards e-learning were positively affected by their use of the Jusur e-learning platform. This implies that there was a significant relationship between experience with Jusur and academic staff attitudes. The use of Jusur had a direct positive relationship with EL Acceptance, EL Confidence, EL Opportunity and less EL Anxiety, while the use of WebCT had negative relationships with the comparable attitudes. Jusur is the e-learning platform designed by the official organisation responsible to provide and support e-learning for Saudi universities. Academic staff and students needs which are specific to the Saudi context were probably considered and integrated in the development of Jusur when compared with other e-learning platforms.

The findings indicated that students who have experience with e-learning platforms were more positive towards e-learning than students with no experience with any of the e-learning platforms. Students who were using e-learning platforms had significantly higher EL Acceptance, EL Confidence, EL Liking, EL Opportunity and EL Productivity, and they had less EL Anxiety than students who were not using any e-learning platform. This implies a positive relationship between experience with e-learning platforms and student attitudes. Falloon (2011), Kausar et al. (2008), Ladyshewsky (2004) and Tubaishat et al. (2006) described a number of advantages of using ICT and e-learning for academic staff and students (Chapter 2). These advantages may perhaps be the reasons for this positive relationship between the use of e-learning
in general and e-learning platforms with attitudes towards e-learning. Ladyshewsky (2004) and Ryan et al. (2001) focussed on the flexibility of the time and place of e-learning which supports the same idea of increasing opportunity to access higher education.

In addition, there were significant positive relationships between satisfaction with e-learning platforms and attitude towards general e-learning. Students with higher levels of satisfaction with Blackboard, Moodle, WebCT and Jusur had higher positive attitudes towards e-learning than the less satisfied students. This finding is in line with the findings in the literature which indicated that a high level of satisfaction positively affected attitudes towards e-learning. Bolliger and Wasilik (2009) stated that “faculty satisfaction is considered an important factor of quality in online courses” (p. 103). Chen, Lin and Kinshuk (2008) also stated that “in any user-oriented system or service, the satisfaction of users is one of the key factors in a successful implementation of e-learning programs” (p. 115). Hermans, Haytko and Mott-Stenerson (2009) stated in the same context that “student satisfaction is an important part of the effort to successfully market higher education. This is especially true given the rapid increase in on-line course offerings” (p. 1) (see Chapter 3 for more information). The finding that student satisfaction with particular platforms is closely related to their attitudes towards e-learning is a potentially important one. It suggests that universities should choose platforms that will generate high levels of student satisfaction, and this in turn will lead to positive attitudes towards e-learning among the students. In this way, careful selection of high quality platforms will help to ensure that students are more likely to have positive e-learning experiences.

In conclusion, most public universities in Saudi Arabia provide e-learning and online services with different levels of implementing IT. Some universities provide few online courses and some online services through the university website; which is perhaps an indication of low implementation of e-learning. On the other hand, other Saudi universities provide e-learning and online courses for most majors and provide more online services, which is indication of higher level of implementing IT. The situation of e-learning in Saudi universities is optimistic and improving dramatically. E-learning has to be critical part of education policies in Saudi Arabia. Policy makers have to
implement policies for Saudi education to offer money and support for universities to implement e-learning and online services.

Factors which affect the use of e-learning also are important for policy makers and educators. For example, differences between males and females towards e-learning and IT should be considered as important factor in Saudi culture. In addition, there are other cultural issues are related to the use of e-learning in Saudi higher education. For example, the use of new technologies such as mobile phones and smart devices is part of the Saudi culture comparable to other countries. Social networking technologies such as Facebook and Twitter are also widely used in Saudi society and part of people’s lives. These are important factor as these new technologies are part of developing culture and lifestyle. E-learning and IT may perhaps be the most important part of future education for many in Saudi Arabia.

In general, infrastructure in most Saudi universities was designed and developed to assist with the utilization of information technology and e-learning. Computers and internet connections are offered by Saudi universities for academic staff and students. However, some university’s infrastructure was not sufficient for new e-learning technologies and online services. These universities should study the requirements of new technologies which offer the needs of the new generations of academic staff and students. Providing sufficient infrastructure for e-learning and online technologies possibly will promote the use of these new technologies which may affect education positively. It may also reduce technical problems which are often one of the critical problems of using IT and e-learning technologies.

9.3.2 Recommendations
Theoretical and empirical evidence, including the current study, pointed to e-learning as an efficient and successful means to a quality education for increasing student opportunities to access higher education. This section provides general recommendations for higher education institutions for successful utilisation and development of e-learning. Although the suggestions are useful for any higher education institution, they are strongly recommended for higher education institutions in Saudi Arabia.
University academic and administrative boards should formulate an overarching policy on curriculum delivery using ICT based on e-learning in addition to a traditional face-to-face approach. In general, development of e-learning should consider academic staff and student needs as a high priority criterion. It is obvious from reviewing the literature that most researchers involved in the evaluation of e-learning systems are focusing on students’ and faculty members’ needs and requirements (Al-Turki & Hawsawi, 2003; Aytac & Deniz, 2005; Banwet & Karunes, 2003, 2004; Denton, Kleist & Surendra, 2005; Duffuaa, Shaney, Chou, 2004; Hwarng & Teo, 2001; Jaraiedi & Ritz, 1994; Thakkar, Deshmukh & Shastree, 2006, Wiklund & Wiklund, 1999, cited in Ho et al. 2009). For example, Mlitwa (2007) argued that generally “EL should meet users’ needs, expectations, and should be easy to use” (p. 60). Hess et al. (2005) argued that “educators, administrators, and institutions need tools and methods to evaluate whether their courses and programs meet the requirements of accreditation, policy-making, and funding agencies in addition to meeting the needs of their students and faculty” (p. 2).

In Saudi Arabia, there are specific factors that should be considered, as part of this policy, such as university capacity, female student access to higher education, disabled students, and those from remote locations. Al-Fahad (2009), Holstead et al. (2008), Kulchitsky (2008) and Phillips (2008) reported that ICT and e-learning would generally increase students’ opportunity to access higher education. Ladyshewsky (2004) and Ryan et al. (2001) stated that flexibility of delivery is one of the most important advantages of e-learning which increases various kinds of students’ opportunity to access higher education (see Chapter 2 for details).

An evaluation is necessary of the current situation of e-learning in other higher education institutions including universities, technical colleges, nursing colleges, and teacher colleges. Evaluation according to Rahmat and Saudi (2007) is an evaluation of knowledge or achievement. It is a data collection process for making a decision for an individual or group depending on specific rules and standards. Accordingly, to produce a higher quality product that fulfils user needs and ensures the process of teaching and learning, educators and designers should carry out systematic evaluation of the educational product. Jorgensen (2008) argued that evaluating an e-learning system is one of the key factors that will allow learners to concentrate on the course material more than course layout, structure, and language. This demonstrates the importance of the evaluation of any learning approach or technology. According to Ho et al. (2009) this
“can support the decision makers of universities in reviewing existing VLE systems and determining whether it is necessary to replace the existing systems by a better one” (p. 27) or it “can support the decision makers of universities, who are planning to set up a VLE system, in evaluating and selecting the best system. Certainly, the selection and adoption of an appropriate VLE system in a university is beneficial to its stakeholders in terms of teaching and learning” (p. 27).

According to Chapter 5, universities in Saudi Arabia provide training for academic staff and students to use information technology and e-learning. However, higher education institutions should provide more training and support for academic staff and students. Good training with appropriate e-learning for users is leading, in most cases, to successful implementation of e-learning. Training should include face-to-face training sessions and workshops supported with user manuals available online. Online training sessions also should be provided through university websites supported by online forums and communication software to enable users to interact and exchange experiences. Support from institutions should include providing personal computers for academic staff and students, and computer laboratories with access to high quality internet for both in order to facilitate the use of e-learning in teaching and studying in campus and off-campus. Necessary software and technical support should also be provided by educational institutions to eliminate delay and drawbacks in access to e-learning. Organisational support was emphasised by number of researchers and academics (Ageel, 2011; Al-Dosari, 2011; Alebaikan et. al, 2010; Al-Fahad, 2009; Al-Jarf, 2007; Al-Kahtani et.al, 2006; Nehari-Talet, 2007). These studies indicated that organisational support with a diversity of levels of support enhances the use of e-learning (see Chapter 3 for more details).

The university websites provided information about new technologies used for e-learning such as Facebook, Twitter, Youtube, mobile phones and smart devices (see Chapter 5). However, educational institutions should implement most updated and modern technologies and programs which are widely used by higher education students. For example, mobile phones and smart devices should be implemented in e-learning strategies as mobile-learning (m-learning) which offers the maximum benefits of flexibility. Social networking programs should also be more involved in e-learning
programs as most students are confident with such communication software and these also increase the benefits of flexibility of delivery.

Regarding the difference in attitudes between academic staff and students, it is recommended that universities in Saudi Arabia should offer more training places and support for students to increase their opportunities for e-learning training and workshops. In order to increase students’ opportunities to receive knowledge and quality training, the use of mobile learning (m-learning) is recommended as mobile phones and smart devices are widely used in Saudi Arabia, especially by young people of university age. For example, according to Razek and Bardesi (2011) “King Abdulaziz University has observed how adaptive mobile learning environments are made possible by the easy access to multiple software applications, plus have begun to recognise the potential to link into, and communicate with, students through these new applications” (p. 493). It is also recommended to improve academic staff and student knowledge about the value of e-learning and its role in improving their teaching and learning. As presented in the literature review (Chapter 2), Gormley et al. (2009), Kirby et al. (2010), Li et al. (2011) and Nehari-Talet (2007) reported the importance of the value of e-learning for academic staff and students to use e-learning successfully. Providing training sessions and workshops regularly is one of the effective ways to improve their knowledge. Implementing social networking programs such as Facebook, YouTube and Twitter to enrich academic staff and student knowledge about e-learning is also recommended as these programs are widely used in Saudi Arabia.

According to Chapter 5, universities in Saudi Arabia are offering e-learning platforms in both Arabic and English language formats. This leads to the consideration of the question of whether universities should use Arabic language e-learning platforms exclusively. While there was evidence that staff using Jusur had higher positive attitudes toward e-learning, the situation for students was more complex (Alamro et. al; 2012 and Zouhair; 2010). Students had positive attitudes towards e-learning regardless of whether the platform language was Arabic or English. However, the students at University C had particularly positive perceptions, and it was noted that this university used an Arabic interface that had been specially developed for that institution. It is possible that the combination of an Arabic e-learning platform and good support and training will could influence academic staff and student use and attitudes towards e-
learning, but at the very least, universities should carefully consider the language implications of any platforms that they consider using in the future. Of course, this should also include mobile learning opportunities.

The current study findings found positive relationships between IT experience and academic staff and student attitudes and satisfaction with e-learning. Accordingly, it is recommended to support academic staff and students to develop their experience and skills in using computer and online technology to enhance their use and attitudes towards e-learning. Providing online and face-to-face sessions and workshops for students is one of the effective ways to develop their skills in using computers and online technology. In addition, Alqurashi (2011) suggested that support to academic staff in Saudi Arabian universities should include “providing academics with considerable instructional support, giving encouraging incentives as a way to value their work, decreasing their workload, and taking their innovative into account for promotion and tenure” (p. 115). These suggestions were provided by the study participants (professors) who aimed to enhance and facilitate the role of teachers when implementing e-learning so they will be more capable of helping students.

9.4 Limitations of the study

The limitations of this study are strongly related to time and place. This research study was undertaken in the initial stages of the adoption of e-learning in Saudi Arabian higher education. Some universities at the data collection period were still initiating e-learning systems and some of them were still solving problems related to the implementation of e-learning, such as support and training, infrastructure and low level of use of e-learning among academic staff and students issues. Although many studies have examined e-learning in higher education around the globe, there is a lack of such studies about the current situation in Saudi Arabia. This study is assumed to contribute to the development of an action plan for e-learning in Saudi Arabian universities. An advantage of the study is that it adds to the literature on attitudes and satisfaction towards e-learning in Saudi Arabian universities.

Place limitation is related to the distribution of universities included in the study. Saudi Arabia is one of the large countries in the Middle East with a diversity of different topographies and different cultures. The four investigated universities were distributed
in three of the main regions of the Kingdom of Saudi Arabia. However, the four universities possibly did not cover all the varieties of academic staff and student interests and experience. Accordingly, the results could not be generalised to the whole country because the four universities did not represent all areas in the country. However, the sample of universities was four of the leading universities in Saudi Arabia. The four universities receive huge numbers of students every year from most of the cities in Saudi Arabia including local students and rural areas.

Another limitation is the nature of the samples within each university, as the response rate varied among the four universities. For example, academic staff from University A represented 30.9% of the study academic staff sample while academic staff from University D represented 14.6% of academic staff who participated in the study. In addition, the analyses were limited by the fact that each of the universities used only one main platform, so that comparisons in attitudes between platforms were problematic. In other words, universities and platforms were confounded in the analyses. The response rate from University D was very low and the sample from this university was just academic staff as students did not respond to the questionnaire. Perhaps the reason was the timing of the questionnaire distribution which was just one month or less before the exams. In addition, the questionnaires were distributed for academic staff and students in all disciplines available in the universities. However, the researcher could not ensure that the collected questionnaires were received from all disciplines as most of the participants did not report their specialisation.

9.5 Future research
E-learning, including distance learning and blended learning, is growing dramatically at Saudi Arabian universities as reported in the literature. Educators in the higher education sectors need to investigate several issues related to e-learning. Attitudes of academic staff and students should be investigated from different perspectives, as described below. Strategies of evaluation for different e-learning platforms and tools should be identified and validated.

The current research study investigated several factors related to attitudes towards e-learning in Saudi Arabian universities. However, further research is required to examine demographic and experience factors influencing attitudes towards e-learning at
universities, including gender, age, study area and IT experience. For example, further study is required on the differences between males and females and the different factors that affect their attitudes as this related to Saudi Arabian society. Deep understanding is required about the factors involved in gender being significantly related to attitudes towards e-learning. The relationship between satisfaction and attitude towards e-learning also requires further investigation. The current study found a positive effect of satisfaction on attitude towards e-learning. Comparison of strength of satisfaction with different platforms and other related demographic and experience factors should be added to the analysis equation to identify which one was comparative.

In addition, the relationships of e-learning experiences, learning platforms and attitude towards e-learning with student achievement should be examined. This will enrich the literature with the factors that enhance student learning. Comparisons should be included between the achievements in an e-learning course of students with positive attitudes towards e-learning and those who have negative attitudes. In general, comparisons between face-to-face courses and e-learning courses need further investigation with a focus on differences between blended learning and fully online learning. Comparisons between blended courses and fully online courses are also strongly recommended for both academic staff and student attitudes, satisfaction and achievement. Factors that influence the success of implementations of e-learning at the university level should be identified.

As part of this research area, evaluation of e-learning platforms is strongly related as characteristics and tools of each platform possibly have a strong relationship with users’ satisfaction towards each e-learning platform. Evaluation criteria have to be examined and selected in relation to users’ needs and preferences. When their needs and preferences are strongly involved in the evaluation criteria, the evaluation strategy will possibly lead to successful and accurate evaluation of e-learning platforms. In addition, previous evaluation tools in the literature also should be considered when designating any modern evaluation strategies. This will affect student attitudes, and accordingly it is strongly encouraged that the relationship between attitudes towards e-learning and its evaluation should be investigated.
For the Saudi Arabian context, there were some issues raised by some researchers such as gender and shortage of female instructors. They suggested that e-learning will be one of the solutions to these issues. Accordingly, e-learning need to be investigated to clarify to what extent these suggestions are correct or to find better solutions for these issues. In other words, researchers should identify clearly if e-learning provides solutions to these issues. In addition, they should identify how e-learning will provide these solutions and the ways that educators and academics should proceed in order to get these benefits.

In conclusion, the study examined academic staff and student attitudes towards e-learning in Saudi universities. It found a number of factors which have significant relationships with attitudes. Gender was one of the factors that had strong relationship with attitudes. Satisfaction with e-learning platforms also had a positive relationship with attitudes. Previous IT experience had in most cases a positive relationship with attitudes towards e-learning. These findings will contribute to the literature about attitudes towards e-learning in Saudi universities. However, more investigation should be carried out in other universities to trace the change and progress of attitudes towards e-learning.
References


Al-Fahad, F. N. (2009). Students' attitudes and perceptions towards the effectiveness of mobile learning in King Saud University, Saudi Arabia. The Turkish Online Journal of Educational Technology, 8(2), 41 - 56.
Al-Fahad, F. N. (2010). The learners' satisfaction toward online e-learning implemented in the college of applied studies and community service, King Saud University, Saudi Arabia: Can e-learning replace the conventional system of education? *Turkish Online Journal of Distance Education, 11*(2), 61 – 72.


Al-Shehri, A. M. (2010). E-learning in Saudi Arabia: 'To E or not to E, that is the question'. Journal of Family and Community Medicine, 17(3), 147 - 150.


Appendices

Appendix A: Academic staff Questionnaire (English Version)

Section 1: demographic information
INSTRUCTIONS: please answer the following questions:

1. Gender:
   - Male
   - Female
2. Name of your university:
   ..........................................................................................................................
3. How long have you been teaching?
   ........ years
4. How long have you been using computers?
   ........ years
5. How long have you been using e-mail?
   ........ years
6. How long have you been using the internet?
   ........ years
7. Name of the course/s:
   ..........................................................................................................................

Section 2: These questions relate to use of e-learning (EL) at this university, please answer question (a) for each of the items (if any) in the left column. If the answer is ‘yes’, please answer question (b + c) for each of the items:

<table>
<thead>
<tr>
<th>Items</th>
<th>a. Do you use?</th>
<th>b. How much do you use it?</th>
<th>c. What is your level of satisfaction with this tool?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Systems</td>
<td>Yes</td>
<td>hours/week</td>
<td>V high</td>
</tr>
<tr>
<td>Blackboard system</td>
<td>No</td>
<td>............................</td>
<td></td>
</tr>
<tr>
<td>WebCT system</td>
<td></td>
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<tr>
<td>Moodle system</td>
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<tr>
<td>JUSUR</td>
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<td>............................</td>
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<tr>
<td>Other please specify</td>
<td></td>
<td>............................</td>
<td></td>
</tr>
<tr>
<td>Items</td>
<td>EL tools</td>
<td>a. Do you use?</td>
<td>b. How much do you use it?</td>
</tr>
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<td>----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Email to communicate with students and others</td>
<td>Yes</td>
<td>No</td>
<td>hours/week</td>
</tr>
<tr>
<td>Online announcement system to announce students</td>
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<tr>
<td>Online course outlines to provide course information</td>
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<tr>
<td>Online discussion forums to answer students questions</td>
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<tr>
<td>Online chatting to discuss different issues with students</td>
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<tr>
<td>Online submitting to receive assignments from students</td>
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<tr>
<td>Online resources to provide the course documents</td>
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<tr>
<td>Online assessment of students (e.g. tests or quizzes)</td>
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<tr>
<td>Online staff information to provide your information</td>
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<tr>
<td>Online feedback to receive students feedback of the course</td>
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<tr>
<td>Online calendar to organize your work timetable</td>
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<tr>
<td>Online links to other websites and resources</td>
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<tr>
<td>Blogs or Wiki software to share ideas</td>
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<tr>
<td>Podcast software</td>
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<tr>
<td>Online video systems to record events</td>
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<tr>
<td>Social Networking Tools (e.g. Facebook or Twitter)</td>
<td></td>
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</tbody>
</table>

d. If you have additional information or comments, please write it in the following space:

.................................................................................................................................
.................................................................................................................................
.................................................................................................................................
**Section 3:** please select your level of agreement for each of the following statements. If you are not currently using e-learning (EL), please provide responses which identify your likely response if you were asked to use EL:

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel comfortable when working with EL mode.</td>
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<td></td>
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<tr>
<td>2</td>
<td>It bothers me to give EL courses.</td>
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<tr>
<td>3</td>
<td>I can do well with EL mode.</td>
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<tr>
<td>4</td>
<td>Learning how to use EL mode is easy.</td>
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<tr>
<td>5</td>
<td>I can handle EL courses.</td>
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<tr>
<td>6</td>
<td>I sometimes feel anxious when others talk about EL.</td>
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<tr>
<td>7</td>
<td>I get a sinking feeling when I think of using EL mode.</td>
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<tr>
<td>8</td>
<td>Using EL mode is hard for me.</td>
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<tr>
<td>9</td>
<td>Working with EL mode sometimes makes me nervous.</td>
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<tr>
<td>10</td>
<td>I think I'm not the type to do well with EL mode</td>
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<tr>
<td>11</td>
<td>I like working with EL mode.</td>
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<tr>
<td>12</td>
<td>I think working with EL mode is enjoyable and stimulating.</td>
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<tr>
<td>13</td>
<td>I think learning to operate EL course is like any new skill – the more I practice, the better I become.</td>
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<tr>
<td>14</td>
<td>Once I start to work with EL mode, I find it hard to stop.</td>
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<tr>
<td>15</td>
<td>If given the opportunity, I would like to learn more about how to operate EL courses.</td>
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<tr>
<td>16</td>
<td>I think many people dislike using EL mode.</td>
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<tr>
<td>17</td>
<td>I do not enjoy talking with others about EL courses.</td>
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<tr>
<td>18</td>
<td>I try to avoid EL courses as much as possible.</td>
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<tr>
<td>19</td>
<td>I don’t understand how some people can spend so much time working with EL mode and seem to enjoy it.</td>
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<tr>
<td>20</td>
<td>EL mode is something I will rarely use in my daily life.</td>
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<tr>
<td>21</td>
<td>I think EL is changing the world too rapidly.</td>
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<tr>
<td>22</td>
<td>I think knowing how to manage EL courses will increase my job possibilities.</td>
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<tr>
<td>No</td>
<td>Items</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<tr>
<td>23</td>
<td>I think I will use EL mode many ways in my life.</td>
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<tr>
<td>24</td>
<td>I think I'll need a firm mastery of EL for my future work.</td>
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<tr>
<td>25</td>
<td>I have little use of EL options in my daily life.</td>
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<tr>
<td>26</td>
<td>Experience of working with EL courses is important for teachers in</td>
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<td></td>
<td>their future work.</td>
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<tr>
<td>27</td>
<td>Anything that EL mode can be used for, I can do just as well some</td>
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<td></td>
<td>other way.</td>
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<tr>
<td>28</td>
<td>My country relies too much on EL courses.</td>
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<td>29</td>
<td>I think EL courses isolate people by inhibiting normal social</td>
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<td></td>
<td>interactions among users.</td>
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<td>30</td>
<td>Using EL mode prevents teachers from being creative.</td>
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<tr>
<td>31</td>
<td>I think EL courses will increase students’ performance in their study.</td>
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<tr>
<td>32</td>
<td>I think EL courses give me the opportunity to improve my teaching</td>
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<td></td>
<td>methods.</td>
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<tr>
<td>33</td>
<td>EL increases my productivity.</td>
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<tr>
<td>34</td>
<td>EL mode helps in teaching and learning.</td>
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<tr>
<td>35</td>
<td>I feel EL mode is a necessary tool in educational settings.</td>
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<td>36</td>
<td>I think EL mode is a useful instructional aid in almost all subject</td>
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<td>areas.</td>
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<tr>
<td>37</td>
<td>I think teacher training should include instructional applications of</td>
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<td></td>
<td>EL courses.</td>
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<tr>
<td>38</td>
<td>I expect EL will improve education.</td>
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</tr>
</tbody>
</table>

* If you would like to receive a brief summary of the study findings, you can contact the researcher on the following emails:

Eiad.altaf@uon.edu.au
Eiadaz@maktoob.com

E-mail: ...........................................................................................................................................................

........

*Any further comment, please use space at the back:
Appendix B: Academic staff Questionnaire (Arabic Version)

استئناف معلم

الجزء الأول: معلومات شخصية

التعليمات: الرجاء الإجابة عن الأسئلة التالية:

1. اسم الجامعة:

2. المادة/المواد:

3. الجنس:
   0 ذكر
   0 أنثى

4. عدد سنوات الخبرة في التدريس:

5. عدد سنوات استخدام الكمبيوتر:

6. عدد سنوات استخدام نظام البريد الإلكتروني:

7. عدد سنوات استخدام الإنترنت (الشبكة العنكبوتية)

الجزء الثاني: يتعلق هذا الجزء باستخدام نظام التعليم الإلكتروني في الجامعة التي تحاضر فيها، الرجاء الإجابة على السؤال (أ) لكل فترة من الفقرات التالية وإذا كانت الإجابة ب(نعم). أرجوا الإجابة ب(نعم) أو (لا) لكل الفقرات في الجدول الآتي:

<table>
<thead>
<tr>
<th>نظام التعليم الإلكتروني</th>
<th>بكم مدة استخدام ل-</th>
<th>تستخدم ...</th>
<th>أهل</th>
<th>عدم</th>
</tr>
</thead>
<tbody>
<tr>
<td>نظام بلاك بورد</td>
<td></td>
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<td>نظام ويب سي تي</td>
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<td>آخر الرجاء ذكر اسم النظام</td>
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</tbody>
</table>

ج. حد عدد مستوي الرضا لاستخدام

النظام/الأنظمة التالية:

ملاحظة: "منخفض جداً"، "متوسط"، "مرتفع"، "لا".
‫ﺃﺩﻭﺍﺕ ﺍﻟﺘﻌﻠﻴﻢ ﺍﻹﻟﻜﺘﺮﻭﻧﻲ‬

‫ﺃ‪.‬ﻫﻞ‬
‫ﺗﺴﺘﺨﺪﻡ ‪...‬‬
‫ﻧﻌﻢ‬

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‫ﻷﻋﻼﻡ ﺍﻟﻄﻼﺏ ﺑﺄﻱ‬
‫ﻣﺴﺘﺠﺪﺍﺕ‬
‫ﻧﻈﺎﻡ ﻣﻔﺮﺩﺍﺕ ﺍﻟﻤﺎﺩﺓ‬
‫ﺍﻻﻟﻜﺘﺮﻭﻧﻲ ﻟﺘﻘﺪﻳﻢ ﻣﻔﺮﺩﺍﺕ‬
‫ﺍﻟﻤﺎﺩﺓ‬
‫ﻧﻈﺎﻡ ﺍﻟﻤﻨﺘﺪﻯ ﺍﻻﻟﻜﺘﺮﻭﻧﻲ‬
‫ﻹﺟﺎﺑﺔ ﺃﺳﺌﻠﺔ ﺍﻟﻄﻼﺏ‬
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‫ﻧﻈﺎﻡ ﺗﺴﻠﻴﻢ ﺍﻟﻮﺍﺟﺒﺎﺕ‬
‫ﺍﻻﻟﻜﺘﺮﻭﻧﻲ ﻟﺘﺴﻠﻢ ﺍﻟﻮﺍﺟﺒﺎﺕ‬
‫ﻣﻦ ﺍﻟﻄﻼﺏ‬
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‫ﺍﻟﻼﺯﻣﺔ ﻟﻠﻄﺎﻟﺐ‬
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‫ﻛﺎﻻﺧﺘﺒﺎﺭﺍﺕ ﻭﺍﻻﺧﺘﺒﺎﺭﺍﺕ‬
‫ﺍﻟﻘﺼﻴﺮﺓ‬
‫ﻧﻈﺎﻡ ﻣﻠﻒ ﺍﻟﻤﺤﺎﺿﺮ‬
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‫ﺍﻟﻤﺤﺎﺿﺮ ﻟﻠﻄﺎﻟﺐ‬
‫ﻧﻈﺎﻡ ﺍﻷﺛﺮ ﺍﻟﺮﺟﻌﻲ‬
‫ﺍﻻﻟﻜﺘﺮﻭﻧﻲ ﻟﺘﻘﺪﻳﻢ‬
‫ﻣﻼﺣﻈﺎﺗﻚ ﻟﻠﻄﻼﺏ‬
‫ﻧﻈﺎﻡ ﺍﻟﺘﻘﻮﻳﻢ ﺍﻻﻟﻜﺘﺮﻭﻧﻲ‬
‫ﻟﺘﻨﻈﻴﻢ ﻣﻮﺍﻋﻴﺪ ﻣﻬﻤﺎﺕ ﺍﻟﻌﻤﻞ‬
‫ﺍﺭﺗﺒﺎﻁﺎﺕ ﺑﻤﻮﺍﻗﻊ ﺍﻟﻜﺘﺮﻭﻧﻲ‬
‫ﺃﺧﺮﻯ ﻟﺘﻮﻓﻴﺮ ﻣﻮﺍﺩ ﻋﻠﻤﻴﺔ‬
‫ﺇﺿﺎﻓﻴﺔ‬
‫ﻧﻈﺎﻡ ﺑﻠﻮﺝ ﻭﺍﻳﻜﻮﺑﻴﺪﻳﺎ‬
‫ﻟﺘﺸﺎﺭﻙ ﺍﻷﻓﻜﺎﺭ ﻣﻊ ﺍﻵﺧﺮﻳﻦ‬

‫ﻻ‬

‫ﺏ‪.‬ﻛﻢ ﻣﺪﺓ‬
‫ﺍﺳﺘﺨﺪﺍﻣﻚ ﻟـ ‪...‬‬
‫ﻋﺪﺩ ﺍﻟﺴﺎﻋﺎﺕ‬
‫ﺑﺎﻷﺳﺒﻮﻉ‬

‫ﺝ‪.‬ﺣﺪﺩ ﻣﺴﺘﻮﻯ ﺍﻟﺮﺿﺎ ﻻﺳﺘﺨﺪﺍﻣﻚ‬
‫ﻟﻠـﻨﻈﺎﻡ‪/‬ﺍﻷﻧﻈﻤﺔ ﺍﻟﺘﺎﻟﻴﺔ‪:‬‬
‫ﻣﻨﺨﻔﺾ‬
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‫ﻣﺮﺗﻔﻊ ﻣﻨﺨﻔﺾ‬
‫ﺟﺪﺍ‬
‫ﺟﺪﺍ‬

‫ﻧﻈﺎﻡ ﺑﻮﺩ ﻛﺎﺳﺖ‬
‫ﻧﻈﺎﻡ ﺗﺴﺠﻴﻞ ﻣﻠﻔﺎﺕ ﻓﻴﺪﻳﻮ‬
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‫ﺃﻧﻈﻤﺔ ﺍﻟﺘﻮﺍﺻﻞ ﺍﻻﺟﺘﻤﺎﻋﻲ‬
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‫ﻹﺿﺎﻓﺔ ﺃﻱ ﻣﻌﻠﻮﻣﺎﺕ ﺍﻟﺮﺟﺎء ﺍﺳﺘﺨﺪﺍﻡ ﺍﻟﻔﺮﺍﻍ ﺍﻟﺘﺎﻟﻲ ﺍﻟﻤﺨﺼﺺ ‪:‬‬
‫‪.............................................................................................................................................‬‬
‫‪.............................................................................................................................................‬‬
‫‪259‬‬


الجزء الثالث: الرجاء تحديد مدى موافتك على الجمل التالية، إذا كنت لا تستخدم نظام التعليم الإلكتروني الرجاء تحديد الإجابات التي تنطبق مع توقعاتك عند استخدامك لنظام التعليم الإلكتروني.

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<th>الرقم</th>
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<td>يضافي تعليم موارد نظام التعليم الإلكتروني</td>
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<td>يمكنني أن أحتاج عمل نظام التعليم الإلكتروني</td>
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<td>4</td>
<td>استطيع استخدام نظام التعليم الإلكتروني بشكل سهل</td>
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<td>استطيع التعامل بنظام التعليم الإلكتروني</td>
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<td>أشعر بالقلق حينما اختلفت مع الآخرين عن نظام التعليم الإلكتروني</td>
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<td>7</td>
<td>أantarني تعليم بالاحباط عند التفكير باستخدام نظام التعليم الإلكتروني</td>
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<td>8</td>
<td>أعتقد أن التعليم الإلكتروني صعب بالنسبة لي</td>
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<td>9</td>
<td>العمل بنظام التعليم الإلكتروني يشعرني بالاضطراب</td>
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<td>10</td>
<td>أعتقد أنني ليس من الأشخاص الذين يعملون بنجاح مع نظام التعليم الإلكتروني</td>
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<td>أفضل العمل بنظام التعليم الإلكتروني ممتع ومثير</td>
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<td>12</td>
<td>أعتقد أن التعليم الإلكتروني كأي عمل آخر، كما تدبرت أكثر كما أصبحت أفضل</td>
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<td>13</td>
<td>أجد من الصعب على أحيانا التوقف عن العمل عند بدء العمل بنظام التعليم الإلكتروني</td>
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<td>إذا احتاجت في الفرصة، أرغب في التعلم أكثر عن طريق تشغيل وإدارة نظام التعليم الإلكتروني</td>
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<td>أعتقد أن الكثير من الناس لا يفضلون العمل عن طريق نظام التعليم الإلكتروني</td>
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<td>17</td>
<td>أحاول قدر الإمكان تجنب المواد بنظام التعليم الإلكتروني</td>
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<td>18</td>
<td>لا يمكنني فهم كيف أن البعض يستطيعون قضاء أوقات طويلة في العمل بنظام التعليم الإلكتروني ويظهر عليهم الاستمتاع</td>
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<td>19</td>
<td>أعتقد أن النظام الإلكتروني من الأشياء التي تعتبرها نادرة الاستخدام في حياتي اليومية</td>
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<td>استخدم النظام الإلكتروني غير العالم سريعا</td>
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<td>21</td>
<td>أعتقد أن نظام التعليم الإلكتروني سيزيد من فرص العمل المتاحة</td>
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<td>أعتقد أنني سأستخدم نظام التعليم الإلكتروني بوسائل متعددة</td>
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<td>23</td>
<td>أعتقد أن النظام الإلكتروني مهم بالنسبة لمستقبل الوظيفي</td>
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<td>24</td>
<td>استخدمت خدمات نظام التعليم الإلكتروني نادر</td>
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<td>25</td>
<td>الخبرة بالعمل بنظام التعليم الإلكتروني مهم لمستقبل آخرين وينتهي التدريس الوظيفي</td>
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<td>استطيع القيام بأي مهمة بطرق مختلفة بنفس كفاءة العمل</td>
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<td>استطيع القيام بمهام متعددة بطرق مختلفة بنفس كفاءة العمل بنظام التعليم الإلكتروني</td>
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<td>28</td>
<td>أعتقد أن الدولة تعتمد على نظام التعليم الإلكتروني بشكل زائد</td>
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<td>29</td>
<td>أعتقد أن نظام التعليم الإلكتروني يعزل الأشخاص بسبب قلة التواصل الاجتماعي بين المستخدمين</td>
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<tr>
<td>الرقم</td>
<td>الجملة</td>
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<td>30</td>
<td>استخدام نظام التعليم الإلكتروني يمنع المدرس من الإبداع</td>
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<td>31</td>
<td>اعتقد أن نظام التعليم الإلكتروني سبب زيادة في كفاءة أداء الطلاب في دراستهم</td>
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<td>32</td>
<td>اعتقد أن التدريس بنظام التعليم الإلكتروني يعطي الفرصة لتطوير طريق التدريس التي استخدمها</td>
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<td>نظرة التعليم الإلكتروني يزيد من إنتاجي كمعمل</td>
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<td>نظام التعليم الإلكتروني يساعد في التدريس والتعلم</td>
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<td>35</td>
<td>اعتقد أن نظام التعليم الإلكتروني هو إداة ضرورية في مجال التربية والتعليم</td>
<td></td>
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<tr>
<td>36</td>
<td>اعتقد أن نظام التعليم الإلكتروني هو طريقة تعلم مفيدة لكل التخصصات</td>
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<tr>
<td>37</td>
<td>اعتقد أن تدريب المعلمين يجب أن يشمل التطبيق بنظام التعليم الإلكتروني</td>
<td></td>
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<td>38</td>
<td>اتوقع أن نظام التعليم الإلكتروني سيطر على التعليم بشكل عام</td>
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</tbody>
</table>

- إذا كانت لديك الرغبة في استلام نسخة من الدراسة ونتائجها، الرجاء التواصل مع الباحث عنوان البريد الإلكتروني التالي ليتمكن الباحث من إرسال نسخته:

Eiad.Altaf@studentmail.newcastle.edu.au
eiadaz@maktoob.com

- الرغبة استخدام الفراغ التالي إذا كان لديك الرغبة في إضافة أي معلومات أو ملاحظات:
Appendix C: Student Questionnaire (English Version)

Section 1: demographic information
INSTRUCTIONS: please answer the following questions:

1. Name of your university:

2. Name of the course/s:

3. Gender:
   - Male
   - Female

4. How long have you been studying?
   ........ years

5. How long have you been using computers?
   ........ years

6. How long have you been using e-mail?
   ........ years

7. How long have you been using the internet?
   ........ years

Section 2: These questions relate to use of e-learning (EL) at this university, please answer question (a) for each of the items (if any) in the left column. If the answer is ‘yes’, please answer question (b + c) for each of the items:

<table>
<thead>
<tr>
<th>Items</th>
<th>a. Do you use?</th>
<th>b. How much do you use it?</th>
<th>c. What is your level of satisfaction with this tool?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL Systems</td>
<td></td>
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<tr>
<td>Blackboard system</td>
<td>Yes</td>
<td>hours/week</td>
<td>V high</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low</td>
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<td></td>
<td></td>
<td></td>
<td>V low</td>
</tr>
<tr>
<td>WebCT system</td>
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<td>hours</td>
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</tr>
<tr>
<td>Moodle system</td>
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<td>hours</td>
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<tr>
<td>JUSUR</td>
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<td>hours</td>
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</tr>
<tr>
<td>Other please specify</td>
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<td>hours</td>
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</tr>
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<td></td>
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</tbody>
</table>

262
<table>
<thead>
<tr>
<th>Items</th>
<th>a. Do you use?</th>
<th>b. How much do you use it?</th>
<th>c. What is your level of satisfaction with this tool?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL tools</td>
<td>Yes</td>
<td>No</td>
<td>hours/week</td>
</tr>
<tr>
<td>Email to communicate with teachers and peers</td>
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</tr>
<tr>
<td>Online announcement system to check announcements</td>
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<tr>
<td>Online course outlines to get information about the course</td>
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<tr>
<td>Online discussion forums to ask and answer questions</td>
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<tr>
<td>Online chatting to discuss different issues with others</td>
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<tr>
<td>Online submitting to send assignments to teacher</td>
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<tr>
<td>Online resources to get the course documents</td>
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<td></td>
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<tr>
<td>Online assessment to examine your self (e.g. tests or quizzes)</td>
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<td></td>
</tr>
<tr>
<td>Online staff information to get teacher information &amp; contacts</td>
<td></td>
<td></td>
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<tr>
<td>Online feedback to provide your feedback of the course</td>
<td></td>
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<tr>
<td>Online calendar to organize your study timetable</td>
<td></td>
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<tr>
<td>Online links to other websites and resources</td>
<td></td>
<td></td>
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<tr>
<td>Blogs or Wiki software to share ideas</td>
<td></td>
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<tr>
<td>Podcast software</td>
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<td></td>
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<tr>
<td>Online video systems to record events</td>
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<td></td>
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</tr>
<tr>
<td>Social Networking Tools (e.g. Facebook or Twitters)</td>
<td></td>
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</tbody>
</table>

**d. If you have additional information or comments, please write it in the following space:**

……………………………………………………………………………………………

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263
Section 3: please select your level of agreement for each of the following statements. If you are not currently using e-learning (EL), please provide responses which identify your likely response if you were asked to use EL:

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel comfortable when studying with EL mode.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>It bothers me to take EL courses.</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>I can do well with EL mode.</td>
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<tr>
<td>4</td>
<td>Learning how to use EL mode is easy.</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>I can handle EL courses.</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>I sometimes feel anxious when others talk about EL.</td>
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<tr>
<td>7</td>
<td>I get a sinking feeling when I think of using EL mode.</td>
<td></td>
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<tr>
<td>8</td>
<td>Using EL mode is hard for me.</td>
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<tr>
<td>9</td>
<td>Working with EL mode sometimes makes me nervous.</td>
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<tr>
<td>10</td>
<td>I think I’m not the type to do well with EL mode</td>
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<tr>
<td>11</td>
<td>I like studying with EL mode.</td>
<td></td>
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<tr>
<td>12</td>
<td>I think studying with EL mode is enjoyable and stimulating.</td>
<td></td>
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<tr>
<td>13</td>
<td>I think learning to operate EL course is like any new skill – the more I practice, the better I become.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14</td>
<td>Once I start to work with EL mode, I find it hard to stop.</td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>If given the opportunity, I would like to learn more about how to operate EL courses.</td>
<td></td>
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<tr>
<td>16</td>
<td>I think many people dislike using EL mode.</td>
<td></td>
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<tr>
<td>17</td>
<td>I do not enjoy talking with others about EL courses.</td>
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<tr>
<td>18</td>
<td>I try to avoid EL courses as much as possible.</td>
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<tr>
<td>19</td>
<td>I don’t understand how some people can spend so much time studying with EL mode and seem to enjoy it.</td>
<td></td>
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<tr>
<td>20</td>
<td>EL mode is something I will rarely use in my daily life.</td>
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<tr>
<td>21</td>
<td>I think EL is changing the world too rapidly.</td>
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<tr>
<td>22</td>
<td>I think knowing how to manage EL courses will increase my study possibilities.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>No</td>
<td>Items</td>
<td>Strongly agree</td>
<td>Agree</td>
<td>Disagree</td>
<td>Strongly Disagree</td>
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<td>----</td>
<td>-----------------------------------------------------------------------</td>
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</tr>
<tr>
<td>23</td>
<td>I think I will use EL mode many ways in my life.</td>
<td></td>
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<tr>
<td>24</td>
<td>I think I'll need a firm mastery of EL for my future study.</td>
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<tr>
<td>25</td>
<td>I have little use of EL options in my daily life.</td>
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<tr>
<td>26</td>
<td>Experience of working with EL courses is important for students in their future study.</td>
<td></td>
<td></td>
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<tr>
<td>27</td>
<td>Anything that EL mode can be used for, I can do just as well some other way</td>
<td></td>
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<tr>
<td>28</td>
<td>My country relies too much on EL courses.</td>
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<tr>
<td>29</td>
<td>I think EL courses isolate people by inhibiting normal social interactions among users.</td>
<td></td>
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<tr>
<td>30</td>
<td>Using EL mode prevents students from being creative.</td>
<td></td>
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<tr>
<td>31</td>
<td>I think EL courses will increase students’ performance in their study.</td>
<td></td>
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<tr>
<td>32</td>
<td>I think EL courses give me the opportunity to improve my studying skills.</td>
<td></td>
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<tr>
<td>33</td>
<td>EL increases my productivity.</td>
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<tr>
<td>34</td>
<td>EL mode helps in learning.</td>
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<tr>
<td>35</td>
<td>I feel EL mode is a necessary tool in educational settings.</td>
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<tr>
<td>36</td>
<td>I think EL mode is a useful instructional aid in almost all subject areas.</td>
<td></td>
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<tr>
<td>37</td>
<td>I think student training should include instructional applications of EL courses.</td>
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<tr>
<td>38</td>
<td>I expect EL will improve education.</td>
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</tr>
</tbody>
</table>

* If you would like to receive a brief summary of the study findings, you can contact the researcher on the following emails:

Eiad.altaf@uon.edu.au  
eiadaz@maktoob.com

E-mail:  
.................................................................................................................................  
........

*Any further comment, please use space at the back:
Appendix D: Student Questionnaire (Arabic Version)

استبانة طالب

الجزء الأول: معلومات شخصية

التعليمات: الرجاء الإجابة عن الأسئلة التالية:

1- اسم الجامعة:

2- المادة/المواد:

3- الجنس:
   ○ ذكر
   ○ أنثى

4- عدد سنوات الدراسة بالجامعة:

5- عدد سنوات استخدام الكمبيوتر:

6- عدد سنوات استخدام نظام البريد الإلكتروني:

7- عدد سنوات استخدام الإنترنت (الشبكة العنكبوتية)

الجزء الثاني: يتعلق هذا الجزء باستخدام نظام التعليم الإلكتروني في الجامعة التي تدرس فيها، الرجاء الإجابة على السوال (أ) لكل فقرة من الفقرات التالية وإذا كانت الإجابة ب(نعم) ارجموا الإجابة على السوالين (ب) و (ج) لكل الفقرات في الجدول التالي:

<table>
<thead>
<tr>
<th>نظام التعليم الإلكتروني</th>
<th>ج. جدوى مستوي الرضا للاستخدام للنظام/الأنظمة التالية:</th>
<th>ب. كم مدة استخدام لكل...</th>
<th>أ. هل يستخدم...</th>
<th>نعم</th>
<th>لا</th>
</tr>
</thead>
<tbody>
<tr>
<td>نظام بلاك بورد</td>
<td>منخفض</td>
<td>مرتفع</td>
<td>رخصة</td>
<td>نعم</td>
<td>لا</td>
</tr>
<tr>
<td>نظام ويب سي تي</td>
<td>منخفض</td>
<td>مرتفع</td>
<td>سبع</td>
<td>نعم</td>
<td>لا</td>
</tr>
<tr>
<td>نظام موديل</td>
<td>منخفض</td>
<td>مرتفع</td>
<td>سبعة</td>
<td>نعم</td>
<td>لا</td>
</tr>
<tr>
<td>نظام جسور</td>
<td>منخفض</td>
<td>مرتفع</td>
<td>سبع</td>
<td>نعم</td>
<td>لا</td>
</tr>
<tr>
<td>أخرى</td>
<td>منخفض</td>
<td>مرتفع</td>
<td>رخصة</td>
<td>نعم</td>
<td>لا</td>
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</tbody>
</table>

266
<table>
<thead>
<tr>
<th>أدوات التعليم الإلكتروني</th>
<th>بشكل متكرر مدة استخدامها للتكوين</th>
<th>أهل宿舍</th>
<th>عدد الساعات بالاسبوع</th>
</tr>
</thead>
<tbody>
<tr>
<td>نظام البريد الإلكتروني للاتصال مع الأساتذة وغيرهم</td>
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<tr>
<td>نظام الإذاعات الإلكترونية</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>نظام الإعلانات الإلكترونية للإشتراك في أي مستجدات</td>
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<tr>
<td>نظام مفردات المادة الإلكترونية للإشتراك في مفردات المادة</td>
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<tr>
<td>نظام النقل الإلكتروني لطرح الأسئلة المختلفة</td>
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<td>نظام المحاكاة الإلكترونية للتفاعل مع الأساتذة في فضايا مختلفة</td>
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<td>نظام تسليم الواجبات الإلكترونية للتسليم الواجبات</td>
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<td>نظام الموارد الإلكترونية للإشتراك في المواد العلمية اللازمة</td>
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<tr>
<td>نظام التقويم الإلكتروني كالاختبارات والاختبارات القصيرة</td>
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<td>نظام ملف الالتماسي الإلكتروني للإشتراك في بياناته</td>
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<tr>
<td>نظام الاتصال الرقمي الإلكتروني للتقيي ملاحظاتك</td>
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<tr>
<td>نظام التقويم الإلكتروني للتنظيم مواعيد مهام العمل</td>
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<td>نظام الت להביאات بواقعالكتروني آخر لإظهار مواد علمية إضافية</td>
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<td>نظام بلوجراف وابوكودا لمشاركة الأفكار مع الآخرين</td>
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<tr>
<td>نظام بود كاست</td>
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<tr>
<td>نظام تسجيل ملفات الفيديو للتسجيل الأحداث المختلفة</td>
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<tr>
<td>أنظمة التواصل الاجتماعي الإلكتروني كالفيسبوك</td>
<td></td>
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</tr>
</tbody>
</table>

إضافة أي معلومات الرجاء استخدام الفراغ التالي المخصص:

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الجزاء الثالث: الرجاء تحديد مدى موافقتك على الجمل التالية، إذا كنت لا تستخدم نظام التعليم الإلكتروني الرجاء تحديد الإجابة التي تتوافق مع توقعاتك عند استخدامك لنظام التعليم الإلكتروني.

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<thead>
<tr>
<th>الرقم</th>
<th>الجملة</th>
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<th>أوافق بشدة</th>
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<td>1</td>
<td>اشعار بالارتياح عندما أعمل بنظام التعليم الإلكتروني</td>
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<td>أوافق بشدة</td>
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<td>تضمني دراسة المواد بنظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>3</td>
<td>يمكنني أنجز عمل ناجح بنظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>4</td>
<td>تعلم استخدام نظام التعليم الإلكتروني يعتبر سهلاً</td>
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<td>5</td>
<td>أستطيع التعامل بنظام التعليم الإلكتروني بشكل آمن</td>
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<td>6</td>
<td>أشعر بالقلق أحيانا عند التحدث مع الآخرين عن نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
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<td>يتداهم شعور بالإحباط عند التفكير باستخدام نظام التعليم الإلكتروني</td>
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<td>أوافق بشدة</td>
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<td>8</td>
<td>استخدام نظام التعليم الإلكتروني صعب بالنسبة لي</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>9</td>
<td>العمل بنظام التعليم الإلكتروني أحيانا يشعرني بالاضطراب</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<td>10</td>
<td>أعتقد أنني ليس من الأشخاص الذين يعملون نجاح مع نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
<td>11</td>
<td>أفضل العمل بنظام التعليم الإلكتروني متعدد ومثير</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<td>12</td>
<td>أعتقد أن العملが増え في التعليم الإلكتروني ممكن ومثير</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<td>أشعر أن الكثير من الناس لا يفضلون العمل مع نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
<td>14</td>
<td>لا أستطيع التحدث مع الآخرين عن نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>15</td>
<td>أعتقد أن حفرة الفرص، أرغب في التعليم أكثر عن طريقة تشغيل وإدارة نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>16</td>
<td>أعتقد أن الكثير من الناس لا يستفيدون من العمل مع نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
<td>17</td>
<td>لا استمتع بالحديث مع الآخرين عن نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>18</td>
<td>أحاول فرد الإمكانات للمواد بنظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
<td>19</td>
<td>لا يمكنني فهم كيف أن البعض يستطيعون قضاء أوقات طويلة في العمل بنظام التعليم الإلكتروني ويفهمون الاستماع</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<td>20</td>
<td>نظام التعليم الإلكتروني من الأشياء التي اعتبرها نادرة الاستخدام في حياتي اليومية</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
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<tr>
<td>21</td>
<td>أعتقد أن نظام التعليم الإلكتروني يغير أساليب التعليم سريعاً</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>22</td>
<td>أعتقد أن التعليم يمكن أن يكون أكثر من فرص العمل المتاحة من نظام التعليم الإلكتروني</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>23</td>
<td>أعتقد أنني أستخدم نظام التعليم الإلكتروني بطريقة متعددة بوسائل متعددة</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>24</td>
<td>أعتقد أن أنابيب العمل بنظام التعليم الإلكتروني مهم بالنسبة لمستقبلي الوظيفي</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>25</td>
<td>استخدام خدمة نظام التعليم الإلكتروني نادر</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>26</td>
<td>الخبرة بالعمل بنظام التعليم الإلكتروني مهم لمستقبل المتطلبات الوظيفي</td>
<td>لا أوافق بشدة</td>
<td>أوافق بشدة</td>
</tr>
<tr>
<td>الرقم</td>
<td>الجملة</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>استطيع القيام بآي مهمة بطرق مختلفة بنفس كفاءة العمل بنظام التعليم الإلكتروني.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>اعتقد أن الدولة تعتمد على نظام التعليم الإلكتروني بشكل زائد.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>اعتقد أن نظام التعليم الإلكتروني يؤثر على الأشخاص بسبب قلة التواصل الاجتماعي بين المستخدمين.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>استخدام نظام التعليم الإلكتروني يمنع الطلاب من الإبداع.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>اعتقد أن نظام التعليم الإلكتروني سيزيد من كفاءة أداء الطلاب في دراستهم.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>اعتقد أن التدريس بنظام التعليم الإلكتروني يعطيني الفرصة لتطوير طرق التعليم التي استخدامها.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>نظام التعليم الإلكتروني يزيد من إنتاجي.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>اعتقد أن نظام التعليم الإلكتروني يساعد في التعليم.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>اعتقد أن نظام التعليم الإلكتروني هو أداة ضرورية في مجال التربية والتعليم.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>اعتقد أن نظام التعليم الإلكتروني هو طريقة تعلم مفيدة لكل التخصصات.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>اعتقد أن تدريب الطالب يجب أن يشمل التطبيق بنظام التعليم الإلكتروني بشكل عام.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>اتوقع أن نظام التعليم الإلكتروني سيطور التعليم بشكل عام.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- إذا كانت لديك الرغبة في استلام نسخة من الدراسة ونتائجها، الرجاء التواصل مع الباحث من خلال عنوان البريد الإلكتروني التالي ليتمكن الباحث من إرسال نسختك:

Eiad.Altaf@studentmail.newcastle.edu.au
eiadaz@maktoob.com

- الرجاء استخدام الفراغ التالي إذا كان لديك الرغبة في إضافة أي معلومات أو ملاحظات:
Appendix E: Teacher Information statement

A/Prof. David Palmer
School of Education
Faculty of Education & Arts
Phone: +61 2 4921 5715
Email: David.Palmer@newcastle.edu.au

Online Instruction in Saudi Universities: a Comparison of Satisfaction with EL systems used in different universities

You are invited to participate in the research project identified above which is being conducted by A/Prof. David Palmer, Prof. Sid Bourke, Mr. Greg Preston, and Mr. Eiad Altaf from the School of Education at the University of Newcastle.

The research is part of Mr. Eiad Altaf’s studies at the University of Newcastle, supervised by A/Prof. David Palmer from the School of Education.

The purpose of the research is to investigate student and teacher attitudes toward the use of E-learning in a number of Saudi universities and then aims to compare these attitudes within the Australian context. Previous research has shown that the use of E-learning is promoting rapidly in Saudi universities and the perception toward this use is changing as well. In this study student and teacher attitudes towards the use of EL systems in Saudi universities will be investigated and will be compared to the Australian context.

We are seeking students and lecturers at the university level to participate in this research. Your name was selected at random from the university website.

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. If you decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data which identifies you.

If you agree to participate, you will be asked to complete a questionnaire and return it back to the researcher or to your faculty secretary. In addition, you will be asked to provide your contact details at the space in the end of the questionnaire if you give your permission for the researcher to contact your students and give them the choice to participate in the study. However, if you choose to participate by returning the questionnaire, you are not obligated to agree to include your students in the project.

The questionnaire should take about 30 minutes to complete. There are no direct benefits to students, unless they are undertaking further e-learning courses when improvements might be made as a result to this study. The teachers will be able to use the study’s results to improve their application of e-learning in the classroom.
The questionnaire is anonymous and it will not be possible to identify you from your answers. Data will be retained for at least 5 years at The University of Newcastle.

Collected data will be analysed and used in a thesis to be submitted for Mr. Eiad’s degree. Participating universities will be provided with a summary of the study results for distribution to interested students and staff.

Please read this information statement and be sure you understand its contents before you consent to participate. If there is any thing you do not understand, or you have question, contact the researcher.

If you would like to participate, please complete and return the anonymous questionnaire to your faculty secretary or to the researcher. I will then contact you to arrange a time convenient to you and your students for distribute the students’ questionnaire if you agree to include your students in the study.

If you would like further information please contact:
- Mr. Eiad Altaf
  Ph: +966 548 573 655
  Email: Eiad.Altaf@studentmail.newcastle.edu.au
  Umm Al-Qura University
  Faculty of Education
  Curriculums and Teaching Methods Department
  Saudi Arabia

- A/Prof. David Palmer
  Ph: +61 2 4921 5715
  Email: David.Palmer@newcastle.edu.au
  The University of Newcastle
  Faculty of Education
  Australia

Thank you for considering this invitation

Eiad Abdul-Aziz Altaf  A/Prof. David Palmer

This project has been approved by the University’s Human Research Ethics Committee, Approval No. (H – 2009 – 0374)

Should you have concerns about your rights as participant in this research, or you have a complaint about the manner in which the research I conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
Appendix F: Teacher Information statement (Arabic Version)

د. ديفيد بالمر
كلية التربية - جامعة نيوكاسل
تليفون: 61249215715
بريد الإلكتروني: David.Palmer@newcastle.edu.au

التعليم الإلكتروني بجامعات المملكة العربية السعودية

مقارنة مدى الرضا تجاه أنظمة التعليم الإلكتروني المستخدمة في الجامعات المختلفة

أنت مدعو للمشاركة في مشروع البحث المذكور أعلاه والذي يشارك في إعداده، الأستاذ الدكتور/ ديفيد بالمر، الأستاذ الدكتور/ سندي بورك، الأستاذ/ جريج برستون، والأستاذ/ إدي ألفف، من كلية التربية بجامعة نيوكاسل.

البحث يعبر جزء من دراسات الأستاذ/ إدي ألفف، بجامعة نيوكاسل والذي يقوم بالإشراف على البحث سعاده الأستاذ الدكتور/ ديفيد بالمر.

الهدف من البحث هو دراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية ومقارنته بالجامعات الاسترالية. تدل النتائج السابقة على أنه يوجد تطور سريع في استخدام التعليم الإلكتروني أيضاً الموقف تجاه هذا الاستخدام تغير. سيبحث في هذه الدراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية وسياقها بالسياق الاسترالي.

نحن ننظر في مشاركة الطلاب وأعضاء هيئة التدريس في المستوى الجامعي. إذا لم تكن مسجل بإحدى المواد المقدمة عن طريق التعليم الإلكتروني أولاً تمريض أي خبرة بالتعليم الإلكتروني، فلاسوف أنت غير قادر على المشاركة.

تعتبر المشاركة في الدراسة من اختياري الشخصي وموقفة على مواقفتك الشخصية على الاشتراك. مشاركتك أو عدم مشاركتك في الدراسة لن تشكل أي عوائق. إذا فررت المشاركة فلنطلق الحرية في الانسحاب من المشاركة في أي وقت وبدون الحاجة لتقديم أسباب.

إذا اقتنعت المشاركة ستطلب منك تعبئة الاستمالة المرفقة وإعادتها إلى الباحث أو إلى سكرتير الكلية.

ستغرق تعبئة الاستمالة مدة تتراوح بين 20 – 30 دقيقة.

بينما لا توجد أي وقود مالية للطلاب، يمكن أن يستفيد الطالب من التطور الذي يمكن أن تقدمه الدراسة ويمكن من الدراسة عن طريق التعليم الإلكتروني. أما بالنسبة لأعضاء هيئة التدريس ستكون لديهم الفرصة من الاستفادة من نتائج البحث لتطوير الجانب التعليمي.

لاستمالة مصممة بحيث لا تحتوي على أي معلومات تؤدي للتعريف على الشخص أو أي معلومات شخصية.

البيانات التي ستعزج عن طريق الاستمالة ستستخدم في مكان آمن في جامعة نيوكاسل.

نتشترط البيانات في طريقة الدكتور/ الأستاذ/ إدي ألفف. وستتحول الجامعات المشاركة في الدراسة على تلخيص للدراسة ونتائجها ليتمكن الجميع من الاستفادة منها.

إرجعوا قراءة ورقية المعلومات والتاكيد من فهم جميع محتوياتها قبل موافقتك على المشاركة وإذا كان لديك أي استفسار أرجعوا الاتصال بالباحث.

إذا قررت المشاركة، ارجعوا تعبئة الاستمالة المرفقة وإعادتها إلى الباحث.

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إذا كنت ترغب في الحصول على معلومات أكثر ارتجوا الاتصال ب:

الأستاذ/ إياد السفري

تليفون: +966 548 573 655
بريد الكتروني: Eiad.Altaf@studentmail.newcastle.edu.au

جامعة أم القرى
كلية التربية – قسم المناهج وطرق التدريس
مكة المكرمة

الأستاذ الدكتور/ ديفيد بالمر
تليفون: 61249215715
بريد الكتروني: David.Palmer@newcastle.edu.au
كلية التربية - جامعة نيوكاسل
استراليا

شكراً لاهتمامكم بالدعوة
الأستاذ/ إياد السفري

تمت المصادقة على هذا المشروع من قبل لجنة حقوق الإنسان بالجامعة بقرار (4734 - 2009 - H)
إذا كان هناك أي استفسار أو معوقات أرجو الاتصال على رئيس اللجنة بجامعة نيوكاسل – العمداء – مكتب البحوث
والدراسات - تليفون: 0249216333
بريد الكتروني: Ethics@nemcastle.edu.au
Appendix G: Student information statement

A/Prof. David Palmer
School of Education
Faculty of Education & Arts
Phone: +61 2 4921 5715
Email: David.Palmer@newcastle.edu.au

Online Instruction in Saudi Universities: a Comparison of Satisfaction with EL systems used in different universities

You are invited to participate in the research project identified above which is being conducted by A/Prof. David Palmer, Prof. Sid Bourke, Mr. Greg Preston, and Mr. Eiad Altaf from the School of Education at the University of Newcastle.

The research is part of Mr. Eiad Altaf’s studies at the University of Newcastle, supervised by A/Prof. David Palmer from the School of Education.

The purpose of the research is to investigate student and teacher attitudes toward the use of E-learning in a number of Saudi universities and then aims to compare these attitudes within the Australian context. Previous research has shown that the use of E-learning is promoting rapidly in Saudi universities and the perception toward this use is changing as well. In this study student and teacher attitudes towards the use of EL systems in Saudi universities will be investigated and will be compared to the Australian context.

We are seeking students and lecturers at the university level to participate in this research. If you are currently not enrolled in an online course and do not have any experience with E-learning mode then unfortunately you are not eligible to participate.

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. If you decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data which identifies you.

If you agree to participate, you will be asked to complete a questionnaire and return it back to the researcher or to your faculty secretary.

The questionnaire should take about 30 minutes to complete.

There are no direct benefits to students, unless they are undertaking further e-learning courses when improvements might be made as a result to this study. The teachers will be able to use the study’s results to improve their application of e-learning in the classroom.

The questionnaire is anonymous and it will not be possible to identify you from your answers. Data will be retained for at least 5 years at The University of Newcastle.
Collected data will be used in a thesis to be submitted for Mr. Eiad’s degree. Participating universities will be provided with a summary of the study results for distribution to interested students and staff.

Please read this information statement and be sure you understand its contents before you consent to participate. If there is any thing you do not understand, or you have question, contact the researcher.

If you would like to participate, please complete and return the anonymous questionnaire to your faculty secretary or to the researcher.

If you would like further information please contact:

- Mr. Eiad Altaf
  Ph: +966 548 573 655
  Email: Eiad.Altaf@studentmail.newcastle.edu.au
  Umm Al-Qura University
  Faculty of Education
  Curriculums and Teaching Methods Department
  Saudi Arabia

- A/Prof. David Palmer
  Ph: +61 2 4921 5715
  Email: David.Palmer@newcastle.edu.au
  The University of Newcastle
  School of Education
  Faculty of Education & Arts
  Australia

Thank you for considering this invitation

Eiad Abdul-Aziz Altaf                    A/Prof. David Palmer

This project has been approved by the University’s Human Research Ethics Committee, Approval No. (H – 2009 – 0374)

Should you have concerns about your rights as participant in this research, or you have a complaint about the manner in which the research I conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
Appendix H: Student information statement (Arabic Version)

د. ديفيد بمار
كلية التربية - جامعة نيوكاسل
تليفون: 61249215715
بريد الكتروني:
David.Palmer@newcastle.edu.au

التعليم الإلكتروني بجامعات المملكة العربية السعودية
مقارنة مدى الرضا تجاه أنظمة التعليم الإلكتروني المستخدمة في الجامعات المختلفة

أنت مدعو للمشاركة في مشروع البحث المذكور أعلاه والذي يشارك في إعداده، الأساتذة الدكتور/ ديفيد بالمر، الدكتور/ سندى بورك، الدكتور/ جريج برستون، والدكتورة/ ايدي ألمفت، من كلية التربية بجامعة نيوكاسل.

البحث يعتبر جزء من دراسات الأساتذة/ إيد ألمفت، بجامعة نيوكاسل والذي يقوم بالإشراف على البحث سعادة الأساتذة الدكتور/ ديفيد بالمر.

الهدف من البحث هو دراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية ومقارنته بالجامعة الإسترالية. تدل الدراسات السابقة على أنه يوجد تطور سريع في استخدام التعليم الإلكتروني وأيضاً الموقع تجاه هذا الاستخدام تغير. سيبحث في هذا الدراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية وسيقارن بالسياق الاسترالي.

تحت بنية البحث تم من خلال دراسة الطالب وأعضاء هيئة التدريس في المستوى الجامعي. إذا لم تكن مسجل بحاجة المواد المذكورة في طرق التعليم الإلكتروني أو لا تمتلك أي خبرة بالتعليم الإلكتروني، فلا ترغب تجاه المشارك.

تعتبر المشاركة في الدراسة من اختبار الشخصي وموقفة على مواقفك الشخصية على الاشتراك. مشاركاتك أو عدم مشاركتك في الدراسة لن تتطلب أي عواقب. إذا قررت المشاركة فكل مطلق الحرية في الأسباب من المشاركة في أي وقت وبدون الحاجة لتقدم أسئلة.

إذا وافقت المشاركة سيطلب منك تعينة الاستبانة المرفقة وأعدتها إلى الباحث أو إلى سكرتير الكلية.

ستستغرق تعية الاستبانة مدة تتراوح بين 20 – 30 دقيقة.

بينما لا توجد أي فوائد مالية للطلاب، يمكن أن يستفيد الطلاب من التطور الذي يمكن أن تقدمه الدراسة ويمكن من الدراسة عن طريق التعليم الإلكتروني. أما بالنسبة لأعضاء هيئة التدريس ستكون لديهم الفرصة من الاستفادة من نتائج البحث للتطوير الجانب التطبيقي.

الاستبانة مصممة بحيث لا تحتوي على أي معلومات تؤدي للتعريض على الشخص أو أي معلومات شخصية.

البيانات التي تجمع عن طريق الاستبانة محفوظة في مكان آمن في جامعة نيوكاسل.

استخدم البيانات في أطراف使用 الدكتور/ إيد ألمفت. وستحصل الجامعات المشاركة في الدراسة على تحليل للدراسة ونتائجها لينكم جميع من الاستفادة منها.

إرجوا قراءة وفهم المعلومات وتأكد من فهم جميع محتوياتها قبل مشاركتك على المشاركة وإذا كان لديك أي استفسار إرجو الاتصال بالباحث.

إذا قررت المشاركة، ارجوا تعني الاستبانة المرفقة وإعادتها إلى الباحث.
إذا كنت ترغب في الحصول على معلومات أكثر ارجوا الاتصال ب:

الأستاذ/ إياد الطف
تلفون: +966 548 573 655
بريد الالكتروني: Eiad.Altaf@studentmail.newcastle.edu.au

جامعة أم القرى
كلية التربية – قسم المناهج وطرق التدريس
مكة المكرمة

الأستاذ الدكتور/ ديفيد بالمر
تلفون: 61249215715
بريد الالكتروني: David.Palmer@newcastle.edu.au

كلية التربية - جامعة نيوكاسل
استراليا

شكرًا لاهتمامك بالدعوة

الأستاذ الدكتور/ ديفيد بالمر
تمت المصادقة على هذا المشروع من قبل لجنة حقوق الإنسان بالجامعة برقم (374 – 2009 - H)
إذا كان هناك أي استفسار أو مواقف أرجو الاتصال على رئيس اللجنة بجامعة نيوكاسل – العمادة – مكتب البحوث والدراسات – تلفون: 0249216333
بريد الالكتروني: Ethics@newcastle.edu.au
Appendix I: University information statement

A/Prof. David Palmer
School of Education
Faculty of Education & Arts
Phone: +61 2 4921 5715
Email: David.Palmer@newcastle.edu.au

Online Instruction in Saudi Universities: a Comparison of Satisfaction with EL systems used in different universities

Dear Sir/Madam,

You are invited to participate in the research project identified above which is being conducted by A/Prof. David Palmer, Prof. Sid Bourke, Mr. Greg Preston, and Mr. Eiad Altaf from the School of Education at the University of Newcastle.

The research is part of Mr. Eiad Altaf’s studies at the University of Newcastle, supervised by A/Prof. David Palmer from the School of Education.

The purpose of the research is to investigate student and teacher attitudes toward the use of E-learning in a number of Saudi universities and then aims to compare these attitudes within the Australian context. Previous research has shown that the use of E-learning is promoting rapidly in Saudi universities and the perception toward this use is changing as well. In this study student and teacher attitudes towards the use of EL systems in Saudi universities will be investigated and will be compared to the Australian context.

We are seeking students and lecturers at the university level to participate in this research. Students not currently enrolled in online courses and who do not have any experience with E-learning mode unfortunately are not eligible to participate.

Participation in this research is entirely your choice. Only those people who give their informed consent will be included in the project. Whether or not you decide to participate, your decision will not disadvantage you. If you decide to participate, you may withdraw from the project at any time without giving a reason and have the option of withdrawing any data which identifies you.

If you agree to participate, I hereby seek your permission to include your university in the study sample for this project. The empirical survey invites 100 lecturers and 200 students of different faculties to seek their views on different aspects of E-learning systems used in universities and their perceptions toward the use of each system. A copy of the questionnaire is attached for your information.

The questionnaire should take about 30 minutes to complete.

There are no direct benefits to students, unless they are undertaking further e-learning courses when improvements might be made as a result to this study. The teachers will
be able to use the study’s results to improve their application of e-learning in the classroom.

The questionnaire is anonymous and it will not be possible to identify participants from their answers. Data will be retained for at least 5 years at The University of Newcastle.

Collected data will be analysed and used in a thesis to be submitted for Mr. Eiad’s degree. Participating universities will be provided with a summary of the study results for distribution to interested students and staff.

Please read this information statement and be sure you understand its contents before you consent to participate. If there is any thing you do not understand, or you have question, contact the researcher.

If you would like to participate, please sign the consent form and I will then contact staff members to arrange a time convenient to them to complete the questionnaire.

If you would like further information please contact:
- Mr. Eiad Altaf
  Ph: +966 548 573 655
  Email: Eiad.Altaf@studentmail.newcastle.edu.au
  Umm Al-Qura University
  Faculty of Education
  Curriculums and Teaching Methods Department
  Saudi Arabia

- A/Prof. David Palmer
  Ph: +61 2 4921 5715
  Email: David.Palmer@newcastle.edu.au
  The University of Newcastle
  Faculty of Education
  Australia

Thank you for considering this invitation

Eiad Abdul-Aziz Altaf                        A/Prof. David Palmer

This project has been approved by the University’s Human Research Ethics Committee, Approval No. (H – 2009 – 0374)

Should you have concerns about your rights as participant in this research, or you have a complaint about the manner in which the research I conducted, it may be given to the researcher, or, if an independent person is preferred, to the Human Research Ethics Officer, Research Office, The Chancellery, The University of Newcastle, University Drive, Callaghan NSW 2308, Australia, telephone (02) 49216333, email Human-Ethics@newcastle.edu.au.
Appendix J: University information statement (Arabic Version)

د. ديفيد بالمر
كلية التربية - جامعة نيوكاسل
العنوان: 6124921571
بريد الكتروني: David.Palmer@newcastle.edu.au

التعليم الإلكتروني بجامعات المملكة العربية السعودية
مقارنة مدى الرضا تجاه أنظمة التعليم الإلكتروني المستخدمة في الجامعات المختلفة

أنت مدعو للمشاركة في مشروع البحث المذكور أعلاه والذي يشارك في إعداده، الأساتذة الدكتور/ ديفيد بالمر، الأساتذة الدكتور/ سندي بورك،教授/ لوري ستون، الأساتذة/ إياه ألفيف، من كلية التربية بجامعة نيوكاسل.

البحث يعتبر جزء من دراسات الأساتذة/ إياه ألفيف، بجامعة نيوكاسل والذي يقوم بالإشراف على البحث سعادة الأساتذة الدكتور/ ديفيد بالمر.

الهدف من البحث هو دراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية ومقارنة بوضع الجامعات الإسترالية. تدل الدراسات السابقة على أنه يوجد تطور سريع في استخدام التعليم الإلكتروني وأيضاً موقف تجاه هذا الاستخدام تغير. سيبحث في هذه الدراسة موقف الطلاب وأعضاء هيئة التدريس تجاه استخدام التعليم الإلكتروني بجامعات المملكة العربية السعودية وسياقات بالسياق الاسترالي.

نحن نبحث عن مشاهدة الطلاب وأعضاء هيئة التدريس في المستوى الجامعي. إذا لم تكن مسجلة بأي المواد المقدمة عن طريق التعليم الإلكتروني أو لم تمتلك أي خبرة بالتعليم الإلكتروني، فلا تأسس أن تكون قادر على المشاركة.

تعتبر المشاركة في الدراسة من اختيارك الشخصي وموقعك على مواقفك الشخصية على الاشتراك، مشاركتك أو عدم مشاركتك في الدراسة لن تشكل أي عواقب. إذا قررت المشاركة فلك مطلق الحرية في الانسحاب من المشاركة في أي وقت وبدون الحاجة تقديم أسباب.

إذا كنت موافقًا على المشاركة، ارجو منك الموافقة على ضم جامعتك الموقرة في مشروع البحث. الدراسة عبارة عن دراسة مشجعة تتطلع للاستشراك 100 عضو هيئة تدريس و200 طالب وطالبة من الكليات المختلفة لبحث موقفهم تجاه أنظمة التعليم الإلكتروني المستخدمة بجامعات المملكة العربية السعودية. مرفق بطبيعة نسخة من استبانه الطلاب وأعضاء هيئة التدريس.

بينما لا توجد أي فوائد مالية للطلاب، يمكن أن يستفيد الطلاب من التطور الذي يمكن أن تتقدمه الدراسة ويمكن من الدراسة عن طريق التعليم الإلكتروني. أما بالنسبة لأعضاء هيئة التدريس ستكون لديهم الفرصة من الاستفادة من نتائج البحث لتقوير الجانب التعليمي.

الاستبانة مصممة بحيث لا تحتوى على أي معلومات تؤدي للتعرف على الشخص أو أي معلومات شخصية.

البيانات التي سنجمع عن طريق الاستبانة ستحافظ في مكان آمن في جامعة نيوكاسل.

ستستخدم البيانات في أطروحة الدكتوراه للأساتذة/ إياه ألفيف. وستتحصل الجامعات المشاركة في الدراسة على تنويه للدراسة ونتائجها لتمكن الجميع من الاستفادة منها.

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ارجوا قراءة ورقة المعلومات والتأكد من فهم جميع محتوياتها قبل موافقتك على المشاركة وإذا كان لديك أي استفسار ارجوا الاتصال بالباحث.

إذا قارنت المشاركة، ارجوا تعبئة الاستشارة المرفقة وإعادتها إلى الباحث.

إذا كنت ترغب في الحصول على معلومات أكثر ارجوا الاتصال ب:

الأستاذ/ إيدالطف

linik 966 548 573 655
بريد الكتروني:
Eiad.Altaf@studentmail.newcastle.edu.au

جامعة أم القرى
كلية التربية – قسم المناهج وطرق التدريس
مكة المكرمة

الأستاذ الدكتور/ ديفيد بالمر

linik 61249215715
بريد الكتروني:
David.Palmer@newcastle.edu.au

كلية التربية - جامعة نيوكاسل
استراليا

شكرا لاهتمامك بالدعوة

الأستاذ/ إيدالطف


تمت المصادقة على هذا المشروع من قبل لجنة حقوق البحث الإنساني بالجامعة برقم (4374 – 2009 - H)

إذا كان هناك أي استفسار أو معوقات ارجوا الاتصال عليه رئيس اللجنة بجامعة نيوكاسل – العمادة – مكتب البحوث والدراسات – تليفون: 0249216333 - بريد الكتروني Ethics@newcastle.edu.au
Appendix K: Consent form

A/Prof. David Palmer
School of Education
Faculty of Education & Arts
Phone: +61 2 4921 5715
Email: David.Palmer@newcastle.edu.au

Consent Form for the Research Project:

Online Instruction in Saudi Universities: a Comparison of Satisfaction with
EL systems used in different universities

Document Version …………….; dated …………………

I agree to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information
Statement, a copy of which I have retained.

I understand I can withdraw from the project any time and do not have to give
any reason for withdrawing.

I consent to

- complete the questionnaire.
  o YES
  o NO

- give the opportunity for the researcher to meet my students and invite them to
  participate in the research project by completing student questionnaire.
  o YES
  o NO

I understand that my personal information will remain confidential to the
researchers.

I have had the opportunity to have questions answered to my satisfaction.

Print name: ……………………………………………………………………………
Telephone: ……………………………………………Fax: …………………………………
Email: ……………………………………………Mobile: …………………………………
Signature: …………………………… Date: ……………………………
نموذج طلب موافقة للمشاركة في مشروع بحث التعليم الإلكتروني بجامعات المملكة العربية السعودية مقارنة مدى الرضا تجاه أنظمة التعليم الإلكتروني المستخدمة في الجامعات المختلفة

أوافق على المشاركة في مشروع البحث المذكور أعلاه وقد قرأت نموذج معلومات البحث المرفق وفهمت جميع محتوياته وأنني قادر على الانسحاب من المشاركة في أي وقت بدون تقديم أي مسببات وإن معلوماتي ستكون سرية بالنسبة للباحث.

أوافق على

- تعني الاستبانة:
  - نعم
  - لا

- إعطاء الالزام والتنسيق مع الباحث لمقابلة الطلاب ودعوتهم للمشاركة في مشروع البحث:
  - نعم
  - لا

الاسم: ..............................................................................................................

العنوان: ..............................................................................................................

fax: ......................................................................................................................

بريد الالكتروني: ..............................................................................................................

التوقيع: ..............................................................................................................

التاريخ: ..............................................................................................................
Appendix M: Data collection Correspondence

Letters from sponsor University (the researcher sposer) including the following:

1- The approval letter from Umm Al-Qura University to support the researcher and to be the sponser of the data collection (Appendix M1)
2- Internal letter from the Faculty of education to the Higher Reasearch Deanship (Appendix M2).
3- Letters from sponsor University to other targeted universities and the respond from these universities (one example included in Appendix M3).
4- Flowchart of academic staff data collection (Appendix M4).
5- Flowchart of student data collection (Appendix M5).
Appendix M1: Approval Letter from sponsor university
Appendix M2: Data collection sponsorship request

سلام عليكم ورحمة الله وبركاته .. وبعد
نفید سعادتكم بان الطالب/ إيراد بن عبد العزيز الطرف، أحد طلاب الدراسات العليا بقسم المناهج وطرق التدريس، مهتمة بالبحث التحدي "التعليم الإلكتروني وربطه بالتعليم العقلي" يرغب الطالب القيام بتقييم الإستمارات الخاصة بدراسة سنته الأولى بعنوان "التعليم الإلكتروني بجامعات المملكة العربية السعودية وقياس مدى الرضا تجاه أنظمة التعليم الإلكتروني بالمملكة ومقارنته بي البعض الجامعات الدولية ويرغب الطالب في تطبيقها على الجامعات التالية:
1 - جامعة الملك عبد العزيز بجدة
2 - جامعة الملك سعود
3 - جامعة الملك فهد للبترول والمعادن
4 - جامعة الملك خالد ببابا
5 - الجامعات المفتوحة

أمل من سعادتكم انكم بمحاطتهم بذلك نحو تسهيل مهمة الطالب في تطبيق الاستمارات. فاعدا لحكمكم معاونكم وحسن استجابتكم.
وتفضلوا سعادتكم بقبول فائق النحية والتقدير!!!

عميد كليتنا التربوية

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Appendix M3: Example of letters to other universities

وكل الاحترام

الدراسات العليا والبحث العلمي

سعادة وحكيم جامعة الملك فهد للبترول والمعادن للدراسات العليا والبحث العلمي سلمه الله

السلام عليكم ورحمة الله وبركاته ... وبعد:

أرضي لسمادكم صورة مرسوم مبادرة الترجمة رقم 80/1 وتاريخ 21/3/16 وessionseddine استثناء الطالب / إياه بن عبدالمؤيز للتنط - أحد طلاب الدراسات العليا مراحل الدكتوراه بقسم الناهج وطرق التدريس بجامعة الامام أم القرى، ويرجى إكمال تطبيق أسطوانة الخاصي بدراساته التي حذفت:

"تعليم الإلكتروني لجامعات المملكة العربية السعودية ومدارسة بعض الجامعات الدولية".

أمل التحرير بمساعدته وتسهيل مهامه لتطوير الاستبانة.

ساهم إليه ومقدر أن مساعدة ومساندة مساعدته ومساندة تعويض.

وتنبأوا بقبول خالص تحياتي وتشكري ...
حفظه الله
سعادة الدكتور مصطفى هيبري
مدير مركز التعلم الإلكتروني
منى 59 غرفة

السلام علىكم ورحمة الله وبركاته:

أود إقامة معايدةً بشرةً خاتمةً من جهتي للدكتور ابراهيمٍ بن عبد الهاديٍ في صدد إعداده لدورةً تدريبيّةً تلبيتًا للمواطنين جميعًا الذين يرغبون في الانتماء إلى مركز التعلم الإلكتروني.

وحرصي على أن يحظى هذا الدورة بكل ما يندرج تحته من المبادرات والجهود المبذولة من قبل الدكتور وباقي فريقه في إعداد برنامج تدريبي متكامل ومثير للاهتمام.

وأمل في أن يحظى كامل وفد عضو التدريبي بالملاحظات والآراء المفيدة من خلال تدريباتهم ومتابعتهم للدورة.

وكما أنني أقدر وشكراً للدكتور وأعضاء فريقه على جهودهم المستمرة في الدورات التدريبية.

منيب، الذي رحمن
رئيس الشؤون التعليمية والبحث العلمي
E-LEARNING CENTER

Memorandum

Date: March 27, 2010
To: Academic Chairmen
Sub: Questionnaire for Research

As per the request of the Vice Rector, Graduate Studies and Scientific Research (copy attached) please distribute the attached questionnaire to the faculty members who attended e-Learning workshops or interested in e-learning. After filling please return back to e-Learning Center. We will appreciate if we receive the filled questionnaire by Wednesday, March 31, 2010.

Thank you.

[Signature]
Director, e-Learning Center

cc:
Dean, Academic Development
Appendix M4: Flow chart for the data collection process for academic staff

START

To sponsor University

From sponsor University to other universities

100 teachers (50 M + 50 F) from each university

Agree to participate?

Yes

Do it

No

Return it back to faculty secretary

Collect

FINISH
Appendix M5: Flow chart for the data collection process for students

START

Is teacher agreeing?

No

several groups from each University

Organising appointments

M or F ?

Males

F2F meeting with female assistance

Females

F2F meeting with researcher

Final collect by researcher

FINISH
## Appendix N: Tables of Attitude towards e-learning platforms related to usage hours

### Table 6.43: Attitude of students using Blackboard toward e-learning

<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>Blackboard Usage hours</th>
<th>N</th>
<th>Attitude Mean 1-4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>370</td>
<td>3.04</td>
<td>0.559</td>
<td>0.887</td>
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<td></td>
<td>1</td>
<td>12</td>
<td>3.23</td>
<td>0.503</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
<td>3.34</td>
<td>0.412</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>9</td>
<td>3.00</td>
<td>0.332</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>3.30</td>
<td>0.622</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>5</td>
<td>3.12</td>
<td>0.610</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than 5 hrs</td>
<td>10</td>
<td>3.10</td>
<td>0.713</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EL Acceptance</td>
<td>Total</td>
<td>420</td>
<td>3.05</td>
<td>0.555</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                 | 0                       | 371 | 2.08              | 0.591          | 1.339 | 0.238|
|                 | 1                       | 12  | 2.17              | 0.525          |       |      |
|                 | 2                       | 10  | 2.18              | 0.553          |       |      |
|                 | 3                       | 12  | 2.12              | 0.463          |       |      |
|                 | 4                       | 4   | 1.60              | 0.400          |       |      |
|                 | 5                       | 5   | 1.97              | 0.905          |       |      |
|                 | More than 5 hrs         | 10  | 1.68              | 0.483          |       |      |
| EL Anxiety      | Total                   | 424 | 2.07              | 0.588          |       |      |

|                 | 0                       | 371 | 3.01              | 0.594          | 2.740 | 0.013*|
|                 | 1                       | 12  | 3.07              | 0.394          |       |      |
|                 | 2                       | 10  | 3.18              | 0.274          |       |      |
|                 | 3                       | 12  | 3.42              | 0.455          |       |      |
|                 | 4                       | 4   | 3.55              | 0.526          |       |      |
|                 | 5                       | 5   | 3.40              | 0.632          |       |      |
|                 | More than 5 hrs         | 10  | 3.42              | 0.457          |       |      |
| EL Confidence   | Total                   | 424 | 3.04              | 0.585          |       |      |

|                 | 0                       | 371 | 2.77              | 0.593          |       |      |
|                 | 1                       | 12  | 2.93              | 0.454          |       |      |
|                 | 2                       | 10  | 2.88              | 0.424          |       |      |
|                 | 3                       | 12  | 3.20              | 0.609          |       |      |
|                 | 4                       | 4   | 3.35              | 0.551          |       |      |
|                 | 5                       | 5   | 3.08              | 0.820          |       |      |
|                 | More than 5 hrs         | 10  | 3.29              | 0.534          |       |      |
| EL Liking       | Total                   | 424 | 2.81              | 0.597          |       |      |

|                 | 0                       | 370 | 3.0376            | 0.561          | 1.545 | 0.162|
|                 | 1                       | 12  | 3.3000            | 0.569          |       |      |
|                 | 2                       | 10  | 3.4400            | 0.324          |       |      |
|                 | 3                       | 11  | 3.1455            | 0.430          |       |      |
|                 | 4                       | 4   | 3.2500            | 0.526          |       |      |
|                 | 5                       | 5   | 3.3200            | 0.795          |       |      |
|                 | More than 5 hrs         | 10  | 3.0600            | 0.566          |       |      |
| EL Opportunity  | Total                   | 422 | 3.0633            | 0.559          |       |      |

|                 | 0                       | 366 | 3.10              | 0.619          | 3.523 | 0.002*|
|                 | 1                       | 12  | 3.53              | 0.521          |       |      |
|                 | 2                       | 10  | 3.70              | 0.312          |       |      |
|                 | 3                       | 11  | 3.36              | 0.499          |       |      |
|                 | 4                       | 4   | 3.38              | 0.644          |       |      |
|                 | 5                       | 5   | 2.97              | 0.506          |       |      |
|                 | More than 5 hrs         | 10  | 3.50              | 0.544          |       |      |
| EL Productivity | Total                   | 418 | 3.14              | 0.618          |       |      |
## Appendix N continue:

Table 6.44: Attitude of academic staff using WebCT toward e-learning

<table>
<thead>
<tr>
<th>Attitude scales</th>
<th>WebCT Usage hours</th>
<th>N</th>
<th>Attitude Mean 1-4</th>
<th>Std. Deviation</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EL Acceptance</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>189</td>
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<td>0.409</td>
<td></td>
<td>5.693</td>
<td>0.000*</td>
</tr>
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<td>0.110</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
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</tr>
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<td>2.70</td>
<td>0.535</td>
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<td></td>
<td></td>
</tr>
<tr>
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Table 6.47: Attitude of students using Moodle toward e-learning

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Appendix O: Tables of Attitude towards e-learning related to satisfaction towards e-learning platforms

Table 6.50: Academic staff attitude towards e-learning and satisfaction with Blackboard

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* The significance level is 0.05
Table 6.51: Student attitude towards e-learning and satisfaction with Blackboard

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* The significance level is 0.05
Table 6.52: Academic staff attitude towards e-learning and their satisfaction with WebCT

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* The significance level is 0.05
Appendix O continue:

Table 6.53: Student attitude towards e-learning and satisfaction with WebCT

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* The significance level is 0.05
Table 6.54: Academic staff attitude towards e-learning and satisfaction with Moodle

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*The significance level is 0.05
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* The significance level is 0.05
## Appendix O continue:

Table 6.56: Academic staff attitude towards e-learning and satisfaction with Jusur

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* The significance level is 0.05
Appendix O continue:

Table 6.57: Student attitude towards e-learning and satisfaction with Jusur

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*The significance level is 0.05
Appendix P: Tables present the intervening variables showing their relationships with the dependent variables at each stage of the model related to the background variables affected.

- Academic staff tables:

Table 7.1: Relationships among explanatory variables (intervening and background variables) in EL Acceptance analysis model for academic staff

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Appendix P continue:

Table 7.3: Relationships among explanatory variables (intervening and background variables) in EL Anxiety analysis model for academic staff

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Table 7.5: Relationships among explanatory variables (intervening and background variables) in EL Confidence analysis model for academic staff

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Table 7.7: Relationships among explanatory variables (intervening and background variables) in EL Liking analysis model for academic staff

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Table 7.9: Relationships among explanatory variables (intervening and background variables) in EL Opportunity analysis model for academic staff

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### Table 7.11: Relationships among explanatory variables (intervening and background variables) in EL Productivity analysis model for academic staff

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Appendix P continue:

- Student tables:

Table 7.13: Relationships among explanatory variables (intervening and background variables) in EL Acceptance analysis model for students

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## Appendix P continue:

Table 7.15: Relationships among explanatory variables (intervening and background variables) in EL Anxiety analysis model for students

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Appendix P continue:

Table 7.17: Relationships among explanatory variables (intervening and background variables) in EL Confidence analysis model for students

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### Table 7.19: Relationships among explanatory variables (intervening and background variables) in EL Liking analysis model for students

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Appendix P continue:

Table 7.21: Relationships among explanatory variables (intervening and background variables) in EL Opportunity analysis model for students

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Table 7.23: Relationships among explanatory variables (intervening and background variables) in EL Productivity analysis model for students

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<tr>
<td><strong>Email experience</strong></td>
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<td>Student gender</td>
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<tr>
<td>Study experience</td>
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<tr>
<td>UA students</td>
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<td>UB students</td>
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<td>UC students</td>
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<td><strong>Internet experience</strong></td>
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<td><strong>High interaction tools hours</strong></td>
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<td>Study experience</td>
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<td>UA students</td>
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<td>UC students</td>
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<tr>
<td>Blackboard use</td>
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<tr>
<td>Jusur use</td>
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<td>Moodle use</td>
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<td>WebCT use</td>
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<td>Computer experience</td>
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<td>Email experience</td>
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<td>Internet experience</td>
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<td>Low interaction tools hours</td>
<td>Student gender</td>
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<td>Study experience</td>
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<td>UB students</td>
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<td>UC students</td>
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<td>Blackboard use</td>
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<td>Jusur use</td>
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<td>Moodle use</td>
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<td>WebCT use</td>
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<td>Computer experience</td>
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<td>Internet experience</td>
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</tbody>
</table>
### Appendix Q: Summary of Saudi universities

#### Table 4.4: Saudi universities summary

<table>
<thead>
<tr>
<th>No.</th>
<th>University and Established date</th>
<th>Demographic information</th>
<th>E-learning futures</th>
<th>e-learning classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Umm Al-Qura University (1949)</td>
<td>UQU is located in the holy city of Makkah in the western region of Saudi Arabia. The university includes seventeen colleges, twelve institutes and centers with seventy academic departments most of which offer both graduate and undergraduate programs for both male and female students. The university contains twelve auxiliary deanships each of which has its counterpart in the girls section. Over 30000 students are enrolled in different colleges and institutions of the university, and nearly 1500 faculty members are in charge therein.</td>
<td>Jusur is the only online platform in UQU. It was accessible for all students and staff. It was utilised in a variety of online courses (roughly 100 courses from all subject areas) and typically contained e-learning tools such as a system manual, course content, a forum, announcement system, online curricula, assignments, exams, questionnaires, results and grades. The online services included online course application entry forms, course information, an email system, staff member information and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the Manar online magazine. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube.</td>
<td>High level of e-learning courses and services provided by university.</td>
</tr>
<tr>
<td>2</td>
<td>King Saud University (1957)</td>
<td>KSU is one of the largest universities in Saudi Arabia with 9 campuses in the central region that the main campus is located in Riyadh. There are multiple faculties distributed in the various campuses in various areas: medicine, engineering, agriculture, sciences, humanities, and</td>
<td>The e-learning platform at KSU was called the King Saud University Learning Management System (KSULMS). The general online services were the university email system, the SMS messaging system, the university forum and the university calendar.</td>
<td>High level of e-learning courses and services provided by university.</td>
</tr>
<tr>
<td></td>
<td>Language(s)</td>
<td>University Name and Location</td>
<td>Programs and Staff</td>
<td>Online Services and Resources</td>
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<tr>
<td></td>
<td></td>
<td>Islamic University (1961)</td>
<td>The university is located in Al Madinah Al Monawarah in the western region. The university specializes in Islamic areas such as Shareea, Hadeth and Fequh. It offers graduate and undergraduate programs for male students only. Over 6000 students are enrolled in different Islamic fields and nearly 1000 academic staff members are in charge in the various campuses.</td>
<td>Jusur is the online platform in Islamic University. It was accessible for all students and staff. It was utilized in a variety of online courses from all subject areas and typically contained e-learning tools as reported previously about Jusur. The online services from Islamic University website included online course application entry forms, course information, an email system and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the university online news. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube that were available for academic staff, students and the university website visitors.</td>
</tr>
<tr>
<td>4</td>
<td>King Fahd University for Petroleum and Minerals (1963)</td>
<td>KFUPM is a public university located in Dhahran in the eastern region. Among Saudi universities, it is highest regarded for excellence in its science and engineering programs. The medium of instruction in KFUPM is English. However, courses on Islamic studies and Arabic language are taught in Arabic. University offers degrees of Bachelor of Science, Master of Science, Master of Engineering and Doctor of Philosophy and for males only. Over 8600 students are enrolled in different areas and nearly 1700 academic staff members are in charge in the various campuses.</td>
<td>The e-learning platform at KFUPM was Blackboard. The general online services were the university email system, the SMS messaging system, the university forum and the university online magazine. The electronic library offered a variety of resources. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube that were available for academic staff, students and the university website visitors.</td>
<td>High level of e-learning courses and services provided by university.</td>
</tr>
<tr>
<td>5</td>
<td>King Abdul-Aziz University (1967)</td>
<td>KAU is one of the largest universities in Saudi Arabia with 2 campuses in the western region that the main campus is located in Jeddah. There are multiple faculties in the two campuses: medicine, engineering, agriculture, sciences, information technology and computer sciences, humanities, and languages. It offers graduate and undergraduate programs for both male and female students. Over 69000 students are enrolled in different areas and nearly 3600 academic staff members are in charge in the two campuses.</td>
<td>EMIS is an e-learning system that manages the educational process aims to facilitate the process of interaction between the student and faculty member. KAU Virtual Class Room CENTRA allows the Instructor and Students to participate in real time lessons and discussions. KAU electronic exam is an interactive experience that is designed to hold the (periodic tests and ‘end of the semester) examinations electronically in order to save time, effort and build questions’ bank. DDL-Data Collection System (DDL-DCS) in KAU is an easily software to manage students and encourage to give us their feedback with frequent and professional communication.</td>
<td>High level of e-learning courses and services provided by university.</td>
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<td></td>
<td>Deanship of Distance Learning at KAU has created an Electronic Suggestion and Complaint Resolution System E-SCRS aimed at making necessary changes on the suggestions and feedback provided and ensuring speedy resolution of all complaints in a fair, professional and collegial manner.</td>
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<td></td>
<td>The university includes 7 campuses in the central region that the main campus is located in Riyadh. 4 campuses are located in Saudi Arabia: Riyadh, Al Ahsa, Shaqraa and Al Kharj. Also there are 3 campuses located in Japan, Indonesia and Djibouti. The university in specialized in Islamic areas and Arabic language. It offers graduate and undergraduate programs for both male and female students. Over 37,000 students are enrolled in different Islamic fields and over 3000 academic staff members are in charge in the various campuses.</td>
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<tr>
<td>6</td>
<td>Imam Muhammad bin Saud Islamic University (1974)</td>
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<td></td>
<td>The university provides online courses with some academic staff. However, there is no official e-learning platform offered by the university. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube that were available for academic staff, students and the university website visitors.</td>
<td></td>
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<tr>
<td></td>
<td>The use of e-learning may perhaps was low according to the information available in the university website. E-learning platform was not provided and the online services were less compaed with other Saudi universities.</td>
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<tr>
<td>7</td>
<td>King Faisal University (1975)</td>
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<tr>
<td></td>
<td>KFU located in Al-Ahsa in the eastern region which includes 4 campuses in the in the eastern and central region in Al Ahsa, Dammam, Al-Qatif and Hafr Al-Batin. KFU offers graduate and undergraduate programs for both male and female students. Over 17,000 students are enrolled in different fields and around 3000 academic staff members are in charge in the various campuses.</td>
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<td></td>
<td>Blackboard is the online platform in KFU. It was for all students and staff. It was utilised in a variety of online courses from all subject areas and typically contained e-learning tools. The online services from KFU were easy to use and understand as there were link for most services on the university website directly. The website included online course application entry forms, course information, an email system, mobile</td>
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<td></td>
<td>High level of e-learning courses and services provided by university.</td>
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<tr>
<td>8</td>
<td>King Khalid University (1999)</td>
<td>KKU located in Abha in the western region which includes 4 campuses in Abha, Annamas, Bishah and Khamis Mushayt. KFU offers graduate and undergraduate programs for both male and female students. Over 12,700 students are enrolled in different fields and around 1500 academic staff members are in charge in the various campuses.</td>
<td>Blackboard is the e-learning platform in KKU. It was for all students and staff. It was utilised in a variety of online courses from all subject areas and typically contained e-learning tools. The online services from KKU were easy to use and understand as there were link for most services on the university website directly. The website included online course application entry forms, course information, an email system, mobile learning system and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the university online news. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube.</td>
<td>High level of e-learning courses and services provided by university.</td>
</tr>
<tr>
<td>9</td>
<td>Taibah University (2003)</td>
<td>Taibah University is one of the largest universities in Saudi Arabia. The university main campus is located in Al-Madinah Al-Monawarah in the western region of Saudi Arabia.</td>
<td>The university offers e-learning courses in various fields and online services through the university website. In addition, the university website had its own</td>
<td>The use of e-learning may perhaps was low according to the information available in</td>
</tr>
<tr>
<td>#</td>
<td>University</td>
<td>Number of Students</td>
<td>Fields</td>
<td>Staff in Charge</td>
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</tr>
<tr>
<td>10</td>
<td>Taif University (2003)</td>
<td>60,000</td>
<td>30</td>
<td>3000</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>Qassim University (2004)</td>
<td>40,000</td>
<td>30</td>
<td>3,500</td>
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<tr>
<td></td>
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<td></td>
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</tr>
<tr>
<td>12</td>
<td>Al-Jouf University (2005)</td>
<td>13,000</td>
<td>30</td>
<td>300</td>
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</tbody>
</table>

**Notes:**
- The use of e-learning may have been low according to the information available in the university website.
- E-learning platform was not provided and the online services were less compared with other Saudi universities.
<table>
<thead>
<tr>
<th>No.</th>
<th>University</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>University of Hail (2005)</td>
<td>The university had two main campuses in Hail and Baqa in the northern region for males and females. Around 16,000 students were enrolled and about 300 academic staff were in charge. The university provide e-learning platform and online services for all students and academic staff. The platform is called the e-learning platform of the University of Hail witch was accessible for the university members only not for the website visitors. The online services are the online course application entry forms, course information, an email system and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the university online news. In addition, the university website had its own links to web pages on Facebook, Twitter, and YouTube. High level of e-learning courses and services provided by university.</td>
</tr>
<tr>
<td></td>
<td>University</td>
<td>Location</td>
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<tr>
<td>14</td>
<td>Al-Baha University (2006)</td>
<td>The four campuses of Al-Baha University are located in the southwest of Saudi Arabia in Al-Baha, Biljurashi, Al-Mukhwah and Al-Mandag. The university offers graduate and undergraduate programs for both male and female students. Over 14,000 students were enrolled in different fields and around 760 academic staff members are in charge in the four campuses.</td>
</tr>
<tr>
<td>15</td>
<td>Jazan University (2006)</td>
<td>The four campuses of Jazan University are located in the southwest coast of Saudi Arabia in Jazan, Sabya, Abu Arish and Samtah. The university offers graduate and undergraduate programs for both male and female students. Over 28,000 students are enrolled in different fields and around 2002 academic staff members are in charge in the four campuses.</td>
</tr>
<tr>
<td>16</td>
<td>Najran University (2006)</td>
<td>The two campuses of Najran University are located in the southern region in Najran and Sharurah for males and females. The University has 15 academic departments</td>
</tr>
<tr>
<td></td>
<td>University of Tabuk (2006)</td>
<td>The three campuses of the University of Tabuk are located in the northern region in Tabuk, Al-Wajh and Dhuba for males and females. The University has 18 academic departments offering 25 majors. Around 10,000 students were enrolled in different fields and around 500 academic staff members are in charge in the three campuses.</td>
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<tr>
<td>17</td>
<td>University of Tabuk (2006)</td>
<td>The three campuses of the University of Tabuk are located in the northern region in Tabuk, Al-Wajh and Dhuba for males and females. The University has 18 academic departments offering 25 majors. Around 10,000 students were enrolled in different fields and around 500 academic staff members are in charge in the three campuses.</td>
</tr>
<tr>
<td>18</td>
<td>Al Hudud ash Shamaliyah University</td>
<td>The university is located in the northern borders of Saudi Arabia. Northern Borders University</td>
</tr>
<tr>
<td>Year</td>
<td>University Name</td>
<td>Location</td>
</tr>
<tr>
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</tr>
<tr>
<td>2007</td>
<td>Princess Nora bint Abdul Rahman University</td>
<td>Riyadh and Central Region of Saudi Arabia</td>
</tr>
<tr>
<td>2007</td>
<td>(2007)</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>Al-Majma‘ah University</td>
<td>Central Region of Saudi Arabia</td>
</tr>
<tr>
<td>2009</td>
<td>Al-Majma‘ah University</td>
<td>Central Region of Saudi Arabia</td>
</tr>
<tr>
<td>21</td>
<td><strong>Salman Bin Abdul-Aziz University (2009)</strong></td>
<td>The university is located in the central region of Saudi Arabia. The main campus was located in Al-Kharj in addition to four other campuses for males and females in: Al-Dalm, Al-Aflaaj, Al-Saleel and Wadi Al-Dawaser. Over 10,000 male and female students are enrolled in different fields and around 210 academic staff members are in charge in the university campus.</td>
</tr>
</tbody>
</table>

| 22 | **Shaqra University (2009)** | The main campus of SU was located in Shaqra city. The university contains 9 other campuses in Central region: Huraymilaa, Al-Queyah, Sajer, Darmaa, Afif, Al-Muzahmeyah, Thadeq and Al-Mahmal. Over 10,000 male and female students are enrolled in different fields and around 150 academic staff members are in charge in | There is no e-learning platform offered by the university website like Jusur or Blackboard. The website included online course application entry forms, course information, an email system, mobile learning system and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the university online news. In addition, the university website had its own links to web pages on Facebook and YouTube. | The use of e-learning may perhaps was low according to the information available in the university website. E-learning platform was not provided and the online services were |
| 23 | University of Dammam (2009) | The university is located in Dammam in the eastern coast of Saudi Arabia. The main campus is in the coastal area of Al-Rakah (situated between Dammam and Khobar). Several colleges are scattered around the eastern province (College of Medicine is in the main campus.) | Blackboard is the e-learning platform in University of Dammam. It was for all students and staff. It was utilised in a variety of online courses from all subject areas and typically contained e-learning tools. The website included online course application entry forms, course information, an email system, mobile learning system and the university calendar. The university offered an electronic library (containing electronic books, online journal articles and theses), a database and the university online news. In addition, the university website had its own links to web pages on Facebook and YouTube. | High level of e-learning courses and services provided by university. |