Factors Influencing the Adoption of Learning Management Systems in the Kingdom of Saudi Arabian Universities by Female Academic Staff

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

Doctor of Philosophy

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Monerah Fahid Algahtani

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Abstract

This study investigates the factors influencing the adoption of Learning Management Systems (LMSs) among female academic staff in the Kingdom of Saudi Arabia (KSA). It investigates more thoroughly the key finding in Al Balawi’s (2007) research, which was that 71.4% of male academic staff in Saudi Arabian universities utilised web-based learning compared to only 28.6% of female university staff. This study surveyed 178 female staff in two universities (King Saud University and Princess Nourah bint Abdulrahman University) in KSA and conducted follow-up interviews with six female academics. The Technology Acceptance Model (TAM) was used to investigate the internal factors (attitude and perceived usefulness) and external factors (training and support) that influenced the use of a LMS called Blackboard and the actual use and extent of use of Blackboard by female academic staff in KSA universities. The research investigated three main research questions based on the aims of this study. These aims were:

a) to examine how, and to what extent, female academic staff in Saudi Arabian higher education use learning management systems

b) to determine the internal and external factors (using the Technology Acceptance Model) that may influence the uptake of LMSs by female academic staff in higher education in KSA

c) to present recommendations that could increase LMS adoption by female academic staff in Saudi Arabian higher education.

The main findings of the study are: (1) age, level of education and the academic’s teaching position influence the extent of use of LMS; (2) female academics use Blackboard for basic functions such as uploading content for students, and the use is teacher-centred; (3) the internal factors that influence LMS adoption include academics’ attitudes towards LMS as well as their perception of the usefulness of the technology; and (4) the external factors that affect LMS use include the provision of training and different kinds of support.

Although many research participants agreed that LMSs are an important tool for teaching in higher education, the use of elearning technology (Blackboard) is still low among younger female academics and those with lower educational qualifications and lower teaching positions. As well, the use of LMSs is lower in the Vocational Education discipline than it is in other disciplines. The recommendations that have been provided include providing training and support to female academics and their students to enhance female academics’ adoption of LMSs, and to make sure that they utilise LMSs effectively.
1. Introduction

1.1 Background

Universities in the Kingdom of Saudi Arabia (KSA), like their counterparts elsewhere in the world, are increasingly considering electronic learning (elearning) as a viable teaching, learning and assessment tool. Although it is a contested term, elearning is seen as referring to computer- and internet-based activities that directly or indirectly facilitate learning and teaching, both on campus and at a distance (Bates, 2007). Blended learning, where “portions of learning activities have been moved online, and time traditionally spent in the classroom is reduced but not eliminated” (Alebaikan, 2010, p. 8) is also becoming more commonplace in KSA. One of the ways in which elearning and blended learning occur is via a Learning Management System (LMS). According to Rogers et al. (2005), the term LMS takes into account any use of web technology to plan, organise, execute and control the various aspects of the learning process. Currently, there is widespread use of LMSs using software packages such as Moodle, WebCT and Blackboard (Chikh & Berkani, 2010; Vrazalic, MacGregor, & Behl, 2009), which are important elements in elearning globally. In the KSA, Blackboard is the most commonly used LMS in higher education and is, therefore, the LMS this thesis investigates (Zouhair, 2010).

LMSs are seen as an important element of elearning in higher education. LMSs are seen as a way to facilitate student-focused, open, active, collaborative and life-long learning (Uys, Kiravu & Mothibi, 2004, cited by Macharia & Nyakwende, 2010). Much research has indicated that there are many benefits for students if they engage with elearning via LMSs such as Blackboard. For instance, it reduces limitations that may be created by large student numbers, distance and limited resources (Macharia & Nyakwende, 2010), issues that are currently impacting on higher education in KSA. However, research has shown that use of LMSs is complex and adaption is influenced by many factors. Therefore, this research will be underpinned by the Technology Acceptance Model (TAM) (Davis, 1986), which examines the internal and external factors that influence the adoption of technology.
Using TAM, this research seeks to investigate the factors influencing the adoption of Learning Management Systems among female academic staff in the KSA. This research investigates more thoroughly the key finding in Al Balawi’s (2007) research, which found that 71.4% of male academic staff at Saudi Arabian universities utilised web-based learning compared to only 28.6% of female university staff\(^1\). This thesis further examines this gender divide in technology use by examining female academic staff perceptions and beliefs about LMSs. In particular, this research uses TAM to examine the factors that influence the adoption (or lack of adoption) of LMSs by female academic staff in the KSA universities. For instance, it investigates how issues such as the perceived usefulness of a technology, ease of use, and cultural and social factors influence female academic staff’s use of LMSs. Further, this research explores how female academics’ attitudes toward using the technology, their behavioural intentions, and institutional support for using LMSs, have influenced the adoption of LMSs in higher education in KSA (Macharia & Nyakwende, 2010).

Given the benefits of elearning (an issue examined in more detail in later chapters), it is important to investigate the adoption of LMSs by female academic staff in light of KSA’s segregated universities. In line with Saudi Arabian religious customs, separation of females and males is guided by Article 155 of the Saudi Arabia Education Policy, which calls for a stringent separation of individuals by their gender at all education levels, except at four levels: preschool, nursery level, various privately owned elementary schools, and a number of medical departments in universities (Amnesty International, 2000; Smith & Abouammoh, 2013).

\(^1\) The study by Al Balawi (2007) was used as a basis of the research at it specifically studied the issue of the usage of learning management systems between male and female academic staff. Although there are many studies that have been conducted in regard to elearning in higher education institutions in KSA, many of these studies have been about various aspects of elearning, e.g. elearning in general (Unnisa, 2014); current elearning practices and future possibilities (Aljabre, 2012), perceived obstacles towards elearning by members of faculty (Al Gamdi & Samarji, 2016), perceptions towards blended learning (Alebaikan, 2010), and use and attitude towards LMS (Alghamdi & Bayaga, 2016) and many of these do not specify a gender divide, which was a key aspect of this research. The major difference between this study and Al Balawi’s (2007) study is that the present study focused only upon female academic staff.
If there are indeed lower adoption rates of LMSs by female academics who primarily teach female students, there is the potential for some female students to be limited in terms of learning due to a lack of access to elearning. This research will, therefore, investigate the relationship between female academic staff members and their adoption of LMSs in order to determine the possible reasons for lower rates of adoption of LMSs, in order to reduce the barriers that may impede technology adoption by female academic staff.

1.2 Overview of Research
The research aims, design (questions and methods) and the analysis of the data will be underpinned by the Technology Acceptance Model (TAM), the theoretical framework that informs this study.

The TAM was constructed in 1986 by F. D. Davis to provide a model to identify the factors that influence the intentions of the users of technology (Venkatesh & Bala, 2013). TAM has also become a model used in various research contexts to predict users’ acceptance and usage of educational technologies such as LMSs (Asiri, bt Mahmud, Bakar, & Ayub, 2012; Lule, Omwansa, & Waema, 2012). According to Chen, Li, and Li (2011), TAM is one of the most powerful models used in research about determinants of information technology and information systems acceptance in order to predict users’ intentions in using various types of information technologies. This thesis also examines how internal and external variables affect female academics’ use of LMSs, and possible reasons for lower adoption rates by female academic staff of LMSs in Saudi Arabian universities as suggested by Al Balawi (2007). This will enable the research to make suggestions that encourage higher use of LMSs to potentially benefit female students’ access to higher education.

To investigate the relationship between female academic staff members and their adoption of LMS, the main research questions to be answered in the study are:

1. In what ways, and to what extent, do female academic staff currently use LMSs in KSA universities?
2. How do internal factors (such as beliefs and attitudes) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?

3. How do external factors (such as access, students' attitudes, institutional and cultural values, gender segregation) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?

Through these main research questions, this research will seek to identify external variables that affect LMS adoption by female academics in KSA. Additionally, the research was designed to better understand how female academics perceive the usefulness and the ease of use of LMSs because according to TAM, these can predict usage. Further, the research examines attitudes towards LMSs and identifies the actual usage of LMSs within universities in KSA. The rationale of this research is that the research results will, in particular, act as a basis for university LMS training, support and implementation and more generally, and will contribute to policy making in Saudi higher education.

In order to achieve the aims of the research a mixed methods approach was adopted that is shaped by constructionist epistemology and an interpretivist theoretical perspective, where the research creates meaningful constructions through interaction with individuals and/or groups within social contexts (Gray, 2014; Guba & Lincoln, 2005). As Creswell (2014) observes, mixed methods research utilises the combined strengths of quantitative and qualitative approaches. In this research, mixed methods were used in a sequential manner; the collection and analysis of quantitative data was used to inform or shape the collection and analysis of qualitative data.

In the exploratory sequential approach used in this study, a qualitative method was firstly employed through the use of a web-based survey targeting a large population of participants to seek out themes and similarities (Oyaid, 2009). The participants in the web-based survey were from two different universities (King Saud University and Princess Nourah bint Abdulrahman University) based in KSA.
The web-based survey contained 16 closed questions and three open-ended questions. The quantitative data was analysed and themes were established to be used as the basis of interview questions. Six female academic staff were interviewed to provide rich data by exploring some of the perceptions, attitudes and worldviews that could be affecting female lecturers’ ability or willingness to use LMSs.

The aims of the study are:

a) to examine how, and to what extent, female academic staff in Saudi Arabian universities use Learning Management Systems

b) to determine the internal and external factors (using the Technology Acceptance Model) that may influence the uptake of LMSs by female academic staff in Saudi Arabian universities

c) to present recommendations that could increase Learning Management System adoption by female academic staff in Saudi Arabian universities.

1.3 Significance of the Research

Previous research has demonstrated that within elearning, LMS tools have the potential to enrich educational experiences for both learners and educators (Adzharuddin & Ling, 2013). For instance, the affordances of LMSs allow lecturers and students to connect without the need for traditional classrooms (Adzharuddin & Ling, 2013). In light of this research, the lack of adoption of LMSs by female academic staff is of concern, especially given the gender segregation of Saudi Arabia universities, which means that female university students are primarily taught by female academic staff. Therefore, this research is significant for a number of reasons.

Firstly, research has identified a number of potential benefits that elearning can offer in terms of access to higher education, particularly for female students (Alkhalaf, Nguyen & Drew, 2010). Therefore, this research makes a significant contribution to understanding more about levels of technology acceptance, issues and possible barriers to elearning. By
adopter l'approche TAM, cette recherche pourra formuler des recommandations pour les fournisseurs d'éducation supérieure pour soutenir l'adoption des LMS. En utilisant le cadre TAM, cette recherche va aller au-delà des modèles de l'usage couramment utilisés en recherche sur la technologie. En effet, cette recherche étend et explore les facteurs internes (croyances ou attitudes) et externes (normes sociales et culturelles du KSA) pour déterminer l'impact de ces facteurs internes et externes sur l'adoption des LMS par les femmes au KSA.

Deuxièmement, cette recherche a pour objectif d'apporter une meilleure compréhension des facteurs influençant l'usage des LMS par les femmes académiques (un vide actuel dans la littérature). Si en effet il est vrai que les femmes académiques au KSA utilisent actuellement moins de LMS par rapport aux hommes, il est important de souligner les facteurs qui changent pour promouvoir l'égalité dans l'utilisation des LMS par les femmes et les hommes au KSA. Les études précédentes (Alshwaier, Youssef, & Emam, 2012; Al-Asmari & Khan, 2014) indiquent que les femmes académiques sont moins engagées que leurs collègues masculins, mais ne définissent pas pourquoi ce phénomène particulier se produit, ou pourquoi c'est important. Cette étude explorera ces lacunes de connaissance, et grâce à l'enquête quantitative, examinera les expériences et perceptions des femmes lorsqu'elles utilisent des LMS. Significativement, cette étude vise à élargir cette zone ignorée et attire l'attention des enseignants et des fournisseurs d'éducation supérieure à l'importance qu'ils jouent dans l'adoption des technologies.

Finalement, il a été noté que l'éducation féminine au KSA n'a pas reçu autant d'attention que l'éducation masculine (Alshwaier et al., 2012; Al-Asmari & Khan, 2014). Par conséquent, cette étude ajoute à la connaissance existante concernant les femmes au KSA comme des membres actifs des systèmes social, économique, culturel et politique au KSA, et elle examine certains des défis auxquels les femmes se confrontent dans leur quête d'acquérir des connaissances et des compétences. Donc, la prise en compte de l'influence des normes sociales et culturelles en KSA sur l'éducation supérieure, ainsi que des informations générales sur l'éducation au KSA seront fournies. Plus d'informations spécifiques sur l'éducation et les universités seront fournies dans le chapitre suivant.
1.4 Research Setting

It is within this context of higher education in KSA that my study is located. KSA is a modern nation with a population that comprises nationals and expatriates. According to the Central Department of Statistics and Information (2013), the population increased 6.4 times from some 4 million in 1960 to a reported 29.9 million in 2013.

Saudi Arabia occupies the greater part of the Arabian Peninsula (see Figure 1).

![Map of Saudi Arabia](image)

**Figure 1: Map of Saudi Arabia.**

Source: David Vallejo, n.d.

The history of the Arabian Peninsula is that of a series of tribes and societies using their position to trek goods from east to west. Recent archaeological studies have revealed that trade in goods along the Arabian Gulf first occurred some 100,000 years ago, and that long distance haulage began in about 3000 BCE (Smith, 2013). Traders from the Silk Road
extended into the Arabian Peninsula to pick up frankincense and myrrh, among other perfume bases, from the south of the Peninsula (Bernstein, 2008). Before Islam there were isolated settlements, predominantly along the Arabian Gulf in the present-day Gulf countries of Oman and Bahrain, and on the south coast of Yemen, and up through Jeddah to Makkah and Al-Madinah, along a track through to the Mediterranean and Jordan (Al-Rasheed, 2010).

The Prophet Mohammad began an Islamic expansion in approximately 622 CE. During this time, Baghdad was established and its literature and knowledge were dispersed both west and east as the Islamic conquerors brought knowledge of medicine, mathematics, agribusiness and even cuisine (Bobrick, 2012; Goody, 2008). Saudi society is a product of Arab traditions and Islam (AlMunajjed, 2010; Al-Rasheed, 2010). Until 2005, when King Abdullah came to power, there was no real impetus to change the position of women because they were expected, as good Muslims, to put husband and family first (AlMunajjed, 2010). Despite the government’s interest and expenditure in educating Saudi women and training graduates and school leavers for the workplace, the United Nations’ Development Program’s Human Development Report (2015) placed the women’s labour force participation rate at 18.2% (men 75.5%). However, women averaged 15.9 years of education, whereas men had slightly fewer, at 15.4 years.

1.4.1 KSA education system

King Abdulaziz created the first formal education structure in 1925 (the Directorate of Education) to replace the schools provided by the Ottoman regime, where instruction for boys and girls was in Turkish until 1918 (Masters, 2013). These schools were restricted to the Hijaz and the north of the Arabian Peninsula and were not popular with Arab families associated with the Ottoman rule due to the mixing of genders among children, Arab grammar being taught by non-Arabs, and non-Islamic curricula (Somel, 2001). By 1951, there were 226 primary boys’ schools with 29,887 students. The General Presidency for Girls’ Education was established in 1960 despite conservative protest, and the first girls’
school was built in 1964 (Royal Embassy of Saudi Arabia, 2014; L. Smith & Abouammoh, 2013).

In 1954, the Ministry of Education was established and took over the task of developing public primary schools for boys, replacing the 1925 Directorate of Education under the Ministry of the Interior (Pavan, 2013; Royal Embassy of Saudi Arabia, 2014; Wynbrandt, 2010). In 1975, the Ministry of Education was divided into two sections, Education and Higher Education, to inform policy in the fast-growing education sector. The first non-religious based university, King Saud, began in 1957, and from 1961 girls were admitted as irregular students at the Colleges of Art and Administrative Sciences at King Saud (Al-Dali, Fnais, & Neubould, 2013).

The Ministry of Education currently has responsibility for primary schools which go to Year 6, intermediate schools which cater for students in for Years 7 to 10, and boys’ secondary schools which cater for students in Years 11 and 12. It is also responsible for policy and compliance in private schools. The General Presidency for Girls’ Education was in 2002 annexed by the Ministry of Knowledge, which was later renamed the Ministry of Education (Ministry of Education – Kingdom of Saudi Arabia, n. d.). The Ministry of Higher Education is responsible for policies and monitoring related to both public and private universities (Al-Dali et al., 2013). Together with the Human Resource Development Fund, the Technical Education and Vocational Training Corporation is responsible for competency training (Royal Embassy of Saudi Arabia, 2014).

1.4.2 Inclusion of female students in education

The government of KSA started formally addressing the education of girls in the country in 1959 for the first time (Al Rawaf & Simmons, 1991). Al Rawaf and Simmons (1991) point out that “before 1960 there was no public formal education for women in Saudi Arabia” (p. 287). The years before 1960 had been characterised by informal schooling for both girls and boys, and education was conducted mainly to inculcate religious concepts in young people (Hamdan, 2005). The aim of education at this time was to teach children about the Quran,
Sunna (Prophet Muhammad’s customary behaviour) and Hadith (the Prophet’s narrations) (Hamdan, 2005).

The education of both females and males first took place in KSA in a children’s class for the recitation of the Quran called Kuttab (Hamdan, 2005). In addition to such teachings, there were also teachings for girls, which typically took place in private tutorials facilitated by male or female readers of the Quran in their homes. Traditionally, girls’ education would be brought to an end at pubescence, “when strict seclusion at home began and veiling in public became mandatory” (Altorki, 1986, p. 19). The first formal school for the education of girls was established by King Faisal (1906-1975) and his wife (Iffat) in 1956 (Hamdan, 2005). Iffat particularly campaigned passionately for the education of Saudi Arabian women. She had a vision to let women pursue language, science and other subjects, and made this a reality (Hamdan, 2005).

Despite this seemingly noble idea, King Faisal and Iffat initially met stiff resistance from extremists, who staged demonstrations at the gates of the schools that had been established by 1960 (Rao & Latha, 2004). These extremists expressed their displeasure with the new learning institutions and with those who had enrolled their daughters in them. The opposition continued until the government came up with a strategy to accommodate the views of the extremists. First, the government pledged that female education would be in accordance with Saudi Arabian customs, particularly the custom of segregation (Al Fassi, 2010). Secondly, it established a special body referred to as the General Presidency for Girls’ Education to be in charge of the education of girls (Rao & Latha, 2004). The government also showed its commitment to preserving Saudi Arabian customs by placing the new body (the General Presidency for Girls’ Education) under the management of Saudi Arabian religious authorities, who continued to supervise girls’ education in KSA (Rao & Latha, 2004). The General Presidency for Girls’ Education limited the role that education could play for women, since its guiding principle was “to prepare young girls to be good mothers and obedient wives” (Al Fassi, 2010, p. 17).
1.4.3 Teaching and learning approaches

Historically, education and, more specifically, higher education in KSA universities, has relied on “traditional didactic, lecture-based classrooms” (Alebaikan & Troudi, 2010b, p. 508). However, since 2007, blended learning and e-learning have become well established in KSA universities (Alebaikan, 2010). The current shift towards focusing on blended learning and e-learning in Saudi Arabia’s institutions of higher learning stems from the sustained international criticism of its education system, with the “major concern directed at the content of its curriculum and the didactic nature of its pedagogy” (Smith & Abouammoh, 2013, p. 6). In particular, the didactic lecture model, as it is currently widely implemented in KSA, in which the lecturer stands before a (generally large) class and delivers instruction, is deemed not to ensure active student participation in the education process (Juhary, 2010).

In other words, didactic teaching is not student-centred (Almalki, 2011) and it can stifle “independent thought, creativity and deeper learning processes” among students (Juhary, 2010, p. 454). In spite of the criticisms of didactic teaching in higher education in KSA, Alebaikan and Troudi (2010a) note that “the traditional didactic, lecture-based classroom is the standard in Saudi public universities, with a few programmes implementing distance learning” (p. 52). However, the same authors also point out that “recently, some universities have started to undertake web-based instruction in their distance learning programmes” (p. 52). This suggests that didactic teaching is still used by many universities in KSA, with new methods of web-based instruction being incorporated to a lesser extent and at different levels in different universities.

In a review of the selection of faculty members and their evaluation and development of systems in higher education in KSA, Al-Ghamdi and Tight (2013) argue that, in order to improve the value of higher education in the country, there is a need to consider the professional requirements and the changing role of faculty, and to engage in best practice systems of teaching and learning. However, the current teaching and learning practices within higher education face a number of challenges. These include a lack of prescribed training of faculty staff for their teaching role, a lack of motivation to improve the quality of
teaching, and the limiting nature of a rigid curriculum that does not adequately promote the skills required for an information-based global environment (Smith & Abouammoh, 2013).

As noted by Al-Ismaiel (2013) “in Saudi Arabia, online learning is still a relatively new concept in higher education” (p. i). Nevertheless, there is a general agreement that universities in KSA are making attempts to use new technologies such as blended learning and elearning to cater for the growing number of students and the changing needs of the education system. Many universities in KSA have been adopting this approach since the Ministry of Higher Education began promoting the use of IT for teaching and learning among academic staff and students (Alebaikan & Troudi, 2010a). Projects are continually being created to offer sufficient information technology infrastructure and content development for students in institutions of higher learning (Alebaikan & Troudi, 2010a). This not only emphasises the historical role that has been played by the Ministry of Higher Education but also shows its commitment to meeting challenges that have existed for some time, and those that have arisen more recently, such as an increased student population, a shortage of academic staff, limited teaching resources, the large size of the country and the geographic dispersal of populations, as well as cultural issues such as reliance on traditional learning environments and the separation of classes for men and women, and the need to make delivery of instruction more student-centred (Al-Ismaiel, 2013; Al-Sarrani, 2010).

(These issues will be discussed in more detail in Chapter Two see Sections 2.2.4 and 2.3.3). Despite the challenges indicated above, elearning continues to grow in the higher education context within the KSA. This has been achieved primarily via learning management systems. Given the growth of LMSs as a form of elearning and the issues that KSA is currently facing, this research into female academic use of LMSs is important for the welfare of future KSA women.

1.5 Overview of the Thesis

This chapter has introduced the thesis, outlining the rationale for the study, and the research questions, and it has situated the research by outlining some of the particulars of KSA and education.
Chapter Two outlines literature that informed the research. It begins by reviewing some background literature on the higher education context of KSA. The second section examines the research around elearning and LMSs in higher education, by discussing some of the enablers and barriers to technology in education. It also provides an outline of the status of females in higher education in KSA. This thesis will contribute to these fields of literature by researching the experiences of female academics.

Chapter Three outlines the research methodology of this study. Firstly, it outlines how the research is underpinned by the Technology Acceptance Model (Davis, 1986). Secondly, it discusses the general research design, beginning with an overview of the participants. The literature and theory that underpin the design of the research instruments, including the web-based survey and interview, are also discussed. Finally, a discussion of the criteria for the research evaluation, and of the ethical considerations and limitations of the research conclude the chapter.

Chapter Four reports the quantitative and qualitative findings of the study. It reports findings from the web-based survey, and in line with the mixed methods approach, the interview data was compared with the quantitative data to enable a “side-by-side comparison” (Creswell & Plano Clark, 2011, p. 223) of the two data sets.

Drawing upon the data from Chapter Four, Chapter Five discusses the results of the study in relation to the research questions. Key findings are discussed, drawing on the research questions and the existing literature.

Chapter Six concludes this thesis and draws conclusions from a summary of the key findings of this study and makes recommendations to stakeholders in the education system to ensure that hindrances that prevent the adoption of LMSs can be addressed in higher education in KSA. It also presents possible applications of the findings and makes recommendations for future research.

1.6 Conclusion
This chapter has provided an overview of the research. In particular, it has focused on the theoretical framework used in this research and provided an overview of the research aims and questions. This chapter also provided an overview of the qualitative and quantitative research methods employed in this study, which will be discussed in more detail in Chapter Three. The rationale for the research, along with the significance of the study, were also explained. The geography and history of KSA, and social and economic factors that impact the research context, were also discussed.

The next chapter extends the information about KSA presented here, and discusses in more detail higher education in KSA, and the role that elearning plays in higher education. It also reviews the literature that highlights pertinent issues relating the female academics in the KSA.
2. Literature Review

2.1 Introduction

The purpose of this chapter is to present a comprehensive and critical review of the literature that informs the research questions. As explained in the introductory chapter, the objective of this study is to investigate the factors influencing the adoption of LMSs among female academic staff in Saudi Arabia. To achieve this, the study uses the TAM model to investigate the factors that influence the use of technology among female academic staff in universities in the kingdom. It also investigates more thoroughly the key finding by Al Balawi (2007) that fewer female university academic staff use web-based learning tools than males.

The first section of this chapter reviews the context of higher education in KSA. It also analyses the policy of gender separation (where male and female students are placed in separate institutions or separate classes) and how this has influenced higher education. This section also highlights the literature around the current climate within KSA higher education. In doing so, this section provides an overview of the influences on the study and locates the context of the research. It also examines the status of women in higher education in KSA, particularly female academic staff. This section also highlights pertinent issues such as the growth in the number of women pursuing higher education. This section also reviews elearning issues facing female academics in the kingdom, including women's low adoption of elearning which frames the need for the research into female academics’ use of LMSs in KSA.

The second section presents an analysis of elearning within higher education in the KSA. It begins by reviewing the concept of elearning in higher education in general and in KSA in particular. It then analyses the factors that have contributed to the growth of elearning in KSA. This section also looks at the challenges involved in elearning with regard to institutions, academic staff and students. Finally, it also highlights the concept of learning management systems, the barriers to the use of LMSs, and the enablers of LMSs.
2.2 Background to the Higher Education Context in KSA

This section reviews the literature related to higher education in KSA. In particular, it examines both the historical and current perspectives of higher education in the kingdom. It also analyses the policy of gender separation (where male and female students are placed in separate institutions or separate classes) and how this has influenced higher education. This section will also highlight the literature around the current climate within KSA higher education. In doing so, this section will provide an overview of the influences on the study and locate the context of the research.

2.2.1 Higher education in KSA

KSA has over the years been determined to enhance the education of its people. This determination can be seen by the “government’s commitment to providing educational opportunities for young people in the country, with particular attention to opportunities in higher education” (Aljubaili, 2014). The evolution of higher education in KSA can be traced back to 1954 when the Ministry of Education was established (Alamri, 2011). During this early phase, education was available for male students only, and there were no institutions providing education to female students. In 1957, the first university in the kingdom, King Saud University, was established, in part to educate Saudi Arabian students in KSA and reduce the reliance on higher education overseas. As noted by Alamri (2011),

in 1957, there was a need to open a university to educate Saudi students instead of sending them abroad for education, therefore, King Saud University was established and inaugurated in Riyadh, the capital of Saudi Arabia. (p. 88)

The newly established university “moved the kingdom to a new era in the educational field by having different colleges and specialties” (Shaker & Babgi, 2009, p. 105). This new era saw a growth in higher education in KSA. Between 1957 and 1975, six other universities were established: the Islamic University in 1961, King Fahd University for Petroleum and Minerals in 1963, King Abdul-Aziz University and Um Al-Qura University (both in 1967),

The increase in the number of universities in KSA necessitated the establishment of the Ministry of Higher Education in 1975 (Alamri, 2011; Royal Embassy of Saudi Arabia, Washington DC, 2014). The Ministry’s long-term goal for the Saudi Arabian educational system was to provide the highly skilled workforce the country needed to run its growing economy (Royal Embassy of Saudi Arabia, Washington DC, 2014). One of the strategies employed was the creation of new institutions of higher learning education all over the country and the expansion the existing ones (Royal Embassy of Saudi Arabia, Washington DC, 2014). The Ministry was the centralised authority charged with the responsibility of directing higher education in accordance with existing policy, overseeing the development of university education in all sectors, ensuring coordination among universities, promoting research, and setting rules and regulations that all institutions of higher learning were required to comply with (Alamri, 2011).

Over the past decade, there has been a tremendous growth in the number of institutions that offer higher education in KSA. There were eight universities operating in the country in 2003. This number had increased to 23 by 2011, and to about 25 public (government-run) universities in 2014 (Ageel, 2011; Alamri, 2011; Almusallam, 2009; Ministry of Higher Education, 2014; Romani, 2009; Royal Embassy of Saudi Arabia, Washington DC, 2014). In the 2008/2009 academic year, for example, a total number of 608,000 students were pursuing study (Ministry of Higher Education, 2008). This growth in higher education can also be attributed to the introduction of universities for female students (an issue discussed in more detail in later sections).

By the year 2010, there were 24 public universities (Ministry of Higher Education, 2010a). These are complemented by 154 colleges that were created in the public universities between 2006 and 2010 to cater for the needs of Saudi Arabia’s growing population (Ministry of Higher Education, 2010a). At the time of writing, there are “25 major public
universities, a large number of vocational institutes, and a growing number of private colleges” (Royal Embassy of Saudi Arabia, Washington DC, 2014).

In terms of student enrolments, the Ministry of Education (2017) notes that there was a significant increase of student enrolments in higher education institutions in the country between 2000 and 2016. The total number of students increased from 404,094 in 2000 to 1,622,441 in 2016 (829,609 male and 792,832 female students). The number of faculty members has risen from 20,293 in 2000 to 79,784 in 2016 (47,045 male and 32,739 female members of faculty in 2016) (Ministry of Education, 2017). Given that this research will be based in women-only universities, it is important to examine the inclusion of female students in higher education more thoroughly.

The two universities in this study were located in Riyadh, which is the capital city of KSA:

- King Saud University (KSU) was founded in 1957 to meet the need for more skilled professional workers in KSA. Approximately 35,810 students (both male and female) attend KSU. The female students attend their own centre and are taught by either female academic staff or male academic staff via a closed television network. The university offers undergraduate and postgraduate courses in the natural sciences, the humanities, and professional studies, for which it charges no tuition fees. The language of instruction in undergraduate programmes is English, except for Arabic and Islamic subjects. The university currently has 4849 male and female academic staff (approximately 1200 of academics are female (King Saud University, n.d.).

- Princess Nourah bint Abdulrahman University (PNU) is a university for female students only. It is one of the 10 largest universities in the world, and is the world’s largest women-only university. The university offers diplomas, bachelors and postgraduate degrees (Almansour, 2015). It has over 42,000 students in 15 colleges and it has 1743 female academic staff. Much of the teaching is done via video link (Princess Nourah bint Abdulrahman University, n.d.).

2.2.2 Women in higher education in KSA
As explained in the previous chapter (see Section 1.4.2), the education of girls is relatively new and there have been initiatives in the education system in KSA to create more opportunities for women to pursue higher education. In a study titled “Review of women’s higher education in Saudi Arabia”, it is argued that:

The Saudi government has invested heavily in its higher education programme and the Princess Nora Bint Abdul Rahman University offers courses in science that were previously restricted to male students, so the situation regarding women’s higher education opportunities has continued to improve. Women can now study abroad and the numbers have increased from roughly 3,879 in 2004/2005 to approximately 35,700 in 2011/2012 (Al Alhareth, Al Dighrir & Al Alhareth, 2015, para. 3).

But despite the efforts being made by the KSA government to support the education of women in higher learning institutions, there are some regions in the kingdom in which women are still marginalised in higher education. As Alhareth et al. (2015) argue:

women who live in the Northern and Southern regions still continue to have less opportunities to access higher education than those who live in the other regions because of the distribution of universities and their branches between regions and provinces, and the barriers of traditional culture ... Because of the increasing number of secondary school graduates year-on-year, there is also a rise in the demand for higher education places ... Supporting this view, in 2008 for example, only 73 percent of female secondary school graduates were offered higher education places by Saudi universities, but the Najran and Northern Border regions showed the lowest rate of offering university seats to females, compared to other regions, with only 1.4 percent offered a place at the universities in these regions. This means that their opportunities to access higher education are still less than other females in major regions Riyadh, Jeddah and Dammam (2015, para. 4).
To improve the access of women to education, and to higher education in particular, various efforts have been made in the kingdom. For instance, the General Presidency for Girls’ Education was disbanded in 2003 and its mandate taken over by the Ministry of Education, after widespread dissatisfaction with the way it managed female education institutions (Hamdan, 2005; Saudi Arabian Cultural Mission to the US (SACM), 2013). In the past, Saudi Arabia’s Ministry of Education and Ministry of Higher Education were separate entities. The Ministry of Education was charged with overseeing girls’ schools and colleges, supervising nursery schools and kindergartens, and sponsoring literacy programmes for females (SACM, 2013). Under the guidance of the Ministry of Higher Education, there has been the establishment of new universities such as King Abdullah University of Science and Technology in 2009 and the Princess Noura bint Abdul Rahman University for women in 2010 (Ministry of Higher Education, 2010b; Saner, 2011). Arguably, this has increased the opportunities for women in higher education. By 2010, there were more than 300 colleges of higher education for women in the country, in addition to universities, and the number of women in higher education in KSA now remains higher than that of men (Ministry of Higher Education, 2010b). In 2015, the Ministry of Education and the Ministry of Higher Education were merged into one entity called Ministry of Education (Ministry of Education, n. d.). The merging of the two ministries was expected to reduce the gap between the two ministries and help in improving the quality of education (Tago, 2015). However, it is also feared that the merging of the two ministries might lead to reduced government investment in the higher education sector (Alruwaili, 2015).

In line with Saudi Arabian religious customs, KSA has a gender separation policy that does not allow female students to mix with their male counterparts. The separatist policy is not just implemented in higher education but at all levels of learning. Consequently, female academic staff members teach in female universities and colleges, while their male counterparts teach at the male-dedicated institutions of higher learning. According to Alaugab (2007), this separation puts a strain on teaching resources (including lecturers), which are insufficient to meet the needs of the large number of students enrolled at
universities in the KSA each year (Alzamil, 2006). This extends to staffing levels. Alaugab (2007) notes that there are fewer female academic staff members than males at all academic levels. Given the impact of this policy on the participants in this study and on the research setting, the literature around this issue is now discussed in more detail.

2.2.2.1 Gender Segregation

Various authors have reviewed the issue of gender segregation in education in KSA. For instance, Al-Aloola (2008) discussed the separation of genders in education and the challenges that this has caused. The author also discussed Article 155 of the Saudi Arabia Education Policy which promoted gender segregation and the challenges associated with them, such as women having limited opportunities to access higher education compared to men.

AlMunajjed (2009) also provides an analytical review of the gender-segregated nature of education in KSA. The author notes that women in KSA have experienced significant progress in terms of education. This is because the Saudi government has invested large amounts of money in the public education system, particularly in facilitating women’s education. Nonetheless, AlMunajjed (2009) argues that the substantial increase in investment has not led to a concomitant increase in outcomes for women. One reason given is that the “public system of women’s education in Saudi Arabia is segregated and this is supported by the Saudi government” (AlMunajjed, 2009, p. 6).

Jamjoom and Kelly (2013) criticised gender segregation since “continued segregation of the genders gives rise to challenges that continually need to be addressed” (p. 122). The authors note that although worldwide studies have argued that gender-separated schooling leads to improved motivation for both girls and boys, segregated learning in KSA seems to support gendered perceptions that women are inferior to men. Other studies have mentioned the point that gender segregation in educational institutions puts a further strain on existing resources but also makes more women willing to take distance learning classes compared to men (Al Balawi, 2007: Alkhalaf et al., 2010).
Many studies have been conducted in Arab countries where gender segregation is widely practised. Weber (2014) suggests that gender segregation is a deeply rooted practice in Qatar and other countries in the Gulf region. This view is supported by Kelly and Breslin (2010), who argue that “the entire public education system in Qatar is segregated by gender” (p. 411) and point out that Qatar University has separate campuses for males and females. The same situation is found in Iran, where gender segregation starts right from elementary school (Rezai-Rashti, 2012), and in the United Arab Emirates (UAE), where it has been found that gender segregation in public universities is a costly affair since it is not always easy to duplicate programmes and facilities for men and women (Naaj, Nachouki, & Ankit, 2012).

From the review of literature on gender separation in higher education in KSA and other countries, a number of issues are apparent. The first is that gender separation is a historical issue that is rooted in religion and culture as seen in the case of KSA and other Arab countries. This includes other Gulf countries that have not been discussed. In KSA, gender separation is supported by laws such as the Saudi Arabia Education Policy, which bans the mixing of male and female students except at the very early stages of education when they are young.

As pointed out by Jamjoom and Kelly (2013), “continued segregation of the genders gives rise to challenges that continually need to be addressed” (p. 122). A similar point is expressed by Alturise and Alojaiman (2013):

Furthermore the strict application of Islamic law has led to its (Saudi Arabia’s) education system being segregated according to gender, which has far-reaching implications for the educational environment which puts it at odds with the open-access culture practiced in many other countries. (p. 46)

These challenges that stem from having separate classes in institutions for men and women include the high cost of duplicating courses and facilities used by females so that they match those used by males, and strains placed on existing resources (e.g. libraries, computers)
because they cannot be shared by males and females. There is also the challenge of finding qualified lecturers to deliver instruction in all the universities and their campuses and colleges, especially those that serve women:

Saudi Arabia practices gender segregation. This has significant implications in determining easy access to good education and job availability for women. Before 2010, many universities set up branch colleges for female students. Teaching at these colleges is by female instructors or via voice only conferencing if by male instructors. Because of the scarcity of good female instructors, the teaching at these colleges can be of varying quality (AlMegren, 2011, p. 8).

The implication of the views given by various authors is that gender segregation affects women’s education with regard to sharing of resources. Having men and women in separate classes or institutions implies needing more resources in terms of human resources as well as the material resources required by students. This affects the education of women in general and in turn affects the availability of women to take up roles of academic staff. This issue is explored further in the next section.

2.2.3 Female academic staff in KSA

Information provided by the Ministry of Higher Education (2010b) of the KSA reveals that women in the Kingdom are enthusiastically pursuing higher education and professional careers and are keen to become active members of the society. In view of this, the Saudi Arabian government has started implementing a number of initiatives to promote higher education for women, including the formation of the Princess Nourah bint Abdulrahman University for women. Many female academics from Saudi Arabian universities have also risen to become prominent in a number of fields such as science and research, and have won international awards and patents.

However, as Hamdan (2005) observes, Saudi Arabian society is deeply gendered and, as a result, women always hold lower positions than their male counterparts. Statistics provided
by Mazawi (2005) indicate that “about 53% of all women are found in lower academic ranks – teaching assistants, instructors, assistant instructors or lecturers – compared with about 27% of men who hold similar positions” (p. 242). Additionally, only 17% of women are promoted to senior ranks (e.g. to the rank of professor or associate professor) (Mazawi, 2005). Hamdan (2005) further observes that women do not have power in key positions and are subordinate in both the public and private sectors. At the same time, women do not receive the same quality of education because teachers for males are better trained (Hamdan, 2005). In addition, access to facilities such as libraries is restricted for women. Hamdan (2005) notes that Saudi Arabian women cannot use the 200 libraries in KSA affiliated with learning institutions and religious institutions. They also cannot access the 70 public libraries, except when they go through a male relative liaison or use them only for restricted hours. Furthermore, libraries for women only are usually very small and oftentimes poorly equipped. This inequity is compounded by the problem of cultural barriers that restrict access to, and adoption of, new learning technologies (Al Alhareth, McBride, Prior, Leigh, & Flick, 2013).

Al-Rubaish, Rahim, Abumadini and Wosornu (2009) also noted that factors that led to lower job satisfaction were more prevalent among women. For example, psychosocial factors like domiciliary obligations, marital status, and the support from a significant partner seem to significantly affect the careers of Saudi women who work in different ranks in universities or colleges. Al-Rubaish et al. (2009) also found out that the representation of women in higher education (especially as professionals) was affected by family-related commitments, the presence or absence of spousal support and child-bearing and child-rearing activities.

Gender, social and work segregation also limit women’s participation in occupations in the higher education sector (Al-Rubaish et al., 2009). For similar reasons, women who choose to pursue careers in the higher education sector have also ended up registering lower job satisfaction than their male counterparts. This is because of factors such as “rival job-family commitments, duties in child bearing and rearing, as well as inadequacy of spousal support” (Al-Rubaish et al., 2009, Discussion section, para. 5).
Regardless of the challenges they face, it is worth noting that women in the KSA are reaching impressive milestones in education and careers and should be afforded equal opportunities to study and work. The Umm Al-Qura University (UQU) is the only Islamic university that accommodates women academic staff (Mazawi, 2005). King Abdullah ordered and established a new university for females only called Princess Noura University for girls.

By 2009, the number of female lecturers in KSA had gone up to 19,600. This was a major improvement from the 2004 statistics, which indicated that the kingdom just had 4,700 female lecturers (Al Alhareth et al., 2015). By the time of writing this dissertation, the 2009 numbers should have improved significantly. Obviously, lecturers are not the only female academic staff KSA has, but if they were used as a reflection of female involvement in occupations in higher learning, this could mean that there has been a significant improvement (Al Alhareth et al., 2015). Some of the reasons that have contributed to the upsurge of female professionals interested in working in the higher education sector include: increased interest by government, and hence encouragement for women to take up jobs in universities; the opening up of liberal spaces in the Saudi cultural setup, giving women more leeway to work; and the opening up of the knowledge space, creating awareness among Saudi women about the professional pursuits of other women throughout the world (Ministry of Higher Education, 2010b). Overall, the number of female academic staff in KSA has improved significantly when compared to past decades (Al Alhareth et al., 2015). However, it is worth noting that female workers in the higher education sectors are prone to situations that affect their job satisfaction negatively, such as family commitments, and thus the turnover of female workers is still relatively high when compared to their male counterparts (Al-Rubaish et al., 2009).

2.2.4 Current issues facing higher education in KSA

The participants in this research did not only face gender issues in their workplaces. Similar to their counterparts around the world, KSA universities are facing a number of issues. As this section will demonstrate, many of these issues are being used to drive the increase of
elearning and reliance on LMSs and are, therefore, important for this study. After a review of the literature related to KSA’s higher education system, several dominant issues were identified, including: a growth in student numbers, a shortage of teaching and learning resources and academic staff, and the global context of KSA. These issues are discussed in turn.

2.2.4.1 Growth in student numbers

On average each university in KSA has about 30,400 students, which according to the Ministry of Education, is tantamount to overcrowding (Asiri et al., 2012).

A number of studies have identified issues associated with the growth of higher education (HE) in KSA. For instance, Darandari and Cardew (2013) evaluated the developments in higher education in KSA by looking at a number of issues, including student population, number of higher education institutions and the proportion of female students undertaking higher education. They argue that the student population and the number of universities and colleges have more than doubled over the last decade, and that the proportion of women involved in higher education has grown:

Arab countries in the last decade (since 1998) have undergone tremendous development in higher education: for example, the number of students, and the number of higher education institutions, has more than doubled, and the share of females in higher education has increased significantly (Darandari & Cardew, 2013, p. 105).

Darandari and Cardew (2013) discuss the factors that have contributed to these developments in Saudi Arabia’s higher education. The first factor is the increase in population and an increase in the social demand for higher education. The second is changes initiated by the government in regard to student enrolments. The third is the increased geographic distribution of the system of higher education which has been promoted as a strategy to ensure equitable provision of higher education to the population.
2.2.4.2 Shortage of teaching and learning resources and academic staff

Related to the rise in the number of students enrolled at various institutions of higher learning in KSA is increases in shortages of resources including staff.

Because of the rapid increase in the number of students enrolled at various higher learning institutions in KSA, demand has outstripped supply in terms of the resources available (including academic staff and support staff) to cater for the needs of these students. Alkhalaf et al. (2010) note that higher learning institutions in the country are faced with overcrowding and shortages of amenities and human resources in the provision of conventional learning to all the candidates who qualify for enrolment. This is supported by Alebaikan and Troudi (2010a), who state that “the capacity of universities and colleges in Saudi Arabia is limited compared with the rapid growth of students applying for college education” (p. 49). Women and men study in separate classes for religious and cultural reasons, which places an additional strain on limited equipment and human resources (Al Balawi, 2007; Alkhalaf et al., 2010). The strain arises from the fact that the limited resources that are to be used are not shared equally since men and women have to use them separately. This results in limited opportunities for students, especially women, to use scarce resources such as computers for teaching and learning, which in turn limits their capacity to use embrace e-learning.

Jamjoom and Kelly (2013) report there has been an increase of over 175% in the overall number of members of faculty in the country since 1990. More importantly for this research agenda, during the same period, there has been 242% increase in the number of female faculty members compared to an increase of 152% for male faculty members. Based on these findings, Jamjoom and Kelly (2013) suggest that that there is an increasing opportunity for Saudi Arabian women in higher education institutions. However, in spite of this, the same authors contend that the number of male members of faculty is still nearly double that of their female counterparts. These sentiments are captured when the authors assert that
There is most evidently, therefore, an increasing chance for Saudi women to participate in university teaching, despite the fact that, notwithstanding the acceleration in female hiring, the number of male faculty members is currently almost twice the number of their female counterparts (in 2009, there were 27,488 male academics compared with 14,401 female academics (Jamjoom & Kelly, 2013, p. 121).

Jamjoom and Kelly’s (2013) view is confirmed by the statistics of the Ministry of Higher Education (2011b), which were discussed earlier.

2.2.4.3 Global positioning
In the global context, KSA universities also have to offer competitive education, especially if the students are to compete with other students who graduate from other universities across the world. The global competitiveness requirement means that KSA universities cannot afford to be limited by the prevailing social, cultural and political dynamics. Failure to adopt modern ways of learning or teaching will only result in the country having less competent professionals compared to other countries (Alkhazim, 2003). In response to this, a report by the Pennsylvania State University (2013) notes that to improve higher education in general, the MoHE is focusing on increasing the quality and quantity of “jobs-training” fields such as engineering and the hard sciences, and vocational training, as opposed to social sciences and the Humanities, which have traditionally been popular fields of study in the country. This shift is intended to address several issues: lack of diversity in the economy (dominated by oil), an extremely inefficient public sector, a private sector dominated by foreign workers, and high unemployment (para. 13).

Closely related to the abovementioned statement by Pennsylvania State University (2013) is Brennan’s (2003) argument that Vocational Education attracts a diverse group of learners, and that these learners may have different motivations for studying vocational education and training.
Further, as Pavan (2013) notes, a significant number of young Saudi Arabians are opting to study abroad based on the belief that the education systems abroad are more competitive. The Saudi government, therefore, has a challenge on its hands, which requires it to improve the education standards in the kingdom, and restore the population’s confidence in the education system. This includes investment in courses such as science and engineering and providing the necessary resources.

2.2.5 The role of elearning in higher education in KSA

Often, the rhetoric in the research around issues facing higher education is that elearning is offered as a potential solution. For instance, in response to the growth of student numbers, distance and blended learning is seen as a potential resolution. This is evident in the following comment:

The Ministry of Higher Education recognizes the need and potential for a coordinated and collaborative approach to elearning in universities, where there is a considerable shortage of female lecturers in the gender-segregated institutions. Thousands of students are over-enrolled by these institutions and are simply given the course materials and sent home to study on their own. And demand for part-time study options is high, too (Al-Khalifa, 2010a, para. 4).

This shows that the Ministry of Higher Education is fully aware of the shortage of female tutors and the over-enrolment in higher learning institutions, and the need to embrace elearning to help solve the challenges.

Similarly, a number of studies (Alenezi, 2012; Alghadyan, 2011; Alkhalaf et al., 2010) have suggested that the problems of limited resources and the shortage of personnel in Saudi Arabian universities can be dealt with in part by integrating the use of the internet into teaching. In particular, findings by Alghadyan (2011) showed that Saudi Arabian university academic staff stated that using the internet in the teaching process would not only increase their enthusiasm for the job, but would also solve the problem of the shortage of academic staff, especially women.
Despite global criticism of gender segregation, it has been suggested that KSA can still uphold its culture of segregating women from men without necessarily denying them the benefits of a comprehensive education through the use of elearning. Alaugab (2007), for example, suggests that the Kingdom can overcome the challenge of the low number of female lecturers by allowing male lecturers to offer their expertise and knowledge to female learners, albeit remotely through closed circuit television. Effectively, such an approach would limit the face-to-face interaction between unrelated males and females. To enable interaction between lecturers and students, Alaugab (2007) suggests that elearning targeting female students and being taught by male lecturers could utilise elearning platforms that enable one-way video broadcasts and two-way verbal communication. Such interaction would mean that lecturers could answer any questions that female students asked, but could not recognise their faces. The possible benefits of distance education are not new in KSA, because as Al-Khalifa (2009) and Al-Khalifa (2010b) observe, a broadcasting technology that allows distance education for female learners in a female-only college has been in use in the KSA since 2006.

Further, the number of people in KSA who are able to use the internet and other new technologies, particularly young people, has been growing steadily in the recent years (Alebaikan & Troudi, 2010a) and often young people would like to use these as learning tools to connect with the wider learning community and to be globally competitive. Also, contributing to the debate about the use of technology by young people, Charnkit (2010), based on a study about the use of technology in public organisations in Thailand, reported that some participants suggested that younger people have higher levels of acceptance of technology, have the capacity to acclimatise to new technology, and can learn how to use different technologies more quickly than older people.

On the other hand, Alghamdi and Bayaga (2016) have noted that many academic staff members aged 40 years or older have many more years of teaching experience than those aged thirty or younger. The authors, in their study, sought to examine the usage and attitudes towards LMSs among faculty members in universities in Saudi Arabia. They found
that faculty members aged 40 years or more tended to be more involved in the use of LMSs for most of their teaching activities than younger academics with less teaching experience. As well, an increase in age influences people’s capacity to share knowledge (Charnkit, 2010), which implies that older members of faculty are likely to be more involved in using technologies such as computers in order to share the knowledge that they gather in their research.

This section provides a snapshot of the broader issues facing higher education in KSA, including the challenges facing female students and academics, the issues around growth of student numbers and the flow-on to resources and global positioning. Notably, strategies such as the adoption of elearning are believed to be effective at reducing these issues of access for all, as well as issues resulting from gender separation (Alkhalaf et al., 2010). Given the focus on elearning as a possible solution in this research setting, this will now be discussed in more detail.

2.3 Elearning

The concept of elearning is hard to define because it is continually changing and developing (Littlejohn & Pegler, 2007). The term is also ambiguous because it is often used interchangeably with technology-based learning, online learning, distance learning, computer-based learning or web-based learning (Littlejohn & Pegler, 2007). Moore, Dickson-Deane, and Galyen (2011) note that, while some authors provide specific definitions for the elearning concept, others imply a definition without being specific. Itmazi (2007) provides a specific definition: “use of new multimedia technologies and the internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration” (p. 1). Nichols (2003) defines elearning as a method of receiving instruction through technological tools, which can be web-based, distributed or web-capable. Ellis (2004), however, disagrees with Nichols (2003) by indicating that in addition to web-based tools, other technologies, including interactive TV, audio or video
tape, and satellite broadcasts are also ways through which elearning can take place. Similarly, Wichadee (2015) indicates that some of the other features that faculty members can use in the utilisation of elearning technologies include audio recordings, music, text, video, sequencing and interactivity.

Definitions of elearning vary depending on the context as well as the attributes on which emphasis is placed. Definitions can be classified based on their focus on technology, on the delivery systems in use, on the type of communication involved, and on the educational paradigm (Sangrà, Vlachopoulos & Cabrera, 2012). Technology-based definitions emphasise the technological attributes of elearning and present the other features as secondary. For instance, according to Guri-Rosenblit (2005), elearning “relates to the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for the face-to-face meetings by online encounters” (p. 469). Along the same lines, Garrison (2011) notes that “the technological foundation of elearning is the internet and associated communication technologies” (p. 2). With respect to the delivery systems used, elearning is viewed “as a means of accessing knowledge ... through learning, teaching, or training” (Sangrà et al., 2012, para. 6). Therefore, a delivery-system-oriented definition of elearning focuses on “the accessibility of resources and not the results of any achievements” (Sangrà et al., 2012, para 6). Rossen and Hartley (2001) define the elearning as “anything delivered, enabled, or mediated by electronic technology for the explicit purpose of learning” (p. 2). This includes online learning, web-based learning and computer-based training (Rossen & Hartley, 2001). Communication-based definitions of elearning consider elearning to be “a communication, interaction, and collaboration tool” (Sangrà et al., 2012, para. 7) and assign a secondary function to other features of the concept. Garrison (2011) argues that “elearning is formally defined as electronically mediated asynchronous and synchronous communication for the purpose of constructing and confirming knowledge” (p. 2). There are also definitions that aligned with educational paradigms, for instance, Idiegbeyan-Ose and Esse (2014) regard elearning as “the use of new multimedia technologies and the internet to improve the quality of learning by
facilitating access to resources and services as well as remote exchange and collaboration” (p. 47).

This thesis, however, uses the Higher Education Funding Council of England’s (HEFCE) (2005, cited by Andrews & Haythornthwaite, 2007) definition of elearning. This accepted and widely used definition indicates that elearning is:

the use of technologies in learning opportunities encompassing flexible learning as well as distance learning; and the use of information and communication technology as a communications and delivery tool, between individuals and groups, to support students and improve the management of learning. (p. 2)

As Andrews and Haythornthwaite (2007) note, elearning is made by combining two words: e (denoting the electronic part of learning) and learning. The electronic component of elearning relates to the computer-mediated mode of teaching and learning where the hardware and software components of the computer need to be present. Haythornthwaite and Andrews (2011) indicate that the networking infrastructure needs to be present on both the educators' side and the learners' side. Networking infrastructure makes it possible for tutors to collect and distribute information, knowledge and data to learners, and also makes it possible for the learners to receive whatever has been provided by the tutors and where necessary, they (learners) can provide feedback. The second component of elearning, especially in the higher education context, is learning. According to Cohen and Nycz (2006), adults learn differently from children and hence the conceptualisation of adult learning theory, also known as andragogy. Andragogy theory was conceptualised by Malcom Knowles and indicates that adult learners are self-directed, and that often times, adults need to understand why they are learning something. Additionally, teaching adults requires the use of experiential techniques (Cohen & Nycz, 2006). Moreover, adult learners need to understand how they can solve problems using the knowledge gained from a learning experience. Notably, the instructor in the higher education context acts as a source of knowledge and this does not change in an elearning context. Cohen and Nycz (2006) note
that in an elearning context, the “e-learning systems replace the teacher as the centre for learning ... [Instead], knowledge-bases are collected, assembled and sequenced by the teacher” and become the main centre of learning” (p. 26). In other words, elearning enables the teaching resources to be shared among more students than is possible in a traditional classroom setting since the knowledge bases can be shared by a large number of students. For effective elearning to take place, however, the management of the learning initiatives needs to have the same commitment as in the traditional forms of learning. Henry (2001) argues that elearning needs to appeal to the learners that it targets, it must offer valuable resources, it and must be able to help learners attain their educational goals and aspirations.

According to Henry (2001) elearning should offer a “holistic approach to training, education and knowledge” (p. 250), which brings together learning content, technology and learners. According to Henry (2001), content should be the primary feature in the definition of elearning and the secondary focus should be on how this is delivered through technology and services. Henry describes technologies as such things as virtual classroom sessions, online meetings, web seminars, expert-led discussions and chat forums among others. Services, on the other hand, are described as the manner in which the tutor designs and strategises the elearning programme (e.g. through booking systems and classroom sourcing) (Henry, 2001). In the end, elearning (just like traditional modes of learning) is about bringing transformation to the learner through knowledge (Andrews & Haythornthwaite, 2007).

One of the major differences between traditional forms of learning (face-to-face) and elearning is in the nature of learning. The latter allows learners from different physical locations to learn synchronously and asynchronously (Andrews & Haythornthwaite, 2007). There is physical distance not only between learners, but also between learners and their tutors/lecturers. The physical distance is, however, mediated by different technological tools that could include weblogs, emails, chat rooms and other modes of group communication (Andrews & Haythornthwaite, 2007).
For elearning to fully serve its purpose, several factors need to be considered by the instructor/teacher. As Andrews and Haythornthwaite (2007) observe, the real substance of elearning is found in the lectures prepared by the instructor, the course management systems, and the communication that takes place among the participants. Andrews and Haythornthwaite (2007) have also argued that “elearning is a leaky system” (p. 18). This means that elearning spreads fast, and provides opportunities that enable learners to learn, communicate, and seek resources that would have been out of their reach had they chosen to follow a traditional method of learning.

In summary, the definition of elearning is complex and there are many facets to consider, including technology, focus on learning, tools for learning, content bias definitions and the focus on managing and supporting learners (Andrews & Haythornthwaite, 2007; Littlejohn & Pegler, 2007). It is worth noting that new developments in the use of electronic learning make elearning a continually evolving field. It is also important to recognise that LMSs are important to the realisation of elearning. As will be discussed in further detail in this chapter, LMSs, such as Blackboard, enable the planning, implementation and delivery of elearning and control the learning of that space. It is within this social and emergent ICT culture that this thesis is located. In particular, the thesis looks at how ICT is used in higher education institutions in Saudi Arabia, especially by female academic staff. The thesis now considers the influence of elearning within higher education.

2.3.1 Elearning within higher education

Higher learning institutions have adopted elearning practices for multiple reasons – from needing to solve authentic learning problems to needing to keep up with current global trends (Mapuva & Muyengwa, 2009). Regardless of the reasons for adoption, elearning has transformed education in different parts of the world, so that learners can now engage in networked learning, online learning and distance learning among other modes (Mapuva & Muyengwa, 2009).
One of the driving factors cited by Mapuva and Muyengwa (2009) influencing the adoption of elearning is globalisation. Universities that do not adopt elearning run the risk of lagging behind. However, institutions of higher learning also run the risk of failing miserably at implementing elearning. According to Mapuva and Muyengwa (2009), there are three prerequisites to successful elearning adoption in higher learning. They are: institutional leadership, the organisational structure of higher education institutions, and training the teaching staff on the need to adopt elearning and elearning methods.

The importance of institutional leadership has been underscored by Mapuva and Muyengwa (2009), who argue that institutions of higher learning need to consider how learning takes place through electronic devices and the underlying pedagogy of electronic learning. Mapuva and Muyengwa (2009) have also noted that the absence of proper leadership in institutions of higher learning is a potential barrier to the effective implementation of elearning throughout the world. Mapuva and Muyengwa (2009) specifically note that the leaders in every institution that adopts elearning need to understand what elearning is, the resources required, and the strategies, funds and plans necessary to make elearning a success. Ideally, institutional leaders authorise the adoption of elearning in their different institutions. They are, therefore, in a position to facilitate or impede its implementation depending on how well they understand it, its benefits, and the resources needed to make elearning a success.

2.3.1.1 Positives of elearning
Elearning tends to be successful where the organisational structures of higher education institutions are flexible. This has been investigated in literature by authors such as Mason and Weller (2000) and Moore et al. (2011). Mason and Weller (2000) indicate that institutions need to be flexible in order to accommodate elearning courses. This means that all aspects of a brick-and-mortar institution – that is, its managerial, financial and organisational aspects – have to be changeable enough to accommodate electronic learning and the changes that come with it.
Throughout the world, a blend between traditional methods of learning and elearning is increasingly gaining precedence. This is widely referred to as blended learning. According to O’Donoghue, Singh, and Dorward (2001), blended learning is an “important building block of the new schoolhouse that offers students both flexibility and convenience”, most especially to working adults who have to juggle work and school (p. 518). It has also been found that elearning has ‘woken’ students who in the past were passive about learning (O’Neill, Singh & O’Donoghue, 2004). This is supported by Hawkes and Cambre (2000), who argue that elearning passes most of the learning responsibility on to learners, and as a result, learners are forced to take responsibility for how and when they learn. It is also argued that elearning allows students more flexibility in planning their learning schedules, offers them a platform to interact with other students and instructors in a different way, and opportunities to develop new skills.

From the student’s point of view, elearning allows the exploration of more flexible ways to access higher education on an anywhere- anytime- anyhow basis. Hence, elearning offers avenues for students to continue their learning in order to acquire new skills and upgrade existing ones at a time and place of their choice (Al-Adwan & Smedley, 2012, p. 122). This is particularly important for this research, given the restrictions of access to higher education identified for female students and the pressure this might create on female academic staff.

2.3.1.2 Negatives of elearning

According to O’Neill et al. (2004), however, learners do not automatically become conscientious and self-motivated as soon as they take up elearning. Rather, it takes the realisation on a personal level that most of the effort in elearning has to come from the learner. This leads to the conclusion that elearning is suited to some students, while others do not respond too well to it. Copeland (2001) indicates that attaining higher education qualifications through elearning takes more motivation, commitment and hard work than traditional methods of learning because the learner works in a flexible environment, where all the hard decisions about learning participation are made by him or her. It has also been found that students’ interactions with the lecturer and with other students are necessary to
stimulate good learning outcomes (O’Neill et al., 2004). O’Neill et al. (2004) also note that prior experience in technology use is a predictor of successful elearning adoption by students and tutors/lecturers alike.

There are some other issues with elearning. For instance, time management is also a great concern among learners as Sharpe and Benfield (2005) found. To some students, elearning was an overwhelming experience, especially in relation to time management. Irrespective of the flexibility that comes with elearning, Sharpe and Benfield (2005) found out that learners the world over had challenges with time issues such as time lag, time to write, time to participate in discussions, time to reflect on what they had learnt, and time to fit elearning in their busy schedules.

Quality concerns have also been raised in regard to elearning. The debate started back in the 1990s and continues to the present. Writing about quality issues in the early 2000s, Copeland (2001) notes that not all elearning programmes pass the quality test.

It is difficult to look at the positives and negatives of elearning from a general standpoint as different parts of the world have different challenges, and the adoption and implementation of elearning may vary from one region to another. Indeed, elearning has penetrated countries differently because of the different dynamics in such social and cultural norms and economic drivers (Alkharang & Ghinea, 2013). Therefore, it is important to look at the specifics of elearning within higher education in KSA.

2.3.2 Elearning within higher education in KSA
Elearning in KSA is still in its infancy (Al Alhareth, 2013). Despite this, a study by Al Balawi (2007) found out that 90.9% of the participants in a higher education faculty were willing to use web-based instruction (WBI) in their teaching. Seechaliao (2015) found that instructors with higher academic qualifications (master’s and doctoral degrees) tended to use technology more. This is because such lecturers tend to adopt technologies like mobile devices and social media early (Seechaliao, 2015). Academics with higher qualifications also tend to be more computer literate, and higher levels of computer literacy are positively
associated with low resistance to change when it comes to use of LMSs (Avidov-Ungar & Magen-Nagar, 2014). Overall however, as is the case in other places in the world, elearning in KSA was implemented, not to replace traditional learning methods, but to provide learners and their instructors with an augmented learning environment (Al Alhareth, 2013).

The increase in the adoption of blended learning and elearning in universities and other institutions of higher learning in KSA can be attributed in part to the need to offer more opportunities for accessing higher education to a growing population. Some specific reasons for the increased uptake of blended learning and elearning are discussed by Alkhalaf et al. (2010) in their review of the literature. For instance, elearning can overcome challenges such as overcrowding, which hinders the effective provision of traditional-style higher education in KSA. Each academic year, many students are unable to enrol at university to study a course of their choice because of the limited places that are available (Al-Shehri, 2010). Alkhalaf et al. (2010) also point out that blended learning and elearning are suitable approaches to adopt because KSA is a large country and a large portion of its inhabitants live away from the main population areas. In particular, there are issues of accessibility for many people, especially women, who are unable to travel to the main urban centres where universities are situated (Al-Shehri, 2010). Alkhalaf et al. (2010) have argued that “elearning offers the potential to deliver educational services to remote locations, thereby reducing disparities across the various regions and areas”. More importantly, because of the policy of gender separation in most learning institutions, it is argued that elearning can enable more people, especially women, to access higher education (Alkhalaf et al., 2010).

The commitment by the government of Saudi Arabia and universities to offering more opportunities for people to access higher education through elearning was increased between 2006 and 2008, when the Saudi Arabian Ministry of Higher Education created the National Centre of E-Learning and Distance Learning to support the growth of elearning systems in the country’s universities (Alebaikan & Troudi, 2010a; Alkhalaf et al., 2010; Al-Khalifa, 2010a; Ministry of Higher Education, 2011a). This was in response to a directive from King Abdullah, which required the formation of a national technology plan and the
adoption of distance learning and elearning in the provision of higher education (Jabli & Qahmash, 2013; Ministry of Higher Education, 2011b). King Abdullah had also called for the formation of a national centre that could offer technical support, equipment and other resources required to develop the content of digital education (Ministry of Higher Education, 2011b). The aim of the National Centre of E-Learning and Distance Learning is to provide a central hub for elearning and distance education for universities in KSA. The centre also aims to enable the delivery of elearning to Saudi Arabian students and to overcome shortages of university staff (Ministry of Higher Education, 2011a).

The centre strives to achieve these goals by supporting the educational process at different levels of university education to ensure that it is available to all groups of learners, “without any temporal or spatial restrictions” (Ministry of Higher Education, 2011a, p. 14). The National Centre of E-Learning and Distance Learning has also enabled the Saudi Arabian Ministry of Education to link up with many other international organisations that have experience in the field of distance education and elearning.

As a result of the increased uptake of innovative ways of delivering higher education content to students, many universities in KSA have adopted the use of different types of commercial learning management systems such WebCT, Tadarus (an Arabic-based LMS) and Blackboard to enable teaching and learning over the internet (Alebaikan & Troudi, 2010a). A considerable number of universities, such as King Khalid University, Imam University, King Saud University, King Faisal University, Effat University and Prince Mohammed bin Fahad University, have adopted the use of elearning units in their delivery of instructions and materials to students (Al-Khalifa, 2010a). Some of these universities offer digital distance learning through various networks (Al-Khalifa, 2010a). Mobile learning (m-learning) has also been adopted by some Saudi Arabian academics, although it is still at the initial stages of implementation (Nassuora, 2013). What is noticeable, however, is that many universities in KSA are using technology to facilitate distance learning. Currently, some universities in KSA also use short message services (SMS) to enable learning and teaching (Nassuora, 2013).
Several studies have been conducted to establish the viability of elearning in KSA. Authors like K. A. Al-Harbi (2011) have established that elearning has the potential to enrich educational experiences for both learners and educators. For instance, elearning (and its applications) has the potential to enhance the reach of university courses to female students and would, therefore, require only a minimal number of female academic staff.

Some studies have established that elearning and elearning technologies are vital parts of the future of higher education in KSA. For instance, according to Aljabre (2012), educational technology has transformed the manner in which instructors convey information to learners. The same author adds that “Distance learning opens a world of possibilities for higher educational institutes, as is the situation happening in Saudi Arabia” (p. 136). Similarly, Alshammari (2015) reports that 90.6% of academic participants in his study believed that the use of LMSs has a promising future for Saudi Arabia’s higher education. In the same study, 88.2% of the participants were of the view that the use of LMSs needs to be expanded across higher education institutions in the country (Alshammari, 2015). Moreover, Unnisa (2014) notes that people in KSA are yet to reap the full benefits of educational technologies, “but the present level of use is encouraging and there is hope for improvement and brighter future” (p. 155). This means that educational technology is likely be used more in higher education institutions in KSA in the future. Despite this, there is still little research on learning and teaching models or elearning models that may be appropriate for learners in vocational education institutions (Brennan, 2003).

2.3.3 Challenges for elearning delivery in KSA

Despite the advances in delivery of higher education in KSA, some challenges still remain with regard to the use of different technologies. After a review of the literature, these challenges can be grouped into three main categories, which will be used later in the data analysis of the open-ended comments by female academic staff:

- institutional challenges
- academic staff challenges
student challenges.

2.3.3.1 Institutional challenges

A number of researchers refer to institutional challenges in terms of the coordination and organisation of elearning, which may influence elearning uptake (Al-Shehri, 2010). For example, research conducted by Al-Shehri (2010) suggested that the successful delivery of elearning requires significant investment by the institution in the technologies and equipment, training of staff and monitoring of learners to ensure that the technologies are used effectively (Albidewi & Tulb, 2014). A good example that demonstrates the importance of training with respect to the use of learning management systems is found in the Computer Center of a private university in Thailand which held training sessions for all faculty members when Moodle was initially introduced at the university (Wichadee, 2015). Wichadee (2015) concluded that “after instructors get training, they can make use of LMS in their course easily”. Further “LMS is not a difficult tool after they [faculty members] are trained to use it” (Wichadee, 2015, p. 59).

According to Guri-Rosenblit (2005), costs engendered by elearning can make institutions question its relevance and practicability. Also, in research on the effectiveness of using IT in higher education in KSA, Alfahad (2012) concluded that factors such as student access to computers, internet services and software on campus and IT support for off-campus use are significant components of the costs involved in the delivery of elearning programmes. In addition, an important issue that still remains in regard to the initial cost of web-based teaching is faculty training. This is because members of faculty “have to learn not only the software and internet tools to do a new kind of teaching, but also the new design issues associated with it” (Albidewi & Tulb, 2014, p. 215).

Infrastructural and technical challenges are also rife in most institutions that have adopted elearning in Saudi Arabia (Al-Shehri, 2010, p. 149). Such challenges include acquiring the policies, procedures, software and hardware capacity needed for elearning. Elearning infrastructure and technology require adequate telecommunications capacity, technical
support and coverage, and these are oftentimes lacking in KSA. Internet coverage in the kingdom is poor in some areas. Citing various sources, AlMegren and Yassin (2013) note that, although internet access is the backbone of elearning infrastructure and some universities in Saudi Arabia have easy access to the internet, some universities still do not have wireless access. Further, “Saudi university students continue to face obstacles in accessing the internet off campus” (n. p.) because many of them do not have dependable and affordable internet access at home. This is because IT security at the universities makes it difficult for them access servers from places other than the university (AlMegren & Yassin, 2013, p. 121).

Finally, although there are existing plagiarism detection tools for use by universities, only a few support the Arabic language, which is the predominant language in KSA Universities (Alebaikan & Troudi, 2010b, p. 512). The limited availability of software programmed in Arabic could thus be one of the reasons why there is limited use of elearning facilities, especially among female academic staff, most of whom teach using Arabic. The plagiarism threat is one more institutional challenge to KSA universities eager to embrace elearning. Plagiarism is also one of the ethical learning issues identified by Ahmed, Buragga and Ramani (2011) influencing elearning uptake. Al-Maqtri (2014) asserts that “this was confirmed by frequent complaints from teachers and students equally that the latter (those involved in plagiarism) are not involved actively on online (Bb) activities” (p. 648). Alebaikan (n.d.) argues that universities are required to come up with policies that address such ethical issues when implementing blended learning, with particular emphasis on intellectual property rights (IPR) and plagiarism. However, the same author notes that “there is a lack of awareness of IPR and plagiarism in undergraduate studies in Saudi universities” (p. 10). Additionally, as things currently stand, “e-plagiarism is a serious challenge in blended learning” (Alebaikan, n.d., p. 10). This point is emphasised by Alebaikan and Troudi (2010b), who note that “it was noticed that plagiarism was visible in online discussions more frequently as ‘cut & paste’ is an easy action” (p. 512).
2.3.3.2 Academic staff challenges

Mapuva and Muyengwa (2009) indicate that the teaching staff are “the policy-implementation arm of any HEI [higher education institution] through acceptable pedagogic dispatches to students” (p. 223). Copeland (2001) supports this argument by stating that whereas technology is an important component in elearning, lecturers still play a pivotal role since it is they who facilitate learning. In elearning, it has been found that the lecturer’s ability to use and control the electronic technology, their attitudes towards the electronic technology devices, and their teaching styles, all affect how well they will teach in an elearning environment.

Acceptance of elearning by academic staff is affected by a number of factors (discussed in more detail in the explanation of the TAM in Chapter Three). These include their perception of students’ attitudes toward elearning, the influence of people around them (particularly academic staff), as well as accessibility of elearning (K. A. Al-Harbi, 2011).

Support from university staff is particularly important in inculcating confidence among students in their use of elearning tools (K. A. Al-Harbi, 2011). A review of the literature by AlMegren and Yassin (2013) revealed that when such support is lacking, the transition from the traditional method of teaching and learning to the use of technology may not be easy for teachers, administrators and students. AlMegren and Yassin (2013) indicate that the majority of teachers do not have even the slightest understanding of elearning and that they can often be unenthusiastic towards learning new systems or new technology usage (AlMegren & Yassin, 2013).

Another academic staff-related challenge relates to the fact that adoption of new technologies does not always occur uniformly among all people in a profession. Faculty members have different perceptions regarding the use of elearning technologies and this affects how they accept such technologies. An analysis by Alenezi (2012) suggests that “the use of e-learning by instructors is explained largely in terms of their perceptions about the value they get from e-learning systems” (p. 22). This means that university staff members
who promptly realise the benefits of using elearning technologies are more likely to be the first ones to start using such technologies in the delivery of teaching. On the other hand, when members of faculty only expect narrow benefits from elearning technologies, they are likely to limit their use of technology to the features that they are familiar with (Alshammari, 2015). For example, one participant in a study to determine faculty members’ use of LMSs in universities in KSA noted that “despite the fact that LMSs have many functions and features, only one or two functions are used by academics” (Alshammari, 2015, p. 146). The SAMR model can be used to explain how an elearning technology such as Blackboard can be integrated into teaching and learning processes to enhance their effectiveness. Originally conceived by Puentedura (2006, cited by Phillips, 2015, p. 325), the SAMR model proposes “substitution, augmentation, modification, and redefinition” (SAMR) as the four possible levels of integration of digital technology. Substitution occurs when students or teachers use technology as a straightforward substitute for a non-digital option with no functional change (Phillips, 2015). The second level – augmentation – involves extending students’ and teachers’ utilisation of digital technologies by providing a change enabled by the selected digital tool (Phillips, 2015). The third and fourth levels (modification and redefinition) involve change or redefinition of the learning tasks being achieved (Phillips, 2015). The SAMR model shows that beyond doing basic tasks such as merely replacing manual submission of assignments with digital submission (which represents only one function of technology), faculty members and students can do more with technology.

It has also been observed by some studies that e-pedagogy is not widely used by educators in universities because of a lack of the technical or pedagogical experience needed to design elearning teaching methods (Alebaikan & Troudi, 2010b, p. 510). Some researchers believe that this may be attributed to being more accustomed to the traditional methods of classroom teaching and learning that have traditionally dominated university teaching in KSA. This is a point reinforced in this statement: “some academics are technophobes and many higher education institutions do not recognise the time and effort spent in
implementing web-based teaching and preparing computer-generated instructional materials” (Alqurashi, 2009).

Another theme that emerges from the literature is the increase in the time requirements placed on educators to adopt elearning, and this is seen as a potential challenge (Alebaikan & Troudi, 2010b). The literature suggests that extra time would be needed for instructors to be involved in the virtual interactions required to monitor and/or evaluate students’ participation in electronic learning forums, to learn new technologies, and to provide the high levels of technical support students need (Alqurashi, 2009). The extra demands put on instructors by elearning technologies make it “very difficult to convince the majority of faculty members, who are normally reluctant to adopt new technologies”, of the benefits of using such technologies (AlMegren & Yassin, 2013, p. 122). The next section will look at the challenges to elearning from the perspective of students.

2.3.3.3 Student challenges

Students play a critical role in the adoption of elearning since they are the main recipients of the instruction that is delivered through such systems. This section looks at the external and internal factors that hinder students’ proper use of elearning. Some of the reasons cited as hindering the adoption of elearning by female learners in KSA include: a shortage of female teachers who are literate in elearning usage, and who are willing to embrace the use of elearning in their course instruction; a shortage of access to elearning facilities; a lack of Arabic elearning content; and the presence of filtration blocks, which hinder female learners from accessing information (Al-Kahtani, Ryan & Jefferson, 2006). Two such information blocks are the failure to understand the English language and the absence of non-Arabic content on elearning platforms (Al-Kahtani et al., 2006).

Students in Saudi Arabian universities exhibited differences in: their intentions to use elearning; their attitudes towards the use of elearning; their perceptions of the usefulness of elearning; and their perceptions about the ease of use of elearning. There were also differences among students in terms of gender, faculties, and whether they were resident
(regular) or non-resident students (K. A. Al-Harbi, 2011). These differences affected students’ levels of acceptance and use of new learning technologies.

Unfavourable perceptions and attitudes towards elearning by students are also a major challenge in elearning (K. A. Al-Harbi, 2011). A study by Mirza and Al-Abdulkareem (2011) noted that “the online degree is seen to have less job opportunities and is not comparable to traditional degrees” (pp. 87-88). This implies that many current and potential students are likely to opt for traditional classroom learning instead of elearning programmes. Other factors, such as learners’ lack of prior IT knowledge and their attitudes toward elearning, impact the acceptance of elearning by students.

Notably, very little research has been conducted about female students and their perceptions or reception of elearning in KSA. However, Rambo, Liu, and Nakata (2009) found out that women academics’ perceptions of electronic learning are mostly influenced by their age. The younger a female student was, the more receptive she was likely to be towards elearning. This is emphasised by Yamani’s (2014) assertion that young people grow up exposed to new technologies and thus prefer to use them in learning:

> Young people are using technologies in all their daily activities, including their learning. They find it difficult to engage with the traditional teaching method ...
> Thus, students who have grown up in the era of digital technology are poised to obtain the benefits of e‐learning (p. 171).

Students’ attitudes towards Learning Management Systems are also affected by the kinds of support they receive from different quarters, including their homes and their learning institutions. This point is highlighted by Kanthawongs and Kanthawongs (2012) when they argue that “students would intend to use the LMS system if their teachers, friends, relatives, and family members supported them to use the system” (p. 93). What this means is that if the students’ families or learning institutions do not provide the required support, the students will not be adequately motivated to use LMSs in their learning activities (Kanthawongs & Kanthawongs, 2012).
Another factor that Rambo et al. (2009) identified as critical in shaping the perceptions of female learners was the academic discipline that the student was pursuing. For example, Rambo et al. (2009) found out that female students who were pursuing studies in technology, linguistics, science or business were eager to adopt elearning. However, their counterparts who were pursuing languages, religious studies or other humanity courses were less eager to embrace elearning. Similarly, Prabu (2015, p. 113) has argued that the “awareness about elearning of science students is better than [that of] their counterpart(s)” in courses that are related to arts (Prabu, 2015, p. 113). The statements by Rambo et al. (2009) and Prabu (2015) can be taken to imply that faculty members in science-related courses use technology more than their counterparts in other fields such as the Humanities, hence the differences in technology use between students in the science field and those in The Arts or Humanities.

To conclude this section of the dissertation, it is important to note that factors related to the institution, the staff and the academics (instructors) all affect the acceptance and usage of elearning in higher education, and that the factors affecting elearning in KSA are multi-faceted. Consequently, if a solution to enhance the adoption of elearning was to be designed, it would have to address the factors that affect each stakeholder’s willingness to accept and use elearning. This section has shown there is a wealth of issues that contribute to the complexity of elearning adoption. Some of these were external, such as accessibility to elearning facilities, and others were internal, such as students’ attitudes toward elearning. This research attempts to capture this diversity through the TAM model (described in more detail in later chapters) to identify the factors that affect the use of elearning systems by female academic staff in KSA. Discussion now turns to consider the important role that LMSs such as Blackboard have in enabling elearning to be achieved.

### 2.3.4 Learning management systems

Currently, there is widespread use of LMSs like Moodle, WebCT and Blackboard (Chikh & Berkani, 2010; Vrazalic et al., 2009), which are important elements of elearning globally. According to Rogers et al. (2005), the term LMS applies to any use of web technology to
plan, organise, execute, and control the various aspects of the learning process. The same authors also quote Bersin’s (2005) definition (in Rogers et al., 2005) of an enterprise LMS, which is a single application utilised all over the enterprise to manage corporate training programmes. A LMS can also be called a course management system, a training administration system, a training management system, or an integrated learning system (McArdle, Monahan, & Bertolotto, 2008; Rogers et al., 2005). But perhaps the most inclusive definition of LMS is that given by Greenberg (2002, cited by Rogers et al., 2005), which notes that an LMS is a high-level, deliberate solution for planning, implementing and managing all learning activities within an organisation, including virtual classrooms, online courses and instructor-guided courses. LMSs offer a platform for organisations’ online learning environments by facilitating the management and implementation, as well as the monitoring, of blended learning for a wide array of people including students, employees, customers and other stakeholders (Rogers et al., 2005).

Learning management systems such as Moodle, Blackboard and Sakai are procedural, whilst adaptive learning environments focus on learning itself (De Bra et al., 2013). De Bra et al. (2013) noted that over the last 15 years, the two complementary concepts have provided learning pathways and environments in education. Watson and Watson (2007) explained that the term learning management systems was derived from concepts characterised by an army of acronyms at the end of the twentieth century: CBI (computer-based instruction), CAI (computer-aided instruction), CAL (computer-assisted learning) and these variously described practice tasks, tutorial matter and perhaps individualised assistance through diversions from the main programme.

Jostens Learning, an American commercial provider, used the term integrated learning system to offer programmes beyond the curriculum delivery. These programmes included management instruction and further individual assistance and they were integrated with other systems (Bailey, 1993). Bailey described another product, learning management systems, which referred to the non-curricular material from the main product. However, the term was used for a variety of pedagogical matters. These included assessment and data;
communications between students and instructors; and student administration. A learning management system extends beyond these functions as follows:

- Instructional objectives are tied to individual lessons.
- Lessons are incorporated into the standardized curriculum.
- A management system collects the results of student performance.
- Lessons are provided based on the individual student’s learning progress (Bailey, 1993, p.29).

This list includes the integration of pedagogy and the organisation’s administrative systems, such as finance and human resources (Bailey, 1993). Coates, James, and Baldwin (2005) noted that organisation-wide and internet-based learning management systems such as WebCT and Blackboard were having a profound effect on tertiary education, but LMSs have received little attention from researchers, other than research into the selection of technology. Coates et al. (2005) noted that by 2005 the scope of online systems had extended beyond that envisaged in the early 1990s and incorporated:

- asynchronous and synchronous communication, incorporating e-mail announcements, list servers, chats and discussion
- curricular development and delivery including various resources and learning objectives
- assessment, both formative and summative
- student and class administration.

Coates et al. (2005) explained that the management systems available at the time of their research were usually the products of universities, rather than the commercially developed. In Australia, Coates et al. (2005) pointed to the dominance of WebCT and Blackboard, which were then integrated into the majority of universities. The attraction of these systems was based on cost, access and reliability, although James et al. discussed andragogical advantages, not least the opportunity for delivering large-scale courses using varied media.
Such systems reduce cost overheads and lecture-room space, and facilitate access to student records and attainment, and thus make it easier to provide individual attention to students, and to incorporate assessment and quality standards within the programmes. Importantly, according to Coates et al. (2005), learning management systems enrich the student’s learning experience and remove levels of stress through such devices as continuous assessment and feedback.

A decade ago there were issues emerging from the learning management systems experiences of universities. These were generally the same as those raised in the literature reviews cited above. Coates et al. (2005) noted that whilst assessments such as multiple-choice questions were useful to a point, they did not involve, as Schmid et al. (2014) advocated, engagement in meaningful activities. At the time, Coates et al. (2005) were also concerned about the evolution of student engagement, and whether the systems were seen as part of the university’s systems, or as an opportunity for engagement with the available resources. As this was a period when mobile devices and large-scale social media were becoming popular, the universities’ adoption of such massive systems may have appeared unremarkable to the ‘wired’ generation (Hekkert, Suurs, Negro, Kuhlmann, & Smits, 2007).

The Blackboard LMS is one of the most common elearning technologies used by learning institutions across the world. Like other LMSs, Blackboard’s main functions include course/content management, virtual classes, a discussion board, and other collaboration tools such as blogs, email, podcasts and wiki (Badawood & Steenkamp, 2012). In Saudi Arabia, Blackboard is the most common LMS (Zouhair, 2010) and is, therefore, the LMS that this thesis will investigate. Its wide adoption is bolstered by its availability and early market penetration (Zouhair, 2010).

While LMSs have been adopted widely in higher education across the globe, it is evident that they involve the adoption of new technology, which can be a complex process depending on different factors in different societies. There are many factors that influence
technology adoption, and these factors may also act as barriers to the adoption of LMSs as indicated in the following section.

2.3.4.1 Barriers to LMS

A review of the literature around LMSs revealed that the barriers to LMS adoption, although broad, can be grouped into four main types of issues: institutional, technological, academic and student-related issues. This categorisation draws upon Al-Busaidi and Al-Shihi’s (2010) finding that “the major issues that might influence instructors' acceptance of LMS might be related to the instructors' characteristics ..., organisation factors ... and the technology” (p. 4). In addition, student issues, such as lack of knowledge about information communication technology, have also been identified as one of the barriers to the use of learning management systems in learning institutions (Nasser, Cherif, & Romanowski, 2011). Although at times there is overlap between the four types of issues, each of them is described separately below.

In relation to institutional issues, the barriers to using LMSs include poor access, or lack of access, to the technology and lack of incentives or programmes offered by the learning institutions to support the use of LMSs (Asiri et al., 2012; Fathema, Shannon, & Ross, 2015; Mtebe, 2015). For instance, in an analysis of the factors that influence the use of instructional technology, Asiri et al. (2012) identified various issues that inhibit the use of technology for the purpose of delivering instruction in academic institutions. The institutional factors that were identified by Asiri et al. (2012) include lack of staff development initiatives with respect to the use of technology, lack of policy and administrative support, as well as lack of professional programmes to support or encourage the use of technology. Other institutional factors that have been identified as barriers to the use of LMSs include: high cost of implementation (Maina & Nzuki, 2015; Venter, van Rensburg, & Davis, 2012); poor institutional decisions (Maina & Nzuki, 2015); lack of institutional policies on and instructional designs for elearning (Fathema et al., 2015); inadequate technical support (Azlim, Husain, Hussin, & Maksom, 2014; Maina & Nzuki,
2015; Fathema et al., 2015); and institutional technology training (Azlim et al., 2014; Fathema et al., 2015).

Technological issues that act as hindrances to the use of LMSs include software and hardware related problems, technical malfunctions of systems, internet access and availability problems, and network problems. In the context of Saudi Arabia’s higher education Asiri et al. (2012) identified technological barriers as issues. They include internet access and availability as well as availability and accessibility of resources in the Arabic language. Similarly, it has been noted that a “lack of availability and accessibility of technology” is one of the factors that makes it difficult to use technology for instruction and learning in learning institutions (Becker, Newton, & Sawang, 2013, p. 217). Another issue that acts as a major barrier to using LMSs is poor technological infrastructure, or a lack of it (Venter et al., 2012). This can particularly be said of developing countries like KSA, which generally have low levels of technological infrastructure. For instance, in Kenya, another developing country, a study by Tarus, Gichoya, and Muumbo (2015) found that inadequate elearning and information communication technology infrastructure is one of the key challenges that hinder the implementation of elearning in public universities. It has been argued that if KSA wants to have world-class universities, the country will need to invest heavily in technology and infrastructure (Colbran & Al-Ghreimil, 2013).

Academic issues that hinder the use of LMSs include lack of knowledge and experience in using technology, difficulties associated with the system, and lecturers’ attitudes towards the use of technology. These issues are also referred to as personal barriers and include “attitude toward technology, computer and internet experience, and technological skills and know-how” (Asiri et al. 2012, p. 128). Also, experience can determine intention and usage behaviour towards technology (Venkatesh, Morris, Davis, & Davis, 2003). A review of literature conducted by Fathema et al. (2015) found that the personal barriers to the use of elearning technologies include lack of knowledge and skills to use technology, lack of training, lack of role models, and the perception that elearning technologies are time-consuming. In addition, attitudinal barriers to the use of elearning technologies include lack
of faith in the technology, concerns about student access, and unwillingness to work with the technology (Fathema et al., 2015).

Lastly, student-related issues refers to matters such as student acceptance of the technology, accessibility of the technology to students, and students’ perceptions and attitudes towards the usefulness and perceived ease of use of the technology (Barczyk, Hixon, Buckenmeyer and Zamojski, 2012; Fathema et al., 2015; Logan & Neumann, 2010). For instance, Barczyk et al. (2012) note that students who encounter technology barriers (e.g. the inability to access or surf the internet) are less likely to easily adopt LMSs. Specifically, Blackboard’s multi-layer folder system for the management of course materials has been criticised as being constraining to instructors and confusing to students (Logan & Neumann, 2010). Various reviews of literature (Fathema et al., 2015, p. 212) have also found “usefulness and ease of use to be good determinants of the student acceptance” of elearning technologies.

2.3.4.2 Enablers of LMSs

There are several reasons why institutions of higher learning have overcome most hindrances indicated above and adopted LMSs. These enablers (or motivators) have enhanced the adoption of LMSs. The factors that promote the use of LMSs can be classified into four categories: improving teaching, improving student learning, improving working conditions of lecturers, and other reasons (TAM external and internal factors).

With regard to improving teaching, it can be said that faculty members are likely to use LMSs in their teaching activities if they know that the technology helps improve the teaching experience, both in terms of both helping the lecturers in their teaching activities and improving students’ learning experiences. For example, in a study on how Moodle, another LMS, improves teaching, Thindwa (2016) found that “Moodle improves teaching quality as it has a high student satisfaction level, an aspect that is equated with teaching quality” (p. 64). This implies that members of faculty are more likely to use a LMS if it is associated with a high level of student satisfaction. This can be related to the various features of the LMS
which enhance the ways in which lecturers are able to deliver instruction to their students and monitor progress (for instance auto-marked quizzes for immediate feedback; discussion forums) (Palahicky, 2015). Another factor that is an enabler for using LMSs is that lecturers are able to reach students who could not otherwise access higher education due to a number of reasons.

It has been pointed out that educational technologies such as LMSs facilitate distance education, which in turn “has the ability to reach students who otherwise were not in a position to either attend higher education or continue their education” (Aljabre, 2012, p. 134). This is especially pertinent for KSA which has gender-separated institutions of higher learning and LMSs are proposed as a way of overcoming the severe shortage of female members of faculty (A. Alharbi, 2013).

LMSs can also assist in improving teaching and learning. Culp, Honey, and Mandinach’s (2003) review of two decades of United States educational technology found that the advantages for LMSs include: reaching students when they are not in class (out-of-hours learning and reporting; distance learning); providing opportunities to go beyond classroom materials and gather information for problem-solving and report writing; and broadening the scope of resources available to the class. They also found that technology could help students to pursue their own enquiries and it fulfilled a government requirement for a knowledge-based community. A study conducted by Bernard et al. (2009) similarly found that often course instructors found LMSs methods to be more flexible and engaging than traditional classrooms and found increased student engagement and achievement for asynchronous (offline) courses compared to those that were delivered with either some online content or were face-to-face. However, these advantages are gained when pedagogical design supports effective implementation, encourages exploratory learning and problem-solving to achieve effective and meaningful learning. These features must also be present for a LMS to be seen as a positive. Given the historical reliance on traditional pedagogy in KSA (see Section 1.4.3) there may need to be a training of pedagogy alongside technology support.
With respect to improving student learning, it has already been noted above that LMSs are associated with a “high student satisfaction level” (Thindwa, 2016, p. 64). The notion that students are more satisfied when they use a LMS implies that the LMS improves their level of learning. This can manifest in the form of increased interactions and exchanges between students, active participation of students in the learning process using LMSs, and the convenience that is associated with accessing and sharing learning materials between lecturers and students (Lonn, Teasley, & Krumm, 2009). In the literature, it has been argued that LMSs “do promote instructional approaches that enhance student learning” (Palahicky, 2015, p. 17). Notably, a LMS like Blackboard provides opportunities for communication through discussion forums, which enhances student interaction and participation in the learning process (Palahicky, 2015). It has also been suggested that technology is effective when the student is “engaged in active, meaningful exercises via technological tools that provide cognitive support” (Schmid et al., 2014, p. 285). All these features are critical for improving student learning, and thus they act as enablers for using LMSs. Students and lecturers alike found Blackboard useful in facilitating learning, and students found that integrating a LMS with traditional learning methods was a significant driver of successful study outcomes (Abanmy & Hussein 2011; Alebaikan 2010; Lee, Hong, & Ling, 2001). Few studies have investigated the efficacy of these tools and their application at universities in the KSA (Alebaikan & Troudi, 2010a; Al-Fahad, 2009).

The use of a LMS is also likely to be encouraged if the LMS aids in improving the working conditions of lecturers. This is due to features such as being able to save time through the use of streamlined communication strategies, enhanced communication with students, and the usefulness of LMSs in relation to teaching activities. The use of streamlined communication strategies means that a LMS such as Blackboard has the potential to improve the collaborative nature of teaching by enhancing student-lecturer interactions (Coopman, 2009). There are various communication tools in an LMS like Blackboard which lecturers can use to get in touch with their students. These include real time chats, whiteboards, email, online notes/journals, file exchange and discussion forums (Palahicky,
The use of such tools means, for instance, that a lecturer is able to interact with and monitor the progress of many students without having to meet each of the students face-to-face. LMSs acts as an enabler for the use of such tools. The features that make a LMS useful to lecturers include course delivery tools such as automated testing tools, online marking tools, student tracking and online grade books (Palahicky, 2015). To lecturers, the Blackboard LMS (just like other LMSs) has the potential to improve teaching’s collaborative nature by enhancing student-lecturer interaction experiences (Coopman, 2009). However, a LMS has the potential to make lecturing or teaching a static exercise through an overuse of text (Coopman, 2009). Lecturers, however, have the advantage of being able to update course content, integrate multimedia applications (such as YouTube and blogs), conduct discussions, and initiate or participate in real-time chats with their students (Seechaliao, 2015).

Other features that act as enablers to the use of LMSs include external and internal factors. Internal factors include lecturers’ perceptions regarding the use of LMSs. This includes “their beliefs towards e-learning, and their competence level in using LMS” (Asiri et al., 2012, p. 125). Members of faculty are more likely to use LMSs if they have a positive attitude towards it and if they have the skills required to use the technology (Wichadee, 2015). This point is articulated by Wichadee (2015) based on a review of other studies, which found that “many studies indicate that attitude towards technology are key factors in the adoption and use of technology, specifically an LMS, by faculty” (p. 54). Further, faculty members’ attitudes towards the use or adoption of a technology are affected by the perceived usefulness of that technology (Wichadee, 2015). Also, the perceived usefulness of a technology has an impact on faculty members’ attitudes towards the use or adoption of that technology (Wichadee, 2015). Given that attitude is related to how an individual responds either favourably or unfavourably towards a given phenomenon (Alshammari, 2015), an individual’s attitude towards a LMS has a bearing on whether they will use it.

Turning to external factors, these are variables that are not within the control of members of faculty. For instance, the fact that the Saudi Arabian government is supportive of...
elearning in institutions of higher education (A. Alharbi, 2013) is an enabler to using LMSs since universities and faculty members will strive to adopt them. In addition, the provision of technical support to faculty members is necessary to ensure successful transition from classroom instruction delivery to online teaching (Alhomod & Shafi, 2013).

A number of research projects have been conducted on LMS in KSA. However, many of these studies (such as Zakaria, Jamal, Bisht, & Koppel, 2013) have focused on students’ perspectives, students’ learning and students’ use of LMSs rather than on the experiences of academic staff/lecturers (some exceptions include Al Balawi, 2007). Others (Al Balawi, 2007; Alenezi, 2012; AlMegren & Yassin, 2013; Alqurashi, 2009; K. A. Al-Harbi, 2011) have indicated how the academic staff influence the adoption of elearning in higher education. Still, there are authors (Albidewi & Tulb, 2014; Al-Shehri, 2010; Guri-Rosenblit, 2005) who observe that institutional factors affect the effective adoption of elearning.

Because of the unique social and cultural situation of KSA, it is important to note the systems of elearning adoption in other societies may not necessarily be applicable in the kingdom, especially when considering gender segregation. In summary, this section has discussed various types of LMSs and how they are used. It has also analysed the situation in KSA regarding the use of LMSs. In doing so, it has identified the barriers to the use of LMSs as well as the enablers that exist. It has also been noted that many studies on LMSs focus on student perceptions toward the use of LMSs. The few studies that have focused on the perceptions of academic staff have not explained why there are fewer female academic staff using LMSs compared to their male counterparts in KSA. This is the issue that this research now addresses.

2.3.5 Elearning issues facing female academics in KSA

KSA has invested heavily in technology, especially in its institutions of higher learning (Asiri et al., 2012). However, and as indicated by Albirini (2006), successful implementation and utilisation of technology in universities cannot be guaranteed simply by creating a technology-rich environment. Acceptance of technology by key stakeholders (e.g. lecturers)
is paramount for technology utilisation to be realised. In addition, years of experience in teaching has been reported to affect how faculty members use elearning technologies: those with more teaching experience are more likely to use technology (Alghamdi & Bayaga, 2016). Therefore, it is important to research female academic staff members, who are key stakeholders in the KSA university context.

In their review of the literature, Alkhalaf et al. (2010) observe that women are often among the most potent backers of elearning, which possibly makes their access to higher education easier. Similarly, Alenezi (2012) found that females had more positive perceptions of using elearning technologies than males. However, this is open to discussion since a review of literature conducted by Rhema and Miliszewska (2014) suggested that “male students had more positive attitudes towards e-learning than female students” (p. 171).

Alenezi’s (2012) finding is also at odds with other research, which highlights that female academics tend to adopt educational technology at a lower rate than their male peers. There are a number of possible reasons for these contradictory findings.

Firstly, research about adoption of technology more widely indicates that it has been a traditionally male sphere. Research by Lucas (2003) noted that various aspects of the computing environment such as computer software, language about computers and computer professionals have all been viewed as being in the male domain, irrespective of the fact that women have historically been an integral part of technology development. Research also shows that men use internet resources mainly for gathering information, while women use them largely for communication. According to Lucas (2003), using technology for communication is seen as a female domain, while utilising technology as a way of gathering information is perceived as a male preoccupation.

Secondly, according to some research (e.g. Asiri et al., 2012; Mazawi, 2005), it would appear that the deeply gendered society of KSA may also have impacted on the lower adoption of elearning platforms in KSA’s universities. For instance, in a study by Al-Kahtani (2006), it was revealed that an unequal distribution of resources and support, such as in-service training,
may also impact upon LMS adoption. Research by Asiri et al. (2012) noted Al-Kahtani’s study that "shows that Saudi Arabian female faculty members needed more in-service training to be able to utilize the internet efficiently" (p. 130).

Few studies have been conducted about elearning or LMSs and female academic staff in Saudi Arabian universities. The existing literature has identified that female academics use LMSs to a lesser extent than their male counterparts (Al Balawi, 2007). However, there has been no in-depth study into the reasons for this or why it is important. Therefore, this research will be important for revealing the stories, experiences and perceptions of female academic staff in relation to LMS usage and what it may reveal about how to change such participation.

2.4 Conclusion

This chapter has presented a review of literature that links to the aims of the research. It firstly outlined the current context of higher education in KSA. This included an overview of the current issues facing higher education, including its huge expansion in the number of institutions that cannot keep up with demand, as a means of framing this study. It also included research which suggests that elearning is often seen as a means to address these issues; in particular that elearning can have both positive and negative impacts in educational contexts. This chapter has also considered the role that LMSs play in the planning, and delivery of elearning. The review of elearning and LMSs found that there are internal and external factors that affect perceptions of the use of elearning. This section also highlighted the enablers and barriers to the use of elearning and LMSs.

This chapter has also discussed the status of female academic staff in higher education in KSA, and revealed that there have been few studies conducted about elearning or LMSs involving female academic staff in Saudi Arabian universities.
Overall, the literature review has identified a diversity of factors that impact on the adoption of LMSs by female academic staff in KSA. These include: the rise of elearning within KSA to address current issues within higher education; the barriers and limitations of educational technology in KSA; and cultural and social expectations of female academic staff. Given this broad range of factors, this research will be underpinned by the Technology Acceptance Model (F.D. Davis, 1986) because it focuses on the internal and external factors that influence the adoption of technology. The thesis now turns to discussing the potential of TAM and how this theoretical framework may influence the methodology of this research.

3. Research Methodology

3.1 Introduction

This research is designed to explore female academic staff’s engagement with LMSs in universities within Kingdom of Saudi Arabia. To provide an in-depth understanding of this issue a comprehensive examination of female academic staff was undertaken.

This chapter focuses on providing a detailed description of the methodology that was applied. The chapter will firstly outline how the research is underpinned by the theory of the
Technology Acceptance Model (F. D. Davis, 1986). A key feature of this framework is that it acknowledges that internal and external factors influence the adoption of technology. These factors are the subject of the two key research questions of this thesis. Building on the literature from the previous chapter, this chapter outlines the study’s methodology and methods. It begins by outlining the details of the research questions and how the TAM will be used to explore these questions. The chapter will then discuss the general research design, beginning with an overview of the participants. The literature and theory that underpin the design of the research instruments, including the web-based survey and the interviews, will also be discussed. The chapter then turns to describing how the data will be analysed to meet the research objectives.

A discussion of the criteria for the research evaluation, ethical considerations and limitations will conclude the chapter.

3.2 Research Questions

This thesis investigates the relationship between female academic staff members and their adoption of LMSs. In particular, it seeks to understand the complexities of LMS use, including the internal and external variables that influence technology adoption and the factors that might encourage technology use.

To investigate the relationship between female academic staff members and their adoption of LMSs, the main research questions to be answered in the study were:

1. In what ways, and to what extent, do female academic staff currently use LMSs in KSA universities?

2. How do internal factors (such as beliefs and attitudes) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?

3. How do external factors (such as access, students' attitudes, institutional and cultural values, gender segregation) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?
To address these key research questions, the decision was made to underpin the study using the theoretical model of Technology Acceptance Model (TAM) (F. D. Davis, 1986).

3.3 Theoretical Perspective: Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed in 1986 by F. D. Davis. In its simplest terms, TAM identifies the factors that influence the intention of the users of technology (Venkastesh & Bala, 2013). TAM was designed to predict users’ acceptance of information technology and usage in an organisational context (Asiri et al., 2012; Lule et al., 2012). According to Chen et al. (2011), TAM is one of the most powerful models used in research about determinants of information technology and information systems acceptance in order to predict users’ intent in using various types of information technologies and systems. The Technology Acceptance Model (TAM) is one of the most implemented models in the area of information communication technology (Asiri et al., 2012; Davies, 1986; Leong & Huang, 2002; Lule et al., 2012; Venkastesh & Bala, 2013). TAM is known for its use for identifying user perceptions and intentions related to the adaptation of technology, which in turn can predict technology use. This prediction of use (and future use) is important, as much of the research highlights that the intention of the user is the main driver behind the successful use of technology (Asiri et al., 2012). As noted in the literature review there are a number of factors that impact on the intention of the user such as age (Section 2.2.5), training (Section 2.3.3.1), support (Section 2.3.3.3), system experience (Sections 2.3.1.2 and 2.3.4.1) and level of education (Section 2.3.2), which can increase or reduce the likelihood of a user in adopting a particular technology. In addition to these external variables, individuals’ beliefs and attitudes, also impact on the usage of technology (Asiri et al., 2012). Given the importance placed on external and internal factors, and given that it is a tested theory for researching technology use, TAM’s theoretical

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2 This model was informed heavily by Fishbein’s and Ajzen’s (1975) work, which identifies the problems users face while using technology because of their attitudes. It was also influenced by the Theory of Reasoned Action (TRA) (Leong & Huang, 2002), which suggests that a person’s beliefs influence attitudes and subjective norms that reflect on behavioural intent as well as that person’s behaviour (Raoprasert & Islam, 2010).
insights provide a strong foundation for examining the breadth of factors that contribute to the acceptance of technology by female academic staff in higher education in KSA (Leong & Huang, 2002).

One of the key features the TAM brings to this research is that it provides a theory for discussing external and internal factors that impact on the adoption of technology. The other is that it uses these factors to investigate the perceived ease of use and perceived usefulness of particular technologies (Park, 2009). The TAM is represented in Figure 2 below:

![Technology Acceptance Model (TAM)](image)

**Figure 2: Technology Acceptance Model (TAM).**

Source: F. D. Davis, Bagozzi, & Warshaw (1989)

As illustrated in Figure 2, TAM posits that the acceptance of a new technology can be predicted on the basis of the behavioural intention (BI) of users, the users’ attitudes towards usage of the technology (A), and two further internal beliefs: perceived ease of use (E) and perceived usefulness (U) (S. Alharbi & Drew, 2014).

Perceived ease of use refers to the degree to which a person believes that using a certain system will reduce the amount of effort needed to complete particular tasks (Chen et al., 2011; Leong & Huang, 2002). Similarly, the perceived usefulness refers to the extent to which a person believes that using a given system will improve his or her level of job
performance and workplace conditions. For this study, improving job performance means improving teaching and learning (Chen et al., 2011; Leong & Huang, 2002).

The interactions of various elements in the model above (Figure 2) can be explained as follows, according to S. Alharbi and Drew (2014). Behavioural intention (BI) defines the actual use of a given information technology system and therefore determines the acceptance of the technology. Perceived usefulness (U) and attitude towards use (A) both affect behavioural intention (BI). Behavioral intention (BI) is also affected indirectly by perceived ease of use (E). Attitude towards use is directly influenced by both ease of use (E) and perceived usefulness (U), while perceived usefulness (U) is directly affected by (E). Additionally, TAM theorises that perceived usefulness (U) and ease of use (E) are influenced by external factors. Therefore, ease of use (E) and perceived usefulness (U) moderate the influence of external variables on the attitudes and behavioural intentions of users in regard to a technology, and this affects the actual use of the system (S. Alharbi & Drew, 2014).

This study investigates the external and internal factors which affect responses to technology, and in a secondary analysis it explores ways these factors might influence perceived ease of use and perceived usefulness, as these are key influences on attitude, behaviours and actual technology use. Due to the impact this model has on the overall thesis, the following discussion will focus on the various studies in which the model has been used. It will also present the strengths and weaknesses of the TAM.

3.3.1 TAM use in research

TAM is among the most robust models for researching responses to systems technology (Venkatesh & Davis, 2000). A number of studies have used TAM (see Al-Adwan, Al-Adwan, & Smedley, 2013; Park, 2009; Shroff, Deneen, & Ng, 2011) and several others that have extended the TAM to cater to different research contexts and needs (Chang, 2008; Dishaw & Strong, 1999; Agarwal & Karahanna, 2000; Taylor & Todd, 1995).

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3 For instance, Taylor and Todd (1995) proposed a more integrated model of TAM and a theory of planned behaviour (TPB) that they named as Combined TAM-TPB. Venkatesh and Davis (2000), on the other hand,
TAM has been used in a number of learning contexts. For instance, Shroff et al. (2011) used TAM to examine students’ behavioural intentions towards an electronic portfolio system. Similarly, Park (2009) used TAM to investigate university students’ intention regarding the use of elearning. Al-Adwan et al. (2013) used TAM to investigate students who successfully engaged with elearning systems in universities in Jordan. The particular focus of their research was to examine the factors that influence the effective use of elearning. They wanted to obtain a broad understanding of the end users’ acceptance process for replication in other higher education contexts. The widespread use of TAM demonstrates that it is a solid theoretical model whose validity extends to various contexts. F. D. Davis (1989) stipulates that TAM’s perceived usefulness is mostly influenced by the idea that it is easy to use, and hence both ‘easy to use’ and ‘usefulness’ predict attitude. As seen from the examples above, TAM has been adapted to different fields and contexts, which shows it has a high degree of adaptability and acceptability (Park, Nam, & Cha, 2012).

3.3.2 TAM strengths and weaknesses

TAM has a number of strengths and weaknesses. One of the strengths of this model it that it enables organisations to adapt to various contexts and research sites (Al-Gahtani, 2004). This is evidenced by its capacity to analyse in-depth behavioural phenomena for a wide array of technologies and populations (Flavian & Gurrea, 2007). TAM has a long history and is a tested effective model for analysing different levels of technology use (K. A. Al-Harbi, 2011). The strengths of the model also include its validity, reliability and cost effectiveness.

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Lin, Shih, and Sher (2007) proposed the TRAM, that is, the integration of technology readiness and the technology acceptance models, while Chang (2008) proposed a model which combined task-technology fit and TAM. Agarwal and Prasad (1998) added the construct of compatibility to the technology acceptance model. Dishaw and Strong (1999) integrated TAM with the Task Technology Fit (TTF) model. Agarwal and Karahanna (2000) added cognitive absorption, playfulness and self-efficacy based on the TAM. Serenko (2008) proposed a revised TAM to investigate consumers’ acceptance of interface agents in a daily work application. Chen, Chen, and Chen (2009) anticipated an incorporated model composed of TAM, the theory of planned behaviour and technology readiness to elucidate users’ acceptance of self-service technology. Venkatesh et al. (2003), in their attempt to integrate the main competing user acceptance model with TAM and thus improve the predictability and understanding of technology acceptance, came up with a model which they called the unified theory of acceptance and use of technology model (UTAUT).
(Mathieson, 1991, cited by Demertzoglou, 2008). Indeed, Chen et al. (2011) reviewed 24 studies on various attributes of TAM and concluded that the model is a useful theoretical tool, which can help researchers to understand and explain users’ behaviour in the implementation of information systems.

One of the main criticisms aimed at TAM is that it relies too much on quantitative methods of research (Brewer & Hunter, 2006; Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2003). Another weakness of the model, according to Willis (2008), is that TAM does not take into account the influence of the feelings that users have when presented with a particular technology. For instance, the model assumes that each technology being reviewed is completely new to the users. However, in many cases this is not true since new technologies are developed from existing technologies, which the users are familiar with to different degrees. For instance, LMSs (like Blackboard in this study) is best suited to users who have internet and email skills. To such people, using the system is not an entirely new experience. But users who have no internet and email skills may regard Blackboard as a very complex system. Second, some critics argue that the model fails to consider the temporal components of user behaviour (Howell, 2007). For instance, upon implementation of a particular information technology, users will develop different attitudes and habits towards its use, good or bad, which also need to be considered. Third, critics point out that TAM needs to include new variables with the objective of improving knowledge, and to adapt the model to different contexts involving special interests (Flavian & Gurrea, 2007). These attributes are lacking in the model’s original version. For instance, with respect to studies involving elearning, modifications to the model could involve expanding it to include additional beliefs that can affect the acceptance of elearning, such as social influences as suggested by Al-Adwan et al. (2013).

This research endeavours to overcome the above indicated weaknesses by adopting some of Al-Adwan et al.’s (2013) suggestions. Specifically, TAM’s advantages will be capitalised on and the model’s weaknesses minimised by modifying it to serve the research objectives and focus on a particular technology (LMSs) rather than all aspects of elearning. Modifications to
the TAM research agenda in this study also included a mixed methods approach to the research. As will be explained in more detail in the next section, qualitative open-ended questions were added to the survey and interviews with female academic staff were conducted to elicit more in-depth information about the attitudes not mentioned in the survey and/or habits that may influence the acceptance of LMSs by female academics in KSA not considered by the TAM. In doing so, there is the potential to fill existing gaps in knowledge about factors that influence the adoption of LMSs among female academic staff in Saudi Arabian universities.

3.4 Research Design

Given the limitations of previous research that has used TAM, this study used a mixed methods approach to the research design. The use of mixed methods is based on the understanding that “different methods may be integrated into one study in order to facilitate a TAM-based understanding of ‘usefulness’ and ‘ease of use’” (P. F. Wu, 2009, p. 4). Mixed methods research is defined as research in which a researcher or a team of researchers utilises elements of quantitative and qualitative research approaches for the purposes of wider and deeper understanding as well as corroboration (Creswell & Plano Clark, 2011). Mixed methods research uses a collection of designs or approaches (quantitative and qualitative) for gathering, analysing, interpreting, and reporting data in practical studies (V. L. P. Clark, Creswell, Green, & Shope, 2008).

A mixed methods approach was selected because it enabled the research objectives of the study to be met. A quantitative web-based survey was designed to obtain quantifiable information about the influence of perceptions of external and internal factors on technology adoption, including the relationship between background and demographic features and their use of attitudes and beliefs.

However, qualitative strategies such as interviews and open-ended questions in the survey were also selected to give an insight into issues and to provide a space for more detailed accounts of these issues from female academic staff in the specific setting of KSA (Creswell
& Plano Clark, 2011). This produced a richer data set about the adoption of LMSs by female academic staff in higher education (Bryman, 2012).

As argued by a number of researchers, mixed methods can provide “more comprehensive evidence for studying a problem … [than] either quantitative or qualitative research alone” (Creswell & Plano Clark, 2011, p. 12). Also, the use of various methods to collect data served the purpose of triangulation (Mertens, 2005), thus helping to enhance the validity of this study.

One of the disadvantages of mixed methods research is it is difficult to determine whether the method is appropriate and feasible for any given research topic. Also, mixed methods research studies have challenging designs and it requires considerable time, skills and resources to successfully implement both the qualitative and quantitative aspects of the research. There is also a need to address critical issues, such as how the two datasets will be related to each other, as well as how the research will have an enhanced value beyond the sum of its two components (V. L. P. Clark et al., 2008). In this study, the quantitative part involved a survey of female academic staff and the qualitative part involved follow-up interviews with six female academic staff across two universities. This ensured that the complexity of technology use and adoption was researched.

3.5 Participants

Participation in this research was based on fixed criteria, which included: participants had to be females working as academic staff members in one of two identified Saudi Arabian universities. They also had to be aware of the presence of LMSs in their universities, irrespective of whether they used them or not. These criteria were based on Patton’s (1990) sampling strategy, in which the sample is not only selected purposively (i.e. the sample is derived through emphasis on an in-depth understanding of the issues to be addressed) but also information-rich (i.e. the sample is likely to provide rich information relevant to the study).

The two universities in this study were:
Female academic staff from these two universities were surveyed using the Qualtrics software via an email invitation from the Deanship of E-Learning and D-Learning at King Saud University (KSU) and the Deanship of E-learning and Distance Learning at Princess Nourah bint Abdulrahman University (PNU). A smaller sample of women was interviewed to ensure breadth to the research. A more detailed account of these methods and the reasons for selection are outlined below.

3.6 Data Collection

Data for this thesis draws upon a mix of quantitative survey questions and interviews using qualitative open-ended questions to obtain a stronger data set that facilitates a progressive building of knowledge.

3.6.1 Web-based survey

A web-based survey was chosen as it can be used to understand or predict human behaviour (Hutchinson, 2004), and it complements the Technology Acceptance Model that underpins this research. Further, there is evidence that survey studies can be used to understand people’s interests and concerns through analysis of their behavioural, descriptive or preferential characteristics (Hutchinson, 2004). One of the advantages of web-based surveys is that all information can be stored in a database and can be easily viewed and stored as Excel data. Since most lecturers also have access to computers, the participants were easily accessible and the stored data did not have any environmental impacts in terms of the amount of paper used. However, with web-based surveys, response rates can be low (Abouchedid & Eid, 2004) and this may affect the final outcome of the study due to low sample sizes (Thorndike, 1997).

According to Mitchell and Jolley (2013) and Gunn (2002), survey research is valuable in that it is a fast and inexpensive way to gather a lot of information about a sample’s beliefs and
attitudes, as well as self-reported behaviours. The advantages of using survey methods include: ease of obtaining information from participants in a wide geographical area; participants in the study can be anonymous and so provide honest answers; it is an inexpensive way to collect information from many people (Mitchell & Jolley, 2013; Thomas, Nelson, & Silverman, 2011). There are also several disadvantages to using surveys. Surveys that depend on self-administration are likely to have a low return rates (Navarro-Rivera & Kosmin, 2011). Since some of the individuals who return it may not be the ones who were targeted in the research, the sample may be biased. Since the researcher and the participant do not interact during the survey, problems in the survey cannot be corrected. Hence, if the survey contains an ambiguous question, the researcher is unable to help the participant understand it (Mitchell & Jolley, 2013). A web-based survey ensures it is convenient for the respondents to use it and many can be reached within a short time (Gunn, 2002). Participants’ self-reports in surveys may be inaccurate, and thus, the survey may suffer from poor construct validity (Vaux & Briggs, 2006). In addition, if the sample is biased, the survey will reflect poor external validity. Furthermore, survey research results are most likely to have poor internal validity because the survey cannot reveal why something happened. If the purpose of a study is to determine what causes a certain effect, then it is best not to use a survey design (Mitchell & Jolley, 2013)\(^4\).

The survey instrument used for this study was replicated from that used by Al Balawi (2007). The study setting for Al Balawi’s (2007) research was three Saudi Arabian universities: King Saud University in Riyadh, King Fahd University of Petroleum and Minerals in Dhahran, and King Abdul Aziz University in Jeddah. These three universities were selected because they were founded earlier than other universities in KSA, and each one of them had started

\(^4\) To avoid the validity biases that are often associated with the use a self-report survey in the research, the researcher selected the sample purposively (where participants believed to have an in-depth understanding of the issues to be addressed in the research were selected) and also conducted interviews with some of the respondents in the self-report survey in order to help in validating the findings of the self-report survey. This therefore increased chances of the data that was collected being accurate and also ensured that the sample was not biased.
implementing distance learning at the time of the study. The sample was derived from the population of faculty that taught in the summer 2006 semester. Ten per cent of the total population of faculty in each of the three universities was surveyed, creating a sample of 531 participants from a population of 5312 faculty members. The sample was selected randomly by choosing every tenth member (i.e. 10th, 20th, 30th...) of the faculty from the faculty lists that were provided by the three universities.

The survey instrument used by Al Balawi (2007) was originally designed by Cherepski (2000). Al Balawi (2007) modified Cherepski’s instrument to make it appropriate for a study on the critical factors relating to the use of web-based instruction (WBI) by faculty members in three universities in KSA.

For this study, the survey instrument drew on that used by Al Balawi (2007) but was modified to suit the LMS (Blackboard) focus of this research and used purposively sampling to target female only academic staff. The survey consisted of a series of questions:

- Questions 1–13 related to demographic information.
- Questions 14–16 provided the participant with a number of belief statements that they responded to using a five-point Likert scale.
- Questions 17–19 provided three open-ended questions (this was an addition to the original survey design).

In addition to these original survey questions, three open-ended questions were introduced to collect data about opinions regarding Blackboard. The aim of doing this was to provide

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5 The initial design of the survey instrument as conceptualised by Cherepski (2000) was used to examine factors that promoted or discouraged faculty use of web-based instruction (WBI) in two-year colleges. The survey instrument by Cherepski was subjected to pilot testing by a panel of experts that comprised five members of faculty from different disciplines (Al Balawi, 2007). The instrument was also used by Huang (2003) to investigate the critical factors involved in the implementation of WBI by the faculty of higher education in Taiwan. Huang’s study involved pilot-testing by four educators from various colleges and institutes of technology in Taiwan that used instructional technology (Al Balawi, 2007).
more qualitative data that could be used to support the quantitative data. An overview of the survey questions is provided in Table 1, which shows how the main questions relate to the different areas of TAM.

**Table 1: Survey Overview**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Survey Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic information of respondents</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (Section 1 of the survey)</td>
</tr>
<tr>
<td>Barriers</td>
<td>a, b, c, d, e, h, k, l (Q14 in Section 2 of the survey)</td>
</tr>
<tr>
<td>Perception of support and motivation</td>
<td>f, g, i, j (Q14 in Section 2 of the survey)</td>
</tr>
<tr>
<td>Incentives</td>
<td>a, b, c, d, e, f, g, h (Q15 in Section 3 of the survey)</td>
</tr>
<tr>
<td>Attitudes</td>
<td>a, b, c, d, e, f, g, h, i, j, k, l (Q16 in Section 4 of the survey)</td>
</tr>
<tr>
<td>Perceptions of LMS use (open-ended)</td>
<td>Q17-19 (Section 5 of the survey)</td>
</tr>
</tbody>
</table>

Each of these variables is outlined in more detail below.

3.6.1.1 *Demographic information*

The first section of the survey focused on demographic details such as age, gender, level of education, position, college and university. The demographic information was important because literature has shown that demographic factors are likely to affect the acceptance and use of various technologies. For instance, using TAM, Porter and Donthu (2006) posed the question: “Why are there differential rates of internet use, based on age, education, income and race?” (p. 999). This question suggests that there are differences in how people use the internet based on their age, race, income level and level of education. Interestingly, D. L. Davis (2008) who developed the TAM, argued that age “is not a consideration in the use of the technology acceptance model” (p. 28). However, the same author cites other studies in which age and gender were included as variables, including studies involving TAM,
and he notes that these variables added perspective to the studies that were being conducted.

This study takes the viewpoint that various demographic factors influence how people have access to and use technology. Therefore, demographic information was included in the survey to gain important information about the participants. This information was important for this study because it was also used to cross tabulate with external and internal factors to examine more deeply how this background information might influence perceptions of the use of Blackboard.

3.6.1.2 Barrier factors

The second section of the survey included statements about barrier factors – that is, statements about factors that inhibited or discouraged participation in the use of Blackboard, drawing on the literature in Section 2.3.4.1. As previously noted, barriers to the adoption of technology might be related to factors such as organisational factors, academics’ characteristics and the technology (Al-Busaidi and Al-Shihi, 2010). In addition, student issues (as discussed at Section 2.3.4.1) have also been identified as a barrier to the use of LMSs in learning institutions (Nasser et al., 2011).

One of the key questions of this study was to identify the external and internal factors that affect the adoption of a LMS called Blackboard in some universities in KSA. Consequently, the survey instrument included statements on factors that inhibited or discouraged the use of Blackboard, the LMS used in these institutions. These statements were based on the degree to which the participants believed that they had adequate knowledge to use new technologies; whether they had the knowledge needed to use Blackboard; and whether they felt they had adequate time to develop teaching and learning experiences using Blackboard. The statements in this part of the survey instrument also focused on whether the participants’ universities had clear policies on using Blackboard, whether they felt there was adequate infrastructure to support the use of Blackboard, whether students supported
the use of Blackboard, and whether the participants believed that their students had adequate access to technology that could enable them to use Blackboard effectively.

3.6.1.3 Incentive factors

The third section focused on factors that encouraged participation in Blackboard use in teaching and learning. It was noted in the literature review (see Section 2.3.4.2) that there are several factors, such as improving teaching, improving student learning, improving the working conditions of lecturers, and other internal and external factors, that are motivators for the adoption of LMSs at institutions of higher education. Factors which have a positive impact on learning or teaching conditions, and motivating factors such as personal learning growth and the support users receive from institutions are considered to be incentives (Mumtaz, 2006). To investigate incentives, a number of statements were included in the survey instrument. These questions were about the extent to which the participants believed they had adequate knowledge about how to use Blackboard, how relevant Blackboard was to the participants, the participants’ levels of training, as well as the relevance of Blackboard to the participants' career development. The statements also probed how the participants perceived Blackboard in relation to their students’ motivation to use it, the level of support offered by the participants’ universities, and the extent to which the government supported the use of Blackboard.

3.6.1.4 Attitudes and opinions

The fourth section included statements on attitudes and opinions regarding the use of Blackboard. Attitude can be defined as a tendency to act in a consistently favourable or unfavourable way with regard to a given phenomenon (Kim, Chun, & Song, 2009). It can also be described as a set of tendencies and emotions that have a bearing on the decisions made by an individual in regard to people, objects or ideas (Asiri et al., 2012). According to Asiri et al. (2012), as a variable, attitude consists of three components: cognition, affection and behaviour. The cognition element comprises an individual’s factual knowledge about LMSs, the affective component embodies a person’s emotional response to LMSs and the
behavioural component encompasses an individual’s explicit behaviour that is directed toward LMSs (Asiri et al., 2012).

The importance of studying people’s attitudes is highlighted by Luan and Teo (2011) who state that “studying attitude is important because it predicts an individual’s response to an object” (p. 48). In this study, using TAM, the examination of attitude is important because previous studies have identified that lecturers who have negative attitudes toward the use of an LMS are unlikely to encourage its use by students. On the other hand, if lecturers believe that using LMSs can help them improve their teaching, they are likely to embrace the technology (Luan & Teo, 2011).

The inclusion of attitude as one of the variables to be investigated in the survey was informed by the fact that the study is based on TAM. As noted in the literature review chapter, one of the concepts on which TAM is based is that the perceived usefulness of a technology is based on how easy the technology is to use (F. D. Davis, 1989). Therefore, the perceived ease of use and usefulness of a technology predict the attitude that people will have towards that technology. Notably, a user who believes that a new technology will be helpful, easy to apply in completing his or her tasks, can be expected to have an attitude that is welcoming towards that technology (Cegarra-Navarro, Eldridge, Martinez-Caro, & Polo, 2014).

3.6.1.5 Perceptions of technology adoption (closed questions)

Perceptions are a critical consideration when using TAM. Park (2009) observes that the perceived usefulness of technology as well as the perceived ease of use of the technology interact and are responsible for the attitudes that people have toward technology. Moreover, perceived usefulness affects the intention to use and may in the end affect the actual use of technology. If a LMS is perceived as being essential for learning and teaching, it is possible that the faculty would desire it more. As indicated in the literature review chapter, the use of elearning in Saudi Arabian universities (and in other learning intuitions
around the world) is influenced by perceptions that are held by both learners and the teaching staff.

In order to understand the perceptions of different members of faculty towards the support they receive in the use of Blackboard, the survey instrument included several statements about the level of support received from peers, the university, and the government.

3.6.1.6 Perceptions of Blackboard (open-ended)

The final section of the survey instrument, as noted above, had three open-ended questions relating to the perceptions of Blackboard use. They were:

- What are some of the reasons you use Blackboard in your teaching?
- What are some of the reasons you don’t use Blackboard in your teaching?
- What do you think would assist you to use Blackboard more in your teaching?

As some researchers have pointed out, closed questions have been found to restrict the respondents’ answers (Reja, Manfreda, Hlebec, & Vehovar, 2003). On the other hand, open-ended questions have been found to be effective in gathering information that is spontaneous (Reja et al., 2003). Additionally, it has been established that open-ended questions do not have the bias that usually surfaces when responses are suggested to respondents. The intent in asking the additional open-ended questions was to discover new and useful information (Reja et al., 2003). This requires additional coding, which will be discussed in the data analysis section later in this chapter (see Section 3.7.1). The use of both closed and open-ended questions has, however, been advocated by Reja et al. (2003). This is particularly important in this research design, as suggested in the TAM, people have different reasons for accepting technology. Therefore, open-ended questions give them the platform for making it known to the researcher what their reasons are for technology acceptance. Using such responses, and in line with TAM, the researcher can then predict the technology usage intentions of the population from the sample was obtained (Leong & Huang, 2002). The new open-ended section extends Al Balawi’s research to focus specifically
on female academics and provides additional data via interviews, to fill a gap in the research mentioned in the literature review. The research goes further and investigates how academic staff actually engage the use of LMSs. Therefore, questions were formulated to determine the various ways in which university academic staff use LMSs, as well as their experiences. The research also used open-ended questions to ensure that the participants had the opportunity to answer in their own words rather than relying on predetermined statements.

3.6.2 Interview method

The interviews provided a wider data set in which personal stories could be told, and may have led to the collection of more valid data due to the personal contact between the researcher and the respondents, and the opportunity to ensure that respondents understood the questions (Thomas et al., 2011). Because of the interviewer’s presence, participants had the chance to expand and elucidate their ideas, and identify what they deemed to be crucial factors (Martyn, 2010). Importantly, for this research, it was possible for a multilingual interviewer to conduct the research with various respondents in different languages (Monette, Sullivan, DeJong, & Hilton, 2011).

Conducting interviews is also more flexible than using just survey questions. The interviews were tailored to suit the needs of the participants and participants were therefore more likely to open up and give more honest and meaningful responses (Monette et al., 2011; Wilkinson & Birmingham, 2003).

There are several disadvantages associated with using personal interviews. The first is the high cost, since the interviewer has to travel to meet the respondents personally. The second disadvantage is that a lot of time is required to conduct, transcribe and translate interviews. The third point is that there can be interviewer bias. This is because the interviewer may misinterpret or incorrectly record something said by a respondent due to their personal feelings about the topic. Additionally, the respondent’s characteristics such as age, sex, social class, race and many others may affect the way the interviewer asks
questions and interprets the answers provided by the participants (Monette et al., 2011). Further, since the research is about the participants’ workplaces, they may be concerned that taking part in an interview could compromise their position, and this concern may affect their responses.

As already noted, one of the main criticisms aimed at TAM is its overreliance on quantitative methods of research (Brewer & Hunter, 2006). Therefore, interviews were used as a way to contribute to the research by providing qualitative data. Semi-structured interviews were used in this mixed methods research to provide a wider data set in which personal stories could be told, and this may have led to the collection of more valid data due to the personal contact between the researcher and the respondents, and the opportunity to ensure that the respondents understood the questions (Thomas et al., 2011).

J. H. Wu and Wang (2005) emphasised that interviewing can play a role in understating the current adoption of LMSs, as it highlights what the essential reasons for the adoption are and increases the quality of analysis (DiCicco-Bloom & Crabtree, 2006; Harrell & Bradley, 2009). Indeed, the use of open-ended questions allows a degree of flexibility (Seidman, 2013) and gives an insight into the issues beyond the survey and provides a space for more detailed accounts on these issues from the participants (Creswell & Plano Clark, 2011). Thus, the use of interviews is designed to produce a richer data set about the adoption of LSM in higher education by female academic staff in KSA (Bryman, 2012).

There have been a number of previous research studies that have used interviews within the TAM framework, including Smarkola (2011) and Säntti (2011). The research by Smarkola (2011) used a mixed-methods approach to investigate experienced classroom teachers’ and student teachers’ computer usage intentions, and to test the efficiency of TAM and DTPB.

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6 To avoid some of the problems that are associated with interviews, the researcher selected the six interview participants purposively (from Princess Nourah University and King Saud University based on their email contacts). The process I used included making contact, informing them about the interview and its purpose, and ensuring they understand that taking part in the interview was voluntary.
(Decomposed Theory of Planned Behaviour) for predicting teachers’ computer use intentions. Similar to the research presented in this thesis, their participants completed a survey that was developed based on using TAM as its theoretical framework. In addition to the survey, the study by Smarkola (2011) also adopted the use of a purposive sample of participants by selecting some of the participants to participate in semi-structured interviews.

In the research by Säntti (2011), the main aim was to find out user’s perception regarding an e-commerce software. The methods of collecting data included semi-structured interviews, a questionnaire and observation. The semi-structured interviews (conducted with six participants) were used as the main data collection method, and were used to collect data on users’ perceptions and attitudes regarding the e-commerce software’s usability. The semi-structured interviews were developed using concepts from TAM and other acceptance models. Säntti (2011) also used the observation method to collect data by looking at how the participants were using the technology in question.

This research uses semi-structured interviews, because they are useful in collecting qualitative data (Harrell & Bradley, 2009) and because they have the potential to: develop a positive rapport between the interviewer and interviewee (Wengraf, 2001); explore feelings and emotions (Kajornboon, 2005); create validity since the interviewees were able to give information in detail and depth (Harrell & Bradley, 2009); enable participants to expand and elucidate their ideas, and identify what they deem to be crucial factors (Martyn, 2010). Importantly, for this research, a multilingual interviewer was able to conduct the research with various respondents in different languages (Monette et al., 2011).

In addition to its advantages, this method has several drawbacks. One is that the success of the interview depends on the skills of the interviewer (Wengraf, 2001). The interviewer is expected to have the ability to think of the questions during the interview to elicit deeper answers (e.g. “Tell me more about...” and “Can you provide an example...”). The powers of expression of the respondent on the issues can also influence the answers about LMSs. The
use of interviews was also time-consuming and a lot of resources have to be set aside for the process (Seidman, 2013). For example, the interviewer has to travel to meet the respondents personally, and there is the time commitment required to conduct, transcribe and translate interviews. Of concern for this research were issues about whether participation in the interviews would compromise the interviewees’ positions in the workplace and hence affect their responses to the questions.

To overcome some of the potential negatives, the interviews were informed by the guidelines developed by Gillham (2005) and Pickard (2007) for effective interviews. Their recommendations included firstly making the interviewees feel comfortable and relaxed. This was done by conducting interviews at a location preferred by the participants, and that this space was quiet, comfortable and private. Thus, the interview venues were near the universities (their work places) to ensure that the respondents were familiar with the surroundings. Secondly, effort was made to establish a relationship with each interviewee. This involved being aware of the participants’ feelings such as anxiety or hostility (Seidman, 2013). At the beginning of the interviews, the interviewer explained the interview structure, asked the interviewee to read and sign the consent form, and lastly asked the interviewee whether they had any questions (Seidman, 2013).

Third, the researcher made an effort explain the research topic throughout the interview. This involved giving clear information and reaffirming confidentiality (Harrell & Bradley, 2009). A neutral start on the topic of LMSs was used. Therefore, the first questions asked encouraged the interviewees to talk about themselves and their history. The researcher also guided the participant to key themes anticipated by the researcher as well as those that emerged from the interview (Harrell & Bradley, 2009). For example, to explore LMSs adoption in depth, follow-up was done using probes and questions to get more information about some answers. As suggested by DiCicco-Bloom and Crabtree (2006) after the interview, effort was made to ensure there were no unexplained issues (Rowley, 2012) and participants could return to their everyday social interactions (DiCicco-Bloom & Crabtree, 2006). At this point, it is always vital to ensure that the respondent is not left with any
unfinished business. This included ensuring that there was no unexplained issue or issue of burning importance (Rowley, 2012). After completion of the interview, the researcher listened to the recording and any thoughts, insights and ideas from the interview were recorded.

3.6.2.1 Interview questions

The semi-structured interview questions involved asking the research participants a number of questions in the following five broad areas:

1. Demographic information.
2. The participant’s experiences in regard to using learning management systems.
3. The participant’s views about the use of LMSs in higher education.
4. Factors that supported participants’ use of LMSs.
5. Factors that limited the participants’ use of LMSs.

The use of interviews is in accordance with the mixed methods approach that was used in the study. As noted in Section 3.4, the use of mixed methods is based on the understanding that “different methods may be integrated into one study in order to facilitate a TAM-based understanding of ‘usefulness’ and ‘ease of use’” (P. F. Wu, 2009, p. 4). It is also known that the use of mixed methods can offer “more comprehensive evidence for studying a problem ... [than] either quantitative or qualitative research alone” (Creswell & Plano Clark, 2011, p. 12). Further, it was also pointed out that the use of different methods of data collection serves the purpose of triangulation (Mertens, 2005) (see Section 3.4). Thus, the use of interviews was meant to provide insights into the issues beyond the survey, and offer a space for more comprehensive accounts of the issues being investigated from the female members of faculty in the selected universities in KSA, as pointed out in Section 3.4. Accordingly, the interview questions were used to verify the quantitative data collected in the survey. The opening questions, which were designed to establish rapport, were
intended to learn more about the participants ("Tell me a little about yourself?"). The rest of the interview questions were formulated as explained in the paragraphs below. The full interview schedule is provided in Appendix A.

The first set of questions focused on demographic details such as level of education, nationality, position, college, university, and experience in teaching at the university. As noted already (see Section 3.6.1.1), this study takes the viewpoint that demographic factors might influence how different people have access to and use technology.

The second set of questions examined participants’ experiences in regard to using LMSs in general and Blackboard in particular. Notably, the review of literature found that elearning is still in its infancy in KSA, and that elearning is used to support traditional classroom methods of delivering instruction (Al Alhareth, 2013) (see Section 2.3.2). Therefore, the interview responses to this set of questions provided data on the extent to which LMSs were being used in universities in KSA, the LMSs technologies being used, the challenges members of faculty faced, and how the universities helped their members of faculty to use these technologies. This part of the interview was informed by the survey questions which focused on the Blackboard technologies that the participants were familiar with (question 13), factors that inhibited the use of Blackboard (question 14), and factors that promoted the use of Blackboard (question 15). The questions were:

- What LMSs are you familiar with?
- What do you use them for?
- Do you use Blackboard? If so why? How? (Can you provide me with an example?)
- What challenges do you face using a learning management system?
- How does the university help you?

The third set of questions focused on participants’ views about the use of LMSs in higher education. In the literature review, it was noted that lecturers play a pivotal role in the use
of technology in teaching (Copeland, 2001) and that their beliefs and attitudes towards a technology affect how they interact with that technology (Asiri et al., 2012). Therefore, it was important to gain an understanding of participants’ views. The question in the interview schedule was: “What do you think about using a LMS in higher education?”

The fourth set of questions were focused on the factors that supported the participants to use LMSs. In the literature review, there were a variety of responses around factors that promote the use of LMSs, ranging from enhancing distance learning and empowering students’ learning, to broadening the scope of the resources that students and lecturers can use (Culp et al., 2003). In addition, in the survey questions, question 15 focused on factors that encouraged or promoted the use of Blackboard. Thus, comparing the responses to this survey question and those given to the interview questions provided a better understanding of the phenomenon. Given this wide range of possible responses, a question was asked about factors help participants to LMSs. The question was: “What factors do you think can help you to use a learning management system such as Blackboard?” This related to the research question on how external factors supported or limited the adoption of LMSs.

The fifth set of interview questions was aimed at determining the factors that limited the participants’ use of LMSs. In particular, this set of questions sought to find out the barriers or factors that inhibit the use of Blackboard by the participants in the research.

After the researcher tested the survey on some critical friends within the university sector in KSA, the interviews were conducted with six female academics.

3.6.2.2 Interview participants

Six female academic staff members were invited to participate in the interviews. The sample selected was based on the guidelines given by Guest, Bunce, and Johnson (2006). Romney et al. (1986, cited in Guest et al., 2006), found that small samples can be highly effective provided the participants have the required degree of expertise. The sample was selected based on a theoretical sampling procedure. A concise sample was selected which represented the wider population. Four academics from Princess Nourah University and two
academics from King Saud University were invited to participate in the interviews. The respondents were identified via email contact and approached by the researcher, who made it known that participation was voluntary. Interviews were conducted during the first semester of the academic year in KSA (September 2015). Each interview took about 20 minutes. The time taken was affected by the need to ask probing questions and the amount of information provided by the respondent. Each interview was recorded using a digital voice recorder.

The six participants were selected from different departments and colleges of the two universities. Three of them were from the College of Science at one university. Two of these participants were lecturers and one was an assistant professor. The assistant professor was a PhD graduate and had 17 years of teaching experience while the lecturers had master’s degrees and had worked for between one and five years. The remaining three participants were selected from the Deanships and Institutes. Two of these were lecturers with master’s degrees and teaching experience of between one year and five years, while the other had a bachelor’s degree and had been a teaching assistant for four years.

3.7 Data Analysis

Creswell (2014, p. 2) notes that mixed methods research requires the researcher to go beyond collecting and integrating qualitative and quantitative data. According to Creswell (2014, p. 6), there are three possible design structures for a mixed-methods research, namely a convergent design; explanatory sequential design; and an exploratory sequential design. The design structure for this study could be characterised as sequential explanatory, since the collection and analysis of quantitative data was used to inform or shape the collection and analysis of qualitative data.

Following an exploratory sequential design structure, a quantitative method was first used to survey a larger sample of participants to seek out themes and similarities using a web-based survey (Oyaid, 2009). Secondly, the quantitative data was analysed and themes were
established to be used as the basis of interview questions. In the following section, the ways in which the data was analysed in relation to each of the methods is discussed.

3.7.1 Web-based survey

The survey was sent to a population of approximately 600 male and female academic staff and 233 completed the survey. One hundred and seventy-eight of the 233 survey participants were female academic staff. The survey was prepared, translated from English into Arabic and provided to the participants for completion as an online survey via the Qualtrics software. The survey was sent to staff via the elearning department within the university. This was convenient for the participants and ensured that as many participants as possible could be reached within a short time. Please refer to Appendix B for survey questions in English and Appendix C for survey questions in Arabic. Participants could answer in English or Arabic.

The survey instrument was designed using Qualtrics, and responses were received through the same mode. These statistics (quantitative data) were analysed using SPSS and analysed in the following ways.

Q1: The participants were asked which university they are employed at (King Saud University or Princess Nourah bint Abdulrahman University). This question was used in the data analysis to ensure equal representation from the two universities. To ensure that this information could not be used against the participants, no comparisons were made across the two universities in technology use or in the participants’ attitudes and beliefs. (This is explained in more detail in Section 3.9.)

Q2 and Q3: The participants identified their colleges/departments. This was an open-ended question where participants self-identified. This question was linked to the research question about the extent to which female academic staff use LMSs. In the data analysis, this question was used to examine possible trends in which colleges or departments used LMSs. As this relies on the universities having similar names for discipline areas, a general grouping of colleges/departments was made in this analysis.
Q4: This question provided an understanding of how long each of the research participants had been teaching in higher education (options provided in the survey included: under 1 year, 1-5 years, 6-10 years, 11-15 years, more than 15 years). This question was used to analyse how different levels of teaching experience may be related to different levels of LMS use. As noted in the literature, experience can determine intention and usage behaviour towards technology (Venkatesh et al., 2003).

Q5: This question was designed to provide an understanding of how level of education and position within the university might influence LMS use. In the data analysis this question was cross tabulated with Question 11 (number of courses participants used a LMS in), which examined use of LMSs. Questions 5 (level of education attainment – bachelor, master, doctorate, other) was used to establish possible correlations between use of LMSs and qualification. Question 6 (position within the university – teaching assistant, lecturer, assistant professor, instructor, full professor) was designed to examine how different positions could be correlated with using LMSs in different ways.

Q7: This question asked participants to identify their gender (male/female). This question was asked to ensure only the responses from female academics were used in the study. In the data analysis this question was used to filter responses initially to ensure the key objective of the research was met.

Q8 and Q9: This question focused on the age group (under 25 years, 26-30 years, 31-35 years, 36-40 years, 41-15 years, 46-50 years, 51-55 years, over 55) of the participants and their country of origin. These questions were linked to the key research question about the extent to which female academic staff used LMSs. In the data analysis these questions were cross tabulated with Question 11 to determine if there were any differences in the use of LMSs based on age and nationality.

Q10 and Q12: Question 10 asked participants how many courses they typically taught in a one-year period (1-3 courses, 4-6 courses, 7-9 courses, more than 9 courses). In the data analysis these questions were cross tabulated with Question 11 to determine if teaching
more or fewer courses influenced the use of LMSs (this related to the research question about how external factors might influence LMS use). Similarly, Question 12 asked how long they had been using LMSs (never had Blackboard experience, 1-3 years, 4-6 years, 7-9 years, more than 9 years). According to Venkatesh et al. (2003), experience determines intention and usage behaviour toward a technology. This question examined if this finding was supported in this study.

Q11: This was a key question asked in the survey as it was used in a number of cross tabulations and it allowed the research to examine if there had been any changes to Al Balawi’s 2007 finding that only 28.6% of female academic staff used web-based learning. Question 11 asked participants if they used LMSs and how many courses they used a LMS in the delivery of instruction and other materials (No courses/subjects, for some subjects, for most, for all subjects). This question was used to gauge the usage of Blackboard.

Q13: This question sought to examine the type of Blackboard technology or technologies that the participants had training in. A number of options were provided including: none, blackboard features, discussion forum, list servs chat room, teleconferencing, videoconferencing, web-based lectures. Many of these features are discussed in the review of literature (Section 2.3.4) (see Badawood & Steenkamp (2012) and Zouhair (2010)).

Q14 – 16: These questions presented participants with a set of statements. Using a five-point Likert scale they ranked their beliefs, feelings or attitudes for each statement as one of the following: strongly disagree (1), disagree (2), neutral (neither agree nor disagree) (3), agree (4) or strongly agree (5).

Section 2 (Q14) provided participants with a list of statements about their barriers and perception of support and motivation. Section 3 (Q15) focused on incentives and Section 4 (Q16) was based on statements about attitude.

In the findings section, data was grouped according to the four TAM categories (rather than by question). These categories are: (a) barriers, (b) perception of support and motivation, (c) incentives and (d) attitude to address the research objectives.
Using the Likert scale, percentages were used along with the mean to establish where majority of the data was distributed (e.g. a mean of 1 would show respondents strongly disagreed with the statement they were responding to). Standard deviation was also used to show how the data deviated from the mean. The less the standard deviation indicates that the values lies within the mean.

Some categories were also cross tabulated with Question 11 (which related to the use of LMSs) to determine if there were trends based on attitudes and perceptions in relation to LMS use.

The last section asked three open-ended questions about the participant’s opinions and perceptions of Blackboard. The first question was designed to find out participants’ reasons for using Blackboard. Using categories established from the literature review around enablers of LMSs (see Section 2.3.4.2), the responses were coded into the following categories: (a) Improve Teaching (b) Improve Student Learning (c) Improve Working Conditions (d) Other. The second question focused on why participants did not use Blackboard. The literature review identified a number of barriers to LMSs and issues associated with it (see Section 2.3.4.1). These formed the basis for the categories into which the open-ended responses were classified including: (a) Institutional Issues (b) Technology Issues (c) Academic Issues and (d) Student issues. These same categories were used for the final question, which further examined barriers to use in order to identify what participants needed to overcome these barriers.

After the analysis of the web-based survey was conducted, several themes emerged that provided key questions for the interviews.

3.7.2 Interview data analysis

Analysis of the interview data was done by reading and re-reading the results (responses) and establishing themes linked to the TAM themes. This was done by closely following the processes suggested by Corbin and Strauss (2008) and Creswell (2009). These included organising the data for analysis through transcription from audio. The transcriptions were
then translated from Arabic to English. Through this process, the researcher familiarised herself with the materials and then coded the data in accordance with the TAM model. The data coding process involved sorting the data into categories based on the themes that emerged from the data. The codes were then categorised into a table and interpretation of the overall meaning of the data was done. Every attempt was made to be faithful to the participants’ true voices during the interpretation of the data, for example by identifying and using quotations directly. However, a limitation with this method is interviewer/researcher bias. This is because the researcher may misinterpret or incorrectly record something said by a respondent due to their personal feelings about the topic. Additionally, the respondent’s characteristics such as age, sex, social class, race and many others may affect the way the interviewer asks questions and interprets the answers provided by the participants (Monette et al., 2011).

To try to overcome some of this bias the data obtained from the interviews was organised in frequency tables to identify common responses so that the responses would be categorised and sub-categorised according to specific themes and relationships using tables that addressed the research questions. Categorising and sub-categorising helped the researcher to draw conclusions about the findings from the frequency tables. (For an example of one interview coding please refer to Appendix D).

The first set of questions in the interviews focused on demographic details. Data were recorded in terms of each participant's college, their degrees, their positions, their nationalities and how long they had been teaching at the university. Demographic data were compared with demographic data from the survey by comparing responses to Questions 2, 4, 5, 6 and 9 of the survey. The comparison of data enabled the researcher to get more comprehensive data regarding the demographic information investigated in the research.

The second set of questions examined participants’ experiences in regard to using LMS in general and Blackboard in particular. This set of questions related to the main research question exploring what ways, and to what extent the participants used LMSs. This question
also examined the TAM factor of actual system use (F. D. Davis, 1989). Therefore, the data were coded based on the different types of LMSs that the participants were familiar with (for example, Blackboard, Moodle etc.) and the different uses/features of Blackboard (e.g. discussion board, announcements) to gain general and specific perspectives of use of LMSs.

The third set of questions focused on participants’ views about the use of LMSs in higher education. The fourth set of questions focused on the factors that supported the participants to use LMSs and the fifth set of questions focused on factors which limited the adoption of LMSs. These questions sets were coded via TAM themes to enable the responses to link back to the theoretical premises of this research. The level of coding and codes used are outlined in Table 2 below which also includes some examples.

**Table 2: Coding Outline**

<table>
<thead>
<tr>
<th>TAM origin</th>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual System Use</td>
<td>Actual LMS Use (AU)</td>
<td>• Actual system use of Blackboard features (ASU-Bb) (for example: discussion board, exam, announcements, quizzes, notifications, communication etc.)</td>
</tr>
<tr>
<td>External Variables Positive</td>
<td>External Variables Positive (EV-P)</td>
<td>• External variables, institutional issues Positive (EVI-P) (for examples: incentives, encouragement, training)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• External Variables technology-related issues positive (EVT-P) (for example: technological support)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• External Variables academic issues positive (EVA-P)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• External Variables student-related issues positive (EVS-P) (for example: family support, technology knowledge, blended learning experience, social support)</td>
</tr>
</tbody>
</table>
The interview data was merged with the survey based questions to enable a “side-by-side comparison” (Creswell & Plano Clark, 2011, p. 223) of the two data sets (qualitative data and quantitative data). Direct quotations from interviewees (as well as the open-ended question responses) were compared to the statistical results from the survey as a means of comparing and contrasting in the findings. For example, the third set of questions was compared with Question 16 of the survey in which participants were asked to respond to
statements about their attitudes and opinions regarding Blackboard. The findings from the fourth question set were compared with responses to survey question 15 regarding factors that could encourage participation in Blackboard. Responses from question set five were compared with answers provided to Question 14 in the interviews.

3.8 Research Evaluation

A number of efforts were made to ensure the trustworthiness of the research processes and findings presented, in line with the five criteria for research evaluation cited by Guba and Lincoln (1989): validity, reliability, credibility, transferability and confirmability.

3.8.1 Validity

Validity refers to the extent to which a research measuring instrument can measure what it is intended to measure (Paler-Calmorin & Calmorin, 2007). Gray (2009) notes that “to ensure validity, a research instrument must measure what it was intended to measure” (p. 155). This means that the measuring instruments (in this case, the web-based survey and the interview) must measure the actual issues that the research is intended to investigate. There are seven types of validity: “internal, external, criterion, construct, content, predictive and statistical validity” (Gray, 2009, p. 155). Internal validity refers to the correlation questions (that is questions related to cause and effect) and to the degree to which conclusions about causality can be drawn. External validity refers to the degree to which it is possible to generalise the data that is collected to a bigger population or setting. Criterion validity implies comparison of the responses in a study with accepted measures of the concept under investigation. Construct validity concerns measuring abstract concepts and attributes, for instance, ability, attitude and knowledge. Content validity is concerned with validating the content of the research, which means creating a link “between what is taught and what is tested” (Gray, 2009, p. 157). Predictive validity refers to how well the research can predict a future phenomenon. Finally, statistical validity is the degree to which a study makes use of an appropriate design as well as statistical methods (Gray, 2009). This research aimed to meet all the described forms of validity because it used a replica of a tested, verified web-based survey that has been peer reviewed. Further, there is the ability to
compare the findings with past study findings. To increase validity, a mixed methods approach was adopted to collect information and the research used a large sample from two universities.

### 3.8.2 Reliability

Reliability refers to “the extent to which a research instrument is dependable, consistent, and stable” (Paler-Calmorin & Calmorin, 2007, p. 55). Cronbach’s (1951) coefficient was used to measure the reliability of the survey instrument and interview schedule in the same way as Al Balawi (2007). This coefficient is one of the tools that is most commonly used in measuring the internal consistency of research instruments (Cronbach, 1951).

### 3.8.3 Credibility

Credibility of a study is related to the question of how congruent the findings of the research are with reality (Shenton, 2004). That is, the findings need to reflect closely what is happening in the wider population. This can then make the findings more trustworthy. To ensure credibility, there is the need to take steps “that can help with the task of persuading readers of the research that the data are reasonably likely to be accurate and appropriate” (Denscombe, 2007, p. 297). These steps do not offer a guarantee, since none is available. However, they offer reassurance that the data obtained have been produced and verified in accordance with good practice. They include triangulation (use of data obtained using more than instrument to compare and contrast the findings), respondent validation (going back to the participants with the data after the study to check the validity of the findings) and use of grounded data (mostly applicable in qualitative research, where the researcher spends a lot of time in the field and interacts with the participants, thus scrutinising their behaviour) (Denscombe, 2007). In this research, six follow-up interviews were used to triangulate data to clarify issues identified in the survey, as discussed above, and they acted as a form of respondent validation.

### 3.8.4 Transferability
Transferability is like external validity, since it is concerned with the extent to which the findings of a given study can be applied in other contexts with other respondents from the perspective of the reader of the findings (Lodico, Spaulding, & Voegtle, 2010). Transferability is evaluated by “looking at the richness of the descriptions included in the study as well as the amount of detail provided about the context in which the study occurred” (Lodico et al., 2010, n.p.). Since the reader is the person who must assess transferability, “richly detailed or thick descriptions enable the reader to make judgements about the similarity of participants ... and other characteristics of the research site and the reader’s own site” (Lodico et al., 2010, n.p.). Transferability is not concerned with whether the study included a representative sample; rather, it is about “how well the study has made it possible for readers to decide whether similar processes will work” in their own settings (Lodico et al., 2010, n.p.). In this study, an effort was made to ensure transferability by using study approaches that have been used in the past in similar studies by researchers such as Al Balawi (2007), Huang (2003), and Cherepski (2000). This shows that a related study could also be conducted in the future.

3.8.5 Confirmability

Confirmability implies that “the researcher has determined the accuracy or credibility of the findings through specific strategies” (Stoner, 2010, p. 28). Confirmability can be attained through respondent validation, triangulation, and use of strong data collection methods and other strategies (Stoner, 2010). In this study, the use of interviews acts as a strong method of data collection since the interviews were conducted when the researcher was alone with the respondent, and this is one of the strong data collection methods noted by Stoner (2010).

3.9 Ethical Considerations

Due to the sensitive nature of workplace-based questions, a number of measures were put into place to ensure there was no potential harm or risks to the participants. Firstly, I
requested and was granted ethical approval number CHEAN B 000018808-07/14 to use human subjects in the research from the Design and Social Context College Human Ethics Advisory Network, which is a sub-committee of the RMIT Human Research Ethics Committee (HREC) at RMIT University, located in Melbourne, Victoria (Appendix E). I also requested permission to conduct the study at the two universities, King Saud University (Appendix F) and Princess Nourah bint Abdulrahman University (Appendix G). Both universities granted me permission to carry out the survey and conduct interviews with members of their academic staff.

The researcher also made sure she included confidentiality clauses in the web-based survey. This was meant to assure the respondents that their answers would be used for the sole purposes of the research, and that their identities would not be revealed to third parties. Additionally, the confidentiality clause assured respondents that their contacts would not be shared with anyone else. It was also made clear that the survey would not be used to make comparisons between the two universities to ensure that this data could not be used to evaluate workplace performance.

During the face-to-face interviews, the researcher made sure she respected the norms and customs of the Saudi women. Specifically, the researcher upheld some distance, which was meant to convey respect for the respondents’ personal spaces. The researcher also requested permission to use a tape recorder during all the interviews. Further, the interviews with female academic staff were conducted by another female.

In both the web-based survey and interview, informed consent was given by all participants. This included a Plain Language Statement in both English and Arabic. To protect the participants’ identities in the interviews, pseudonyms were used for the female academic staff. Additionally, transcripts of the interviews were sent for member checking (Mertens, 2005).
All data from the web-based survey and interview transcript have been kept in a safe place at RMIT University, and will be destroyed after five years. All electronic files are stored in a password-protected computer in my research office at the university.

3.10 Limitations

This research had a number of limitations. In general, the findings are only indicative because only 29.7% of the female academic staff completed the web-based survey and only six academics took part in the interviews. These samples cannot be considered representative of all female academic staff in KSA.

For example, the web-based survey asked participants about their use of technology. The self-reported nature of the web-based survey also exposed the research to dishonesty from respondents, especially those who wanted to create a specific impression in the eyes of the researcher.

The number of face-to-face interviews was limited by cost and the strict schedules that the researcher had to adhere to. Due to the nature of the open-ended questions, the researcher had to keep guiding the conversation to prevent the respondents veering off topic, which was in some cases considered unkind by the respondents.

Finally, a shortcoming of this research is that it did not include any data on female academic practices. For instance, there were no observations or collection of teaching materials and the data is dependent on the teachers’ self-assessments and perceptions.

3.11 Conclusion

This chapter introduced the research methodology (a mixed-methods methodology) and the methods of both data collection (a web-based survey and interviews) and data analysis (statistical and thematic analysis), after first explaining the underlying theoretical perspective (TAM). The chapter concluded with a short discussion of the criteria for evaluating the trustworthiness of the research and the main research limitations.
The next chapter presents my findings about female academic use of LMSs in two universities within the KSA.
4. Findings

4.1 Introduction

This chapter presents the findings of a survey and interviews that were done in relation to the use of learning management systems by female academic staff in universities in Kingdom of Saudi Arabia. The first and second parts will present the findings from responses to the closed questions in the survey. The first part outlines background information about participants in the survey and the second part provides a list of statements by participants about their barriers, incentives, attitudes and perceptions of support and motivation regarding their use of Blackboard.

The third part of this chapter outlines the responses to the open-ended interview questions in order to examine the reasons for using or not using Blackboard, and some self-identified recommendations from participants that might increase Blackboard use. The following part presents the interview findings which are based on TAM themes. The conclusion for the chapter is the last section.

4.2 Background Information

The first part of this section outlines background information about participants in the survey including: the institutions (i.e. universities) in which the survey participants were employed; specific colleges and departments the participants were employed in; the length of time they had worked in their respective institutions; their highest level of education; and their job position at the time of carrying out the survey.

It is important to note that this web-based survey was aimed at female academic staff only. The study was carried out in two universities. One of them employed both male and female staff and both males and females completed the survey. As the research targeted female participants only, the data was filtered to show only the responses made by female participants. Therefore, the findings presented in this section reflect the responses provided by female participants only.
4.2.1 University of employment

One of the survey questions asked participants to identify the institution in which they worked. From the filtered results, there were 171 responses, of which 91 participants (approximately 53%) indicated that they were employed at Princes Nourah bint Abdulrahman University, while the remaining 80 specified that they were employed at King Saud University (47%). This means that both universities were equally represented in the results. As outlined in the ethics considerations (see Section 3.9), to ensure comparisons cannot be made between the two universities, the results presented in this chapter are aggregated.

4.2.2 Courses/subjects in which the participants use Blackboard as part of their teaching

In order to address the key research questions around the extent to which the survey participants used Blackboard as part of their teaching practice, a question was framed to allow the respondents to indicate the number of subjects or courses in which they used the learning management system.

Of the 174 participants, 103 indicated they did not use Blackboard in teaching any course/subject. This means that over half of the participants (57.9%) were not using Blackboard in teaching any subject/course. Thirty-two responses (18%) said they used Blackboard in teaching some of their courses/subjects while nine participants (5.1 %) indicated they used LMSs in teaching most of their subjects/courses. Another 30 participants (16.9 % of the total number) indicated that they used Blackboard in all the subjects/courses that they taught. These results are shown in Table 3.
Table 3: Courses/Subjects in which Participants Use Blackboard as Part of their Teaching Activity

<table>
<thead>
<tr>
<th>Number of courses</th>
<th>Number of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No courses/subjects</td>
<td>103</td>
<td>57.9</td>
</tr>
<tr>
<td>For some of the courses/subjects I teach</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>For most of the courses/subjects I teach</td>
<td>9</td>
<td>5.1</td>
</tr>
<tr>
<td>For all of the courses/subjects I teach</td>
<td>30</td>
<td>16.9</td>
</tr>
<tr>
<td>Total</td>
<td>174</td>
<td>97.8</td>
</tr>
<tr>
<td>Missing</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>

These findings will be used as a cross tabulation for a number of other tables and findings to compare and contrast the beliefs, dispositions and practices between those who did and did not use Blackboard in their teaching (see Sections 4.2.4, 4.2.5, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.3.1 and 4.3.3).

4.2.3 Participants’ experiences in using Blackboard in teaching

The participants in the survey were asked to specify the number of years they had been using Blackboard in their teaching activities. This question was designed to provide an understanding of the participants’ experiences in using LMSs and to triangulate the data with the previous question. The question was framed as “How many years have you been using Blackboard as part of your teaching?” The results from 173 responses showed that 99 participants (or 55.6%) had never used Blackboard. This is consistent with the findings in the previous question where 57.9% of the participants indicated they were not using Blackboard in teaching any subject/course. Fifty-seven participants (32%) indicated that they had used Blackboard for between one and three years, while 14 of them (7.9%) noted that they had used the LMSs for between four and six years. Relatively few participants indicated that they had used Blackboard for seven years or more. They may have been influenced by the
fact that e-learning was still in its early stages as outlined by Al Alhareth (2013). These findings are represented in Table 4 below.

**Table 4: Participants’ Years of Experience in Using Blackboard in Teaching**

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never had Blackboard experience</td>
<td>99</td>
<td>55.6</td>
</tr>
<tr>
<td>1-3 years</td>
<td>57</td>
<td>32</td>
</tr>
<tr>
<td>4-6 years</td>
<td>14</td>
<td>7.9</td>
</tr>
<tr>
<td>7-9 years</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>More than 9 years</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>173</td>
<td>97.2</td>
</tr>
<tr>
<td>Missing</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>

Similar to the previous question, the findings from this question were used to cross tabulate with a number of other questions to compare and contrast the beliefs, dispositions and practices of those who had Blackboard experience (see Section 4.2.5, 4.2.6 and 4.2.7).

**4.2.4 Participants’ college**

Participants were also required to indicate the various colleges of the universities where they worked. Table 5 shows this information.

**Table 5: Distribution of the Participants from Different University Colleges**

<table>
<thead>
<tr>
<th>College</th>
<th>Number of participants</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Community</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>College of Dentistry</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>College of Nursing</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>College of Science</td>
<td>7</td>
<td>4.2</td>
</tr>
<tr>
<td>College of Pharmacy</td>
<td>10</td>
<td>6.0</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>College of Computer Science</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>College of Health and Rehabilitation Sciences</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>18</td>
<td>10.8</td>
</tr>
<tr>
<td>College of Arts</td>
<td>27</td>
<td>16.2</td>
</tr>
<tr>
<td>College of Social Services</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>College of Education</td>
<td>31</td>
<td>18.6</td>
</tr>
<tr>
<td>Arabic Language Teaching Institute for Non-Arabic Speakers</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>College of Arts and Design</td>
<td>4</td>
<td>2.4</td>
</tr>
<tr>
<td>College of Languages and Translation</td>
<td>12</td>
<td>7.2</td>
</tr>
<tr>
<td>Deanship of E-Learning and Distance Education</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>College of Applied Medical Sciences</td>
<td>13</td>
<td>7.8</td>
</tr>
<tr>
<td>College of Medicine</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>College of Applied Studies and Community</td>
<td>9</td>
<td>5.4</td>
</tr>
<tr>
<td>Foundation Year</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Medical City</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>King Khalid Hospital</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>166</td>
<td>100</td>
</tr>
</tbody>
</table>

These statistics however do not provide an adequate evaluation of LMS use according to area/discipline. Therefore, the different colleges were grouped in discipline areas.\(^7\) It was then possible to analyse the correlation between discipline and LMS adoption (see Table 6).

\(^7\) This grouping was based on the Digital Commons platform http://digitalcommons.bepress.com/cgi/viewcontent.cgi?article=1008\&context=reference.
Table 6: Discipline Grouping

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Number of participants</th>
<th>Responses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humanities</td>
<td>72</td>
<td>43.3</td>
</tr>
<tr>
<td>Sciences</td>
<td>37</td>
<td>22.2</td>
</tr>
<tr>
<td>Medicine and Health</td>
<td>33</td>
<td>19.8</td>
</tr>
<tr>
<td>Deanships and Institutes</td>
<td>12</td>
<td>7.2</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>12</td>
<td>7.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>166</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

As shown above, the discipline area that is the most common is the Humanities, which comprised 43.3% of the whole sample as it included a wide range of colleges and specialisations. Different sciences come second in the distribution, with more than one-fifth of the sample 22.2% and not very far behind is the medical and health discipline which comprised 19.8% of the sample. The remainder of the sample consisted of deanships and institutes, along with vocational educations. Each of these two categories comprised 7.2% of the total sample.

In order to get an in-depth picture of how the technology was adopted, cross tabulation was undertaken between Blackboard use and discipline area. It was found that in general, academics’ use of Blackboard is low, with an overall percentage of 42.2% (Table 7). The Humanities discipline had a higher percentage of Blackboard users (51.3%). Other disciplines were lower, with Deanships and Institutes (41.6%), Sciences (37.8%) and Medicine and Health (33.3%). Vocational Education had the lowest usage rate at 25%. These rates may reflect the nature of the work (for example, low technology use in vocational fields).
Table 7: Discipline Grouping and Blackboard Use

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Using Blackboard as part of the teaching</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No use of Blackboard in courses</td>
<td>For, some or all courses use Blackboard</td>
<td>Total</td>
</tr>
<tr>
<td>Humanities</td>
<td>35</td>
<td>37</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>48.7%</td>
<td>51.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Sciences</td>
<td>23</td>
<td>14</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>62.2%</td>
<td>37.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Medicine and Health</td>
<td>22</td>
<td>11</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>66.7%</td>
<td>33.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Deanships and Institutes</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>58.4%</td>
<td>41.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Vocational Education</td>
<td>9</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>75%</td>
<td>25%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>70</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td>57.8%</td>
<td>42.2%</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.2.5 Participants’ teaching experience

This question asked participants about their teaching experience in higher education. Responses from the 176 filtered results are shown in Table 8.

Table 8: Participants’ Teaching Experience

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1 year</td>
<td>11</td>
<td>6.2</td>
</tr>
<tr>
<td>1 - 5 years</td>
<td>66</td>
<td>37.1</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>45</td>
<td>25.3</td>
</tr>
</tbody>
</table>
The majority of the respondents had teaching experience of 1-5 years, which was 37.1% of the sample. A quarter of participants had between 6-10 years teaching experience, with approximately 30.3% of respondents with 10 plus years of teaching experience. This question allowed the research to examine how different levels of teaching experience may be related to level of LMS use. Therefore, this question was cross-tabulated with questions about Blackboard experience and those who did not use Blackboard in their teaching (see Table 9).

Table 9: Teaching Experience and Blackboard Adoption

<table>
<thead>
<tr>
<th></th>
<th>Using Blackboard as part of the teaching</th>
<th>Blackboard experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No courses/Subjects</td>
<td>Some, most and all of courses/ Subjects</td>
</tr>
<tr>
<td>Under 1 year</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>72.7%</td>
<td>27.3%</td>
</tr>
<tr>
<td>1 - 5 years</td>
<td>43</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>68.3%</td>
<td>31.8%</td>
</tr>
<tr>
<td>6 - 10 years</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>11 - 15 years</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>17</td>
</tr>
</tbody>
</table>
There was a positive correlation between teaching experience and Blackboard use. For example, it can be seen that 27.3% of respondents with teaching experience of less than one year used Blackboard. The rate of Blackboard use increased to 31.8% if participants had 1 to 5 years of experience. The rate of Blackboard use increased 50% when participants had 6 to 10 years of experience, and finally it reached a peak for respondents with 11 to 15 years of experience.

The usage for respondents with more than 15 years of experience was lower. This may have been due the relatively new adaption of LMSs in KSA.

### 4.2.6 Participants’ highest academic degree

The participants also responded to a question regarding their level of education, framed as “What is your highest academic degree?” Of the 178 respondents, 27 (15.2%) held a bachelor’s degree, 80 (44.9%) a master’s degree, and 68 (38.2%) a doctoral degree (see Table 10). Deeper analysis was done to determine how education level might correlate with level of LMS use.

**Table 10: Participants’ Highest Academic Degree and Blackboard Adoption**

<table>
<thead>
<tr>
<th>Using Blackboard as part of the teaching</th>
<th>Blackboard experience</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No courses/subjects</td>
<td>Some, most and all of courses/subjects</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 15 years</td>
<td>52.8%</td>
<td>47.2%</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>58.7%</td>
<td>41.2%</td>
</tr>
</tbody>
</table>
The correlation between level of qualification and LMS use was also positive, as the female academics with the highest qualifications tended to use Blackboard more. For instance, those with a bachelor’s degree adopted Blackboard as part of their teaching at the lowest rate, with 75% not using this LMS in their courses/subjects. The use of Blackboard increases with those with qualification level, and among those with a doctoral degree only 54.4% of participants did not use Blackboard.

### 4.2.7 Participants’ academic position

The participants were asked about their employment classification. Of the 177 responses, 43 (24.2%) indicated that they were teaching assistants and 16 (9%) identified as instructors. The highest responses were for the lecturer (57 or 32%) and assistant professor positions (53 or 29.8%). These results are represented below in Table 11.

<table>
<thead>
<tr>
<th>Level</th>
<th>Bachelor</th>
<th>Master</th>
<th>Doctorate</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
<td>47</td>
<td>37</td>
<td>1</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>32</td>
<td>31</td>
<td>2</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>79</td>
<td>68</td>
<td>3</td>
<td>174</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>46</td>
<td>33</td>
<td>1</td>
<td>99</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>33</td>
<td>33</td>
<td>2</td>
<td>74</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>79</td>
<td>66</td>
<td>3</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75%</td>
<td>59.5%</td>
<td>54.4%</td>
<td>33.3%</td>
<td>59.2%</td>
</tr>
<tr>
<td></td>
<td>25%</td>
<td>40.5%</td>
<td>45.6%</td>
<td>66.7%</td>
<td>40.8%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>76%</td>
<td>58.2%</td>
<td>50%</td>
<td>33%</td>
<td>57.2%</td>
</tr>
<tr>
<td></td>
<td>24%</td>
<td>41.8%</td>
<td>50%</td>
<td>66.7%</td>
<td>42.8%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The participants were asked about their employment classification. Of the 177 responses, 43 (24.2%) indicated that they were teaching assistants and 16 (9%) identified as instructors. The highest responses were for the lecturer (57 or 32%) and assistant professor positions (53 or 29.8%). These results are represented below in Table 11.
Table 11: Participants’ Teaching Positions

<table>
<thead>
<tr>
<th>Teaching Position</th>
<th>Number of participants</th>
<th>Per cent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Assistant</td>
<td>43</td>
<td>24.2</td>
</tr>
<tr>
<td>Lecturer</td>
<td>57</td>
<td>32.0</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>53</td>
<td>29.8</td>
</tr>
<tr>
<td>Instructor</td>
<td>16</td>
<td>9.0</td>
</tr>
<tr>
<td>Full Professor</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>177</td>
<td>99.4</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>

This question was cross tabulated with ‘not using Blackboard currently’ or ‘had Blackboard experience to date’.

As seen in Table 12, the correlation between technology use and teaching positions is not as clear as it was for the previous variables. This may in part be because there is high variation in the number of years of teaching and degree held, or it may be due to the fact that the different roles may require a different engagement with technology. Assistant professors and full professors had the highest percentages of technology use reflected in more than 50% uptake (usage and experience). About 40% of instructors used or had experience in LMSs and 38% of lecturers were in this category. The group with the lowest rate LMS of use was teaching assistants, which may be because in the role they weren’t in the position to make teaching and learning decisions about using LMSs.
Table 12: Participants’ Teaching Positions and Blackboard Adoption

<table>
<thead>
<tr>
<th>Using Blackboard as part of the teaching</th>
<th>Blackboard experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>No courses/subjects</td>
<td>Some, most and all of courses/Subjects</td>
</tr>
<tr>
<td>Instructor</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>62.5%</td>
</tr>
<tr>
<td>Teaching Assistant</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>68.3%</td>
</tr>
<tr>
<td>Lecturer</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>63.2%</td>
</tr>
<tr>
<td>Assistant Professor</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>49.1%</td>
</tr>
<tr>
<td>Full Professor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>25.0%</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>59%</td>
</tr>
</tbody>
</table>

4.2.8 Age of the participants

The results from the 178 responses suggest that generally few (5 individuals or 2.8%) of the participants were aged below 25 years. The age groups of 26-30 years and 31-35 provided 49 (27.5%) and 52 (29.2%) of responses respectively. These were followed by the 36-40 and 41-45 age groups with 25 (14%) and 26 (14.6%) respectively. Considerably fewer staff members were aged above 45 years, given that there were 10 in the 46-50 category (5.6%),
and there were eight (4.5%) respondents aged between 51 and 55 years, and there were only three individuals aged above 55 years (1.7%). These figures are presented in Table 13.

Table 13: Age of the Participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Number of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25 years</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>26 - 30 years</td>
<td>49</td>
<td>27.5</td>
</tr>
<tr>
<td>31 - 35 years</td>
<td>52</td>
<td>29.2</td>
</tr>
<tr>
<td>36 - 40 years</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>41 - 45 years</td>
<td>26</td>
<td>14.6</td>
</tr>
<tr>
<td>46 - 50 years</td>
<td>10</td>
<td>5.6</td>
</tr>
<tr>
<td>51 - 55 years</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>Over 55 years</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>100</td>
</tr>
</tbody>
</table>

Age was cross-tabulated with how many courses/subjects used Blackboard as represented in Table 14.

Table 14: Age and Blackboard Use

<table>
<thead>
<tr>
<th>Age</th>
<th>How many courses/subjects do you use Blackboard as / part of your teaching?</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No courses/subjects</td>
<td>For some of the courses/subjects I teach</td>
<td>For most of the courses/subjects I teach</td>
</tr>
<tr>
<td>Under 25 years</td>
<td>Count</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>26 - 30 years</td>
<td>Count</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>Age Group</td>
<td>Count</td>
<td>76.6%</td>
<td>8.5%</td>
</tr>
<tr>
<td>--------------</td>
<td>-------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>31 - 35 years</td>
<td>27</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>%</td>
<td>54%</td>
<td>22%</td>
<td>8%</td>
</tr>
<tr>
<td>36 - 40 years</td>
<td>13</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>52%</td>
<td>24%</td>
<td>4%</td>
</tr>
<tr>
<td>41 - 45 years</td>
<td>16</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>61.5%</td>
<td>15.4%</td>
<td>3.8%</td>
</tr>
<tr>
<td>46 - 50 years</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>50%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>51 - 55 years</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>%</td>
<td>37.5%</td>
<td>37.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Over 55 years</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>%</td>
<td>33.3%</td>
<td>0.0%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>%</td>
<td>59.2%</td>
<td>18.4%</td>
<td>5.2%</td>
</tr>
</tbody>
</table>

Some of the numbers in the different age groups were small, and this influenced the percentages presented. For instance, the lowest usage rate in the 26 to 30 age group was only 23.4%, however there were only five participants in the under-25 age group. There is however a positive trend in the following age groups, where the older the participants, the more likely they were to use Blackboard for all/some/most of their courses.

In order to examine further the relationship between Blackboard usage and age, the age categories were collapsed into two major categories as some of the numbers of participants were low and statistically not reliable. One category was for participants 40 years old or younger (73.5% of the sample) and the other was for those older than 40 years (26.4% of the sample). For all age groups in the over-40 category the results were consistent. There was a clear positive correlation between the age and usage of Blackboard in some, most or all of the courses. As age increased, Blackboard usage also increased. For age group 41 to 45
years 38.5% used Blackboard in at least one course but when we go up in the next age group 46 to 50 the percentage increased to 50%, and it increased further the 51 to 55 age group to be 62.5%. The percentage who used Blackboard in at least one course was the highest for over 55 age group at 66.7%.

4.2.9 Nationalities of the survey participants

Research participants were asked to identify their nationalities (see Table 15). Out of the 177 responses to this question, 91.6% (163) indicated that they were Saudi. The remaining 14 participants (7.9%) said that they were of other nationalities (including Jordanians, Egyptians, French and Tunisians).

Table 15: Nationality and Blackboard Use

<table>
<thead>
<tr>
<th></th>
<th>How many courses/subjects do you use Blackboard as part of your teaching?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No courses</td>
</tr>
<tr>
<td>Saudi</td>
<td>97</td>
</tr>
<tr>
<td></td>
<td>61%</td>
</tr>
<tr>
<td>Non-Saudi</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>42.9%</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>59.5%</td>
</tr>
</tbody>
</table>

It is noted that non-Saudi female academic staff use technology more often than Saudi female academic staff (57.1% compared to 39%). However, the sample size is too small to draw significant conclusions. This may be due to a higher use of LMSs in their country of origin which may have had a more developed technological approach to teaching and learning than KSA, or experience in using LMSs may have been seen as a way to be competitive when applying for employment in KSA.
4.2.10 *Blackboard technologies in which the participants had been trained*

A key external factor identified as an enabler in the literature review was training in LMSs. Therefore, the web-based survey investigated the different areas of technology within Blackboard in which the participants had received training. Specifically, the survey participants were asked to select from a number of technologies that were provided, those that they were familiar with by way of having prior training in them. The question was: “Select the Blackboard technology/technologies in which you have training. (Select all that apply)”. The technologies that were provided in the survey included Blackboard features, Discussion forums, ListSerts, Chat Room, Teleconferencing, Videoconferencing, and Web-based lectures (Blackboard Collaborate). There was also an option for those who had not received any training to indicate ‘none’. In addition, participants who had received training in Blackboard technologies that were not included in the survey were asked to specify the various technologies that they were familiar with.

The findings obtained regarding the participants’ use of different Blackboard technologies are outlined in the Table 16 below.

<table>
<thead>
<tr>
<th>Blackboard Training</th>
<th>Number of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>74</td>
<td>24.7</td>
</tr>
<tr>
<td>Blackboard features</td>
<td>70</td>
<td>23.4</td>
</tr>
<tr>
<td>Discussion forum</td>
<td>36</td>
<td>12</td>
</tr>
<tr>
<td>ListSerts</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Chat Room</td>
<td>13</td>
<td>4.3</td>
</tr>
<tr>
<td>Teleconferencing</td>
<td>8</td>
<td>2.7</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Web-based lectures (Blackboard Collaborate)</td>
<td>37</td>
<td>12.4</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>4.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>299</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
The largest group respondents had received no training in Blackboard (24.7%). A similar number of participants (23.4%) had been trained in general Blackboard features. Participants were asked to list additional features of Blackboard that they training in. They identified electronic exams, sending emails, use of groups and blogs, assessments, and quizzes. To analyse the connection between training and use of LMSs, this data set is correlated to actual LMSs use in Table 17.

**Table 17: Training and Blackboard Use**

<table>
<thead>
<tr>
<th>No courses/subjects</th>
<th>For some of the courses/subjects I teach</th>
<th>For most of the courses/subjects I teach</th>
<th>For all of the courses/subjects I teach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>67</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>91.8%</td>
<td>4.1%</td>
<td>1.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Blackboard features</td>
<td>20</td>
<td>22</td>
<td>6</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>28.6%</td>
<td>31.4%</td>
<td>8.6%</td>
<td>31.4%</td>
</tr>
<tr>
<td>Discussion forum</td>
<td>13</td>
<td>13</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>36.1%</td>
<td>36.1%</td>
<td>8.3%</td>
<td>19.4%</td>
</tr>
<tr>
<td>ListServs</td>
<td>14</td>
<td>15</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>33.3%</td>
<td>35.7%</td>
<td>7.1%</td>
<td>23.8%</td>
</tr>
<tr>
<td>Chat Room</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>61.5%</td>
<td>23.1%</td>
<td>0.0%</td>
<td>15.4%</td>
</tr>
<tr>
<td>Teleconferencing</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>50%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
The data showed that female academics who had not attended training were less likely to use Blackboard, whereas academics who had received web-based lectures (Blackboard Collaborate) training or training in Blackboard features were more likely to use Blackboard in at least one course. The remaining types of training varied in terms of their impact on Blackboard use. It is worth noting that there is a strong correlation between no training and not using Blackboard. For instance, 91.8% of participants who had not received training did not use this LMS in their teaching.

4.3 Barriers, Incentives Attitudes and Perceptions

The second part of this section will outline responses from the closed questions in the survey, including statements on barriers, incentives, attitudes and perceptions regarding use of Blackboard.

4.3.1 Possible barriers to the adoption of Blackboard

In order to understand the possible barriers that make it difficult for the participants in the survey to use the Blackboard, the participants were required to select from a list of items the response that best described their beliefs, feelings, or attitudes in regard to the possible barriers. This was based on a Likert scale in which the participants were asked to choose from five levels, depending on whether they strongly disagreed, disagreed, remained neutral (neither agreed nor disagreed), agreed or strongly agreed with each statement. The statements were based on issues such as the participant’s level of knowledge in using new technologies and Blackboard, time available to prepare materials for use on Blackboard,
institutional policies regarding LMS use, and level of student support. The responses that were given to each statement are shown in the table below (Table 18).

Table 18: Possible Barriers to the Adoption of Blackboard

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N</th>
<th>M</th>
<th>Std. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel I have adequate knowledge to use new technologies in education</td>
<td>2</td>
<td>29</td>
<td>24</td>
<td>55</td>
<td>32</td>
<td>142</td>
<td>3.6</td>
<td>1.0</td>
</tr>
<tr>
<td>I feel I have adequate knowledge to use Blackboard</td>
<td>6</td>
<td>41</td>
<td>29</td>
<td>35</td>
<td>31</td>
<td>142</td>
<td>3.3</td>
<td>1.2</td>
</tr>
<tr>
<td>I feel I have adequate knowledge about how to teach using Blackboard</td>
<td>11</td>
<td>46</td>
<td>25</td>
<td>38</td>
<td>23</td>
<td>143</td>
<td>3.1</td>
<td>1.2</td>
</tr>
<tr>
<td>I feel I have enough time to develop teaching and learning experiences</td>
<td>13</td>
<td>37</td>
<td>30</td>
<td>39</td>
<td>23</td>
<td>142</td>
<td>3.1</td>
<td>1.2</td>
</tr>
<tr>
<td>on Blackboard</td>
<td>11</td>
<td>27</td>
<td>25</td>
<td>35</td>
<td>23</td>
<td>142</td>
<td>3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>I feel the university has a clear Blackboard policy</td>
<td>11</td>
<td>37</td>
<td>43</td>
<td>31</td>
<td>15</td>
<td>143</td>
<td>2.9</td>
<td>1.1</td>
</tr>
<tr>
<td>I feel there is adequate campus network</td>
<td>7.7</td>
<td>19.0</td>
<td>24.6</td>
<td>33.1</td>
<td>15.5</td>
<td>143</td>
<td>2.3</td>
<td>1.1</td>
</tr>
</tbody>
</table>
On average, academic staff tended to disagree with or be neutral about all the statements that described their feelings and attitudes. This is reflected in the average scores which ranged from 3 to 4.

The strongest barrier came from personal qualifications. In response to a statement that they had adequate knowledge about how to teach using Blackboard, 39.9% did not agree and another 17.5% were neutral. However, the barrier which least affected their use of technology was their own knowledge about technology use (mean 3.6). Respondents reported that 61.2% agreed or strongly agreed that they had the necessary knowledge to adopt new technology in their classrooms while use of Blackboard for learning management system was considered positively by 46.4% of the respondents.

In response to a question regarding university policy, 37.8% did not feel the university had a clear Blackboard policy and another 30.1% were neutral. But usage is not determined by policy alone. Having enough time to develop teaching and learning experience on Blackboard was also a significant barrier. Over thirty-five per cent of respondents said they
did not have enough time and 21.1% were neutral. Students’ cooperation is also an important factor and 34.5% did not feel there was adequate student support for Blackboard to be used effectively.

The remaining barriers that concern facilities in the university were not as severe and indicated the existence of adequate campus network infrastructure to use Blackboard effectively and adequate access to technology for students to use Blackboard effectively, with disagreement rates of 26.7% and 20.4% respectively. See Table 19.
Table 19: Barriers and Blackboard Use

<table>
<thead>
<tr>
<th></th>
<th>No course</th>
<th>For some of the course</th>
<th>For most of the course</th>
<th>For all of the course</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>N</td>
<td>SD</td>
<td>M</td>
<td>N</td>
</tr>
<tr>
<td>I feel I have adequate knowledge to use new</td>
<td>3.4</td>
<td>84</td>
<td>1.1</td>
<td>3.8</td>
<td>26</td>
</tr>
<tr>
<td>technologies in education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I have adequate knowledge to use</td>
<td>2.9</td>
<td>85</td>
<td>1.2</td>
<td>3.7</td>
<td>25</td>
</tr>
<tr>
<td>Blackboard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I have adequate knowledge about how</td>
<td>2.7</td>
<td>85</td>
<td>1.2</td>
<td>3.5</td>
<td>26</td>
</tr>
<tr>
<td>to teach using Blackboard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I have enough time to develop</td>
<td>3.0</td>
<td>85</td>
<td>1.2</td>
<td>3.2</td>
<td>25</td>
</tr>
<tr>
<td>teaching and learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>experience on Blackboard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>I feel the university has a clear Blackboard policy</td>
<td>2.7</td>
<td>85</td>
<td>1.1</td>
<td>3.1</td>
<td>26</td>
</tr>
<tr>
<td>I feel there is adequate campus network infrastructure to use Blackboard effectively</td>
<td>3.1</td>
<td>84</td>
<td>1.1</td>
<td>3.3</td>
<td>26</td>
</tr>
<tr>
<td>I feel there is adequate student support to use Blackboard effectively</td>
<td>2.7</td>
<td>84</td>
<td>1.0</td>
<td>2.6</td>
<td>26</td>
</tr>
<tr>
<td>I believe there is adequate access to technology for students to use Blackboard effectively</td>
<td>3.4</td>
<td>85</td>
<td>1.0</td>
<td>3.2</td>
<td>26</td>
</tr>
</tbody>
</table>
To understand the relation of an attribute to be considered a barrier, a mean of 1 would indicate an absolute barrier while a mean of 5 would indicate no barrier at all.

Regardless of the type of attribute, fewer respondents saw it as a barrier if they used Blackboard in at least one course. In addition, there was a negative correlation between perceiving an attribute as a barrier and the number of courses where Blackboard was being used. Aggregating all the attributes, the average mean for female academics who had not used Blackboard for any courses was 3 and it increased to be 3.3 for those who used Blackboard for some of the courses. Finally, it reached 3.6 for those who used Blackboard for most or all of their courses, meaning that among all respondents those in this group had had the lowest percentages reporting attributes as barriers.

Rates of perceiving an attribute as a barrier differed according to the level of use of Blackboard. For all usage levels, the most frequently reported barrier was feeling the university did not have a clear Blackboard policy. In response to the statement “I feel the university has a clear Blackboard policy” the means were: 2.7 for no courses, 3.1 for some of the courses and 3.2 for all of the courses. The only exception was for academics who used Blackboard for most of their courses, as they believed that they felt they had adequate knowledge about how to teach using Blackboard.

The attributes which were perceived as barriers varied significantly depending on levels of usage of Blackboard. For academics who did not use Blackboard at all the attribute least often reported as a barrier was having adequate access to technology for students to use Blackboard effectively. Academics who used Blackboard for some of the courses the attribute that was seen as a barrier least frequently was having adequate knowledge of how to use new technologies in education. Academics who used Blackboard for most of their courses also thought that having adequate access to technology for students to use Blackboard effectively was not a barrier. And finally, academics who used Blackboard for all of their courses were the group that the lowest percentage reporting that not having adequate knowledge to use Blackboard was a barrier. This was consistent with their high level of expertise in using it.
In general, participants who did not use Blackboard perceived more barriers due to personal reasons like not having adequate knowledge about how to teach using Blackboard and not having adequate knowledge in the use of Blackboard. On the other hand, these academics’ barriers came from other aspects like facilitation, university polices or not having enough time to develop teaching and learning experiences on Blackboard.

4.3.2 Factors that promote participation in using Blackboard (incentive factors)

The survey also investigated the factors that would possibly encourage the participants to use Blackboard in teaching. In this regard, the participants were required to choose responses on a scale ranging from strongly disagree to strongly agree with the statements that were provided. The statements focused on issues such as the participants’ knowledge, the relevance of the LMS, levels of training, prospects for promotion, incentives provided, and the impact of Blackboard on teaching and student experiences. The responses regarding what promoted participation in the use of Blackboard among the survey participants are shown in Table 20.

Table 20: Factors that Promote Participation in Using Blackboard

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N</th>
<th>M</th>
<th>Std. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have the knowledge I need to develop teaching and learning using Blackboard.</td>
<td>8</td>
<td>33</td>
<td>35</td>
<td>34</td>
<td>26</td>
<td>136</td>
<td>3.2</td>
<td>1.1</td>
</tr>
<tr>
<td>I believe that Blackboard is appropriate for my courses/subjects.</td>
<td>5</td>
<td>14</td>
<td>31</td>
<td>56</td>
<td>32</td>
<td>138</td>
<td>3.7</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>3.6%</td>
<td>10.1%</td>
<td>22.5%</td>
<td>40.6%</td>
<td>23.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>42</td>
<td>29</td>
<td>38</td>
<td>21</td>
<td>138</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>I feel I have the necessary training to prepare me to teach using Blackboard.</td>
<td>5.8%</td>
<td>30.4%</td>
<td>21.0%</td>
<td>27.5%</td>
<td>15.2%</td>
<td>24</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>I believe that using Blackboard will increase my chances of being promoted.</td>
<td>17.3%</td>
<td>29.5%</td>
<td>28.1%</td>
<td>20.1%</td>
<td>5.0%</td>
<td>22</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td>I feel there are workload incentives if I use Blackboard.</td>
<td>18.1%</td>
<td>29.7%</td>
<td>26.8%</td>
<td>19.6%</td>
<td>5.8%</td>
<td>25</td>
<td>41</td>
<td>37</td>
</tr>
<tr>
<td>I feel students will see the use of Blackboard positively in my course.</td>
<td>3</td>
<td>14</td>
<td>38</td>
<td>63</td>
<td>20</td>
<td>138</td>
<td>3.6</td>
<td>0.9</td>
</tr>
<tr>
<td>I feel there are incentives from the university to use Blackboard effectively.</td>
<td>15.9%</td>
<td>29.0%</td>
<td>31.2%</td>
<td>18.8%</td>
<td>5.1%</td>
<td>26</td>
<td>33</td>
<td>56</td>
</tr>
<tr>
<td>I feel there are incentives from the government to use Blackboard effectively.</td>
<td>18.8%</td>
<td>23.9%</td>
<td>40.6%</td>
<td>14.5%</td>
<td>2.2%</td>
<td>22</td>
<td>40</td>
<td>43</td>
</tr>
</tbody>
</table>

The aim of this question was to evaluate the factors that promoted adoption of Blackboard technology based on incentive factors as an enabler.

The most important factor was the usefulness of Blackboard represented by the belief that Blackboard was appropriate for the courses or subjects taught by the respondents: 63.8%
agreed that it was suitable. Usefulness was followed by the utilisation and perception of Blackboard by students: 60.2% agreed that students will view the use of Blackboard positively in their course. However, a large number of participants, 42.7%, agreed or strongly agreed they had adequate knowledge and training.

4.3.3 Participants’ attitudes and opinions regarding Blackboard

To determine the general attitudes and opinions of the survey participants regarding Blackboard, a set of general statements was presented to them. The statements covered such aspects as the future of education, comparison of using Blackboard with classroom learning, the value of Blackboard, job-related effects of the LMS, impact of Blackboard on higher education, nature of Blackboard with regard to ease of use, impact of the LMS on students, tutors and universities, and relevance of Blackboard in regard to gender separation in higher learning institutions in KSA. The participants’ responses are presented in the table below (Table 21).

Table 21: Participants’ Attitudes and Opinions Regarding Blackboard

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N</th>
<th>M</th>
<th>Std. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe Blackboard is the future of higher education</td>
<td>5</td>
<td>9</td>
<td>47</td>
<td>52</td>
<td>23</td>
<td>136</td>
<td>3.5</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>3.7%</td>
<td>6.6%</td>
<td>34.6%</td>
<td>38.2%</td>
<td>16.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe students tend to learn just as much in Blackboard environment</td>
<td>11</td>
<td>53</td>
<td>37</td>
<td>24</td>
<td>10</td>
<td>135</td>
<td>2.7</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>8.1%</td>
<td>39.3%</td>
<td>27.4%</td>
<td>17.8%</td>
<td>7.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
they do in the traditional classroom.

<table>
<thead>
<tr>
<th>I believe</th>
<th>3</th>
<th>7</th>
<th>27</th>
<th>69</th>
<th>30</th>
<th>136</th>
<th>3.8</th>
<th>0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackboard provides a valuable service to students</td>
<td>2.2%</td>
<td>5.1%</td>
<td>19.9%</td>
<td>50.7%</td>
<td>22.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I am concerned that Blackboard will put my job at risk</th>
<th>40</th>
<th>63</th>
<th>27</th>
<th>5</th>
<th>1</th>
<th>136</th>
<th>2.0</th>
<th>0.8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29.4%</td>
<td>46.3%</td>
<td>19.9%</td>
<td>3.7%</td>
<td>.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I believe that Blackboard opens higher education to a broader range of students than traditional face-to-face education.</th>
<th>4</th>
<th>10</th>
<th>37</th>
<th>68</th>
<th>17</th>
<th>136</th>
<th>3.6</th>
<th>0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.9%</td>
<td>7.4%</td>
<td>27.2%</td>
<td>50.0%</td>
<td>12.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I believe Blackboard technology is too complicated for both the student and the faculty to be successful.</th>
<th>14</th>
<th>46</th>
<th>48</th>
<th>21</th>
<th>6</th>
<th>135</th>
<th>2.7</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.4%</td>
<td>34.1%</td>
<td>35.6%</td>
<td>15.6%</td>
<td>4.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I believe Blackboard</th>
<th>1</th>
<th>20</th>
<th>38</th>
<th>59</th>
<th>16</th>
<th>134</th>
<th>3.5</th>
<th>0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>provides a valuable service to students</td>
<td>.7%</td>
<td>14.9%</td>
<td>28.4%</td>
<td>44.0%</td>
<td>11.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>offers students enough opportunities for interaction</td>
<td>8</td>
<td>35</td>
<td>35</td>
<td>39</td>
<td>19</td>
<td>136</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>---</td>
<td>-----</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>I believe Blackboard will create more stress for me as an instructor</td>
<td>5.9%</td>
<td>25.7%</td>
<td>25.7%</td>
<td>28.7%</td>
<td>14.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>3</td>
<td>10</td>
<td>39</td>
<td>64</td>
<td>19</td>
<td>135</td>
<td>3.6</td>
<td>0.8</td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will improve student learning</td>
<td>2.2%</td>
<td>7.4%</td>
<td>28.9%</td>
<td>47.4%</td>
<td>14.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>3</td>
<td>14</td>
<td>50</td>
<td>59</td>
<td>10</td>
<td>136</td>
<td>3.4</td>
<td>0.8</td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will encourage students to be more interested in learning</td>
<td>2.2%</td>
<td>10.3%</td>
<td>36.8%</td>
<td>43.4%</td>
<td>7.4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>3</td>
<td>9</td>
<td>46</td>
<td>65</td>
<td>12</td>
<td>135</td>
<td>3.5</td>
<td>0.8</td>
</tr>
<tr>
<td>I believe that due to gender separation in the Saudi higher education, Blackboard is a</td>
<td>2.2%</td>
<td>6.7%</td>
<td>34.1%</td>
<td>48.1%</td>
<td>8.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The data showed that participants had positive opinions and attitudes regarding Blackboard. The importance and ranking of attributes is discussed below.

The majority of participants were not concerned about Blackboard putting their jobs at risk and thought it was a valuable service to students (see Table 22). Regarding the attributes of Blackboard that were most frequently cited as being beneficial to students, 72.8% indicated that the value added by Blackboard is the most important reason for using it. Of the respondents, 62.5% believed that Blackboard opens higher education to a broader range of students than traditional face-to-face education. In addition, 61.5% believed that adopting Blackboard in Saudi universities will improve student learning; 55.9% believed that Blackboard would provide students with enough opportunities for interaction and even encourage them to be more interested in learning. This means that perceived benefits to students are a major enabler, a significant incentive for university faculty in developing and adopting the technology in their classes.

A majority (58.5%) of respondents felt that adopting and developing Blackboard in the Saudi universities would create a challenge for the faculty, and 55.1% believed that LMSs are the future of education. Also 57% of respondents felt that due to gender separation in Saudi higher education, Blackboard is a good teaching tool.
On the other hand, statements opposing Blackboard were strongly rejected. A statement that students tend to learn just as much in the Blackboard environment as they do in the traditional classroom was rejected by 47.4% of the respondents, and 44.5% rejected the statement that Blackboard is too complicated for both the students and the faculty for it to be successful.
Table 22: Attitudes and Blackboard Use

<table>
<thead>
<tr>
<th></th>
<th>No courses</th>
<th>For some of the courses</th>
<th>For most of the courses</th>
<th>For all of the courses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  N  SD</td>
<td>M  N  SD</td>
<td>M  N  SD</td>
<td>M  N  SD</td>
<td>M  N  SD</td>
</tr>
<tr>
<td>I believe Blackboard is the future of higher-education</td>
<td>3.3 81 .98</td>
<td>3.7 23 .98</td>
<td>4.0 23 .98</td>
<td>4.0 23 .98</td>
<td>3.5 135 .9</td>
</tr>
<tr>
<td>I believe students tend to learn just as much in Blackboard environment as they do in the traditional classroom.</td>
<td>2.7 81 1.1</td>
<td>2.6 23 1.1</td>
<td>2.1 23 1.1</td>
<td>3.1 22 1.0</td>
<td>2.7 134 1.0</td>
</tr>
<tr>
<td>I believe Blackboard provides a valuable service to students</td>
<td>3.6 81 .98</td>
<td>4.1 23 .98</td>
<td>3.7 23 .98</td>
<td>4.3 23 .98</td>
<td>3.8 135 .8</td>
</tr>
<tr>
<td>I am concerned that Blackboard will put my job at risk</td>
<td>2.0 81 .98</td>
<td>1.9 23 .98</td>
<td>1.8 23 .98</td>
<td>1.9 23 .98</td>
<td>1.9 135 .8</td>
</tr>
<tr>
<td>I believe that Blackboard opens higher education to a broader range of students than traditional face-to-face education</td>
<td>3.5</td>
<td>81</td>
<td>.8</td>
<td>3.8</td>
<td>23</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>I believe Blackboard technology is too complicated for both the student and the faculty to be successful</td>
<td>2.8</td>
<td>80</td>
<td>1.0</td>
<td>2.3</td>
<td>23</td>
</tr>
<tr>
<td>I believe Blackboard offers students enough opportunities for interaction</td>
<td>3.3</td>
<td>80</td>
<td>.9</td>
<td>3.6</td>
<td>23</td>
</tr>
<tr>
<td>Scenario</td>
<td>Rating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe Blackboard will create more stress for me as an instructor</td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will improve student</td>
<td>3.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will encourage</td>
<td>3.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>students to be more interested in learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe that due to gender separation in the Saudi higher education,</td>
<td>3.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blackboard is a good teaching tool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I believe adopting and developing Blackboard in the Saudi universities will create a challenge for the faculty.
The results of cross tabulating attitudes and opinions show that there was a clear correspondence between a positive attitude towards Blackboard and uptake of LMSs. For instance, believing that Blackboard is the future of higher education had a mean value of 3.3 for academic members who did not participate in any courses using Blackboard. This value increased to 3.7 if the respondent used Blackboard for some courses and it reaches 4 for respondents who used Blackboard for most or all their courses. Also, if we take another positive statement, that Blackboard offers students enough opportunities for interaction, we see that it had the lowest mean value of 3.3 for academics who did not participate in any courses using Blackboard, and it increased to 3.6 if the respondents used LMSs for some courses, followed by another increase to 3.8 for respondents using Blackboard for most of their courses until reaching its highest value of 4 for respondents who used Blackboard for all courses. The same positive correlation applies if we choose any other statement indicating positive attitude and uptake of LMSs.

In addition, there exists a negative correlation between agreement with the statement and the number of courses for which Blackboard was being used. For instance, being concerned that Blackboard will put my job at risk had a mean value of 2 for academic members who did not participate in any courses using Blackboard, and this value decreased to 1.9 if the respondent used LMSs for some courses. It then declined to 1.8 when the respondent used Blackboard for most or all their courses.

On the other hand, some attributes are unique in their behaviour, and have no clear positive or negative correlation with the use of LMSs due to the nature of the attribute itself. For instance, believing that ‘Blackboard will create more stress for academics’ had a mean of 3.2 for instructors when the respondent did not use it for any courses or used for some courses, and this mean decreased when the respondent used Blackboard for most of their courses. However, this mean increased again to 3.1 due to teaching all the courses using Blackboard.
4.3.4 Perception of support

The survey also investigated perceptions of technology support and faculty desire to teach using a LMS. The participants were required to choose from five options on a scale ranging from strongly disagree to strongly agree with the statements. The statements focused on issues such as level of technical and administrative support offered, availability of infrastructure and technologies to support the use of Blackboard, and extent of government support. The participants’ responses are presented in the Table 23 below.

Table 23: Perception of Support and Faculty Desire to Teach

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>N</th>
<th>Mean</th>
<th>Std. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel there is adequate peer support to use Blackboard effectively</td>
<td>13</td>
<td>50</td>
<td>44</td>
<td>23</td>
<td>12</td>
<td>142</td>
<td>2.8</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>9.2%</td>
<td>35.2%</td>
<td>31.0%</td>
<td>16.2%</td>
<td>8.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel there is adequate technical support to use Blackboard effectively</td>
<td>19</td>
<td>32</td>
<td>39</td>
<td>31</td>
<td>20</td>
<td>141</td>
<td>3.0</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>13.5%</td>
<td>22.7%</td>
<td>27.7%</td>
<td>22.0%</td>
<td>14.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel there is adequate administrative support to use Blackboard effectively</td>
<td>15</td>
<td>38</td>
<td>44</td>
<td>30</td>
<td>16</td>
<td>143</td>
<td>2.9</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>10.5%</td>
<td>26.6%</td>
<td>30.8%</td>
<td>21.0%</td>
<td>11.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel there is adequate administrative support to use Blackboard effectively</td>
<td>5</td>
<td>19</td>
<td>61</td>
<td>39</td>
<td>18</td>
<td>142</td>
<td>3.3</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>3.5%</td>
<td>13.4%</td>
<td>43.0%</td>
<td>27.5%</td>
<td>12.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The issue of support and the desire of faculty to use Blackboard technology in their classes are two of the most important factors in determining the level of use of Blackboard (Asiri et al., 2012). The four types of support in this case were government incentives, peer support, technical support, and administrative support from the institutions. Responses regarding perception of support were close to neutral, although the mean score indicated a slight disagreement with the statements asserting that support was adequate. Almost half (44.4%) of the sample did not feel there was adequate peer support for using Blackboard effectively, which is a large proportion when we also add 31% who were neutral on this issue. Also there was a 37.1% non-agreement with the statement that administrative support was adequate, followed by 36.2% responding that technical support was adequate and finally 16.9%, that governmental support was adequate. This means the highest support for LMSs in the sample were from the government, as 40.2% of the respondents agreed or strongly agreed with the statement “I feel there is adequate governmental support to use blackboard effectively” and the rating for this support had a mean of 3.3.

### 4.4 Enablers and Barriers for Using Blackboard in Teaching

This section provides an overview of findings from the open-ended questions in the survey to examine the reasons for using or not using Blackboard and some self-identified recommendations from participants that might increase Blackboard use. As noted in the previous chapter, one of the weaknesses of using TAM is that the model primarily relies upon quantitative data (Brewer & Hunter, 2006; Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2003) (see Section 3.3.2). Thus, to better understand the enablers and barriers to LMS use, three open-ended questions were asked as part of the survey, these were additions to the survey design by Cherepski (2000) and Al Balawi (2007).
This section begins by examining the enablers for using Blackboard identified by the participants. This section analyses responses categorised in the four areas of improving teaching, improving student learning, and other reasons based on the literature review (see Section 2.3.4.2). This section then examines the barriers to Blackboard use. This will take into account institutional issues, technology-related issues, academic issues and student-related issues based on the literature examined (see Section 2.3.4.1). Participants were also asked for suggestions that might assist in promoting the use of Blackboard. Responses were grouped into the categories of institutional suggestions, technology-related suggestions, academic factors and student-related suggestions. Importantly, this section compares and contrasts the open-ended statements (qualitative data) with the closed question responses (quantitative data) from the previous section to enrich the connections between data sets.

4.4.1 Enablers for using Blackboard

In an open-ended survey question, the participants were asked to indicate some of the reasons they used Blackboard for teaching and learning purposes. This question was asked to learn more about the factors that influence use, and to examine the ways that Blackboard is used. A total of 81 participants responded to this question. Twenty-five (30.9%) participants indicated that they did not know how to use Blackboard which is different to the responses for Question 11 in the closed questions, where 57.9% of participants identified not using Blackboard. However, as this question was optional it was only completed by approximately half of participants and therefore this may have influenced the result. The remaining 56 (69.1%) of participants to this question gave different reasons for their use of Blackboard. In the analysis of this open-ended question each response was coded into four broad areas and uploaded into a table (full responses can be seen in appendix H). The categorisation of the responses was based on the groups of factors identified in the literature review as enablers of learning management systems use in institutions of higher learning (see Section 2.3.4.2). An overview of these categories is provided in Table 24 below.

Table 24: Factors that Enable the Use of Blackboard
<table>
<thead>
<tr>
<th>Improving teaching</th>
<th>Improving student learning</th>
<th>Improving working for academic members</th>
<th>Other reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refers to the ways in which Blackboard improves the process of teaching/delivery of instruction.</td>
<td>Refers to the ways in which Blackboard improves how students learn, for instance convenience to students, more interaction with others and lecturers, improving access to learning materials.</td>
<td>Refers to the ways in which Blackboard helps improve the work conditions for academic staff, e.g. saving time and effort.</td>
<td>These are factors that are not clearly related to the other categories but which encourage the use of LMSs such as Blackboard.</td>
</tr>
</tbody>
</table>

4.4.1.1 Improving teaching

In the quantitative data, many of the female academics reported feeling that Blackboard could be used in their courses. For instance, 40.6% and 23.2% of the participants respectively agreed and strongly agreed with the following statement: “I believe that Blackboard is appropriate for my courses/subjects”. This is reinforced by the quantitative statements in which 26 participants (32.09%) said they used LMSs as this improved their teaching practices and supported student learning participation in teaching activities.

The reasons for the use of LMSs varied. Some participants said that it allowed them to change their teaching and offer different forms of access to materials that they might not have been able to achieve via face-to-face teaching. For instance, one participant noted that Blackboard had the potential for “changing the usual teaching methods to reach the output of a strong education and learning”. Others said the benefits of Blackboard included: being able “to post homework for students”; to providing a way for students to “view lesson materials”; and “to use additional educational materials such as YouTube and PowerPoint”. 

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Other features of Blackboard that were mentioned included uploading of materials and accessing articles. For example, as noted by one female academic, Blackboard:

Helps in organising the various aspects of the course by allowing me to post instructions on the conduction of the activities, and allowing online submission of requirements and establishing deadlines. Makes conducting of quizzes and exams easier, faster, and more organised.

Another teaching advantage of Blackboard noted by the female academics was being able to assess and monitor students’ learning. For instance, one participant noted that Blackboard:

Helps in providing new and easy assessment evaluation strategies. The student and the teacher becomes aware of the level of progress or academic failure and therefore follow-up and propose solutions.

Participants also reported that Blackboard enabled them to assess student easily and to identify those who needed extra coaching in certain areas based on their performance in those areas. This is reflected in the response that Blackboard

Helps in conduction of standardised exercises. Allows item analysis of MCQ questions, enabling me to easily and quickly identify students who require extra training in certain topics.

As seen in the comments above, most participants who used Blackboard cited the ability to provide teaching and learning materials in different formats and delivery modes supported their use of LMSs. In particular, they felt it provided a different way to interact with students via Blackboard features, as well as a mechanism to monitor students’ learning as a way of improving their teaching. As further noted by one academic, Blackboard “support(s) interaction between the students and the professor”. According to the TAM framework, the perceived usefulness of Blackboard for teaching purposes may contribute to the uptake of LMSs and could be a way to entice other academics to use LMSs to support their courses.
4.4.1.2 Improving student learning

In relation to improving student learning, 13 (16.04%) of the responses were in this category. The reasons cited by participants for using Blackboard were based on the following themes: increasing access to learning materials and resources; and providing a platform for exchanges between students.

In terms of increasing access to learning materials and resources, one participant noted that Blackboard enables: “The active participation of students to enrich lectures with resources and articles at any time, not only during the class”. Furthermore, that Blackboard makes it possible to “provide educational resources to students at any time, and to involve students in the learning process and make it student-centred”. Another response was that Blackboard “Allows the student the opportunity to go back and verify the information at any time”. As well, other participants noted that Blackboard “provides scientific material for students at same time and place” and that through the LMS, “students can keep scientific articles that are discussed throughout the courses”. Another participant said that Blackboard enables students to keep in touch with what is happening in class as they can access the educational materials provided by the lecturer even if absent from class. This is captured in the following statement: “If the student missed the face-to-face classroom, the lecture will be available on Blackboard.” All the opinions above are based on the view that through Blackboard, students can access learning materials from any place and at any time, participate in group discussions and access materials even if they miss the attending the lecture or tutorial in the physical classroom. However, as was noted in the literature review, limited internet infrastructure in KSA (see Section 2.3.3) might hinder this access for some female students (AlMegren & Yassin, 2013; Al-Shehri, 2010). However, lack of internet infrastructure was not seen as a barrier by participants.

In regard to facilitating more interactions and exchanges between students, the participants in the research identified some of the student-related suggestions that influence Blackboard use. Four out of 13 responses focused on Blackboard’s discussion forums as a way students could interact. One participant noted that this Blackboard function “supports the students
to exchange different views through discussions”. Other responses that are related to this statement include: “[Blackboard] allows students the opportunity to exchange information and experiences”, that the LMS “Support[s] the students to [contact] each other and exchange different views through discussions in the Forum”, and it allows “More interaction opportunity for students”. Interestingly, they felt that the discussion forum also supported students’ English development as they provided a way to for students “to see students writing in English”. These statements are corroborated by the findings based on the closed questions in which more than 50% of the participants agreed or strongly agreed with the statement “I believe Blackboard offers students enough opportunities for interaction” (see Table 21: Participants’ Attitudes and Opinions Regarding Blackboard; see Section 4.3.3).

From this account, it can be seen that most of the participants identified the convenience of accessing and sharing learning materials with students and the Blackboard features that enable interactions and information exchanges between students as the main reasons why they use the LMS in their teaching practices which focus on students’ learning.

4.4.1.3 Improving academic members’ work

In regard to improving the academic members’ work, 40.7% of the responses about reasons for using Blackboard were grouped into this category. The issues that were highlighted included being able to save time through the use of streamlined communications strategies, and making it possible to reach many students at the same time, thus saving time.

In particular the participants identified better communication with students as a key reason for using Blackboard. They reported that Blackboard enables: “Easy communication with the students”; “Saves a lot of time – allows the student contact at any time”; and “emails automatically [to students] allows them to communicate easily”. The ability to make announcements to students was also highlighted, as a participant in the research noted that Blackboard “facilitate communication with the students”.

The participants also indicated the usefulness of Blackboard in relation to their teaching activities. To begin with, the ability to keep records of learning progress was also noted as
one of the reasons why the participants used Blackboard. For instance, it was noted that Blackboard “keeps [a] record of all teaching activities, texts, announcements, and updates. It helps keep everyone accountable, students and instructors alike”. Another participant noted that the LMS “helps in organizing the various aspects of the course (by allowing me to post instructions on the conduction [sic] of the activities, and allowing online submission of requirements and establishing deadlines)”. Ease of collating learning materials for students was also highlighted. A participant suggested that one of the benefits of Blackboard is “The ability to download resources related to lectures”. Another response was that Blackboard “keeps [a] record of all teaching activities, texts, announcements, and updates”. The participants also noted that Blackboard is useful because it makes it easier to plan teaching lessons. One of the participants in the research was of the view that Blackboard enables “planning from the beginning of the academic year”. Participants also identified ease of organising class materials, administration and learning. For example, a participant in the research pointed out that Blackboard facilitates “announcement of grades in the future (to prepare online tests and lectures)”. A commons feature of these comments is the notion of “ease”. As highlighted in the previous chapter, perceived ease of use is a key indicator for adoption of technology. In these comments there is a perceived ease around making work or teaching and learning related activities work easier, faster and more flexible.

4.4.1.4 Other reasons

Twenty-four (24%) participants gave other reasons that can be grouped into two main TAM areas: external and internal factors. The external factors include the requirements of the university and student demand, and internal factors included the desire to use new technologies such as learning management systems, to keep up with modern teaching practices.

In terms of external factors, the requirement by universities that their staff adopt the use of technology was cited as one factor that enables the use of technology. Along these lines, one of the participants’ responses was that they use Blackboard because it is a “mandatory requirement by the department”.
External factors affecting students with respect to the demand for technology were also identified as enablers. For example, technology skills, knowledge and use by students were also identified as factors that promoted the use of Blackboard among members of faculty. For instance, one female academic noted that the “widespread use of the technology by students this day” is one of the factors that is promoting the use of technology in her institution. This is supported by the fact that, based on the closed question responses, 60.2% of the participants agreed or strongly agreed with the statement that students will perceive the use of technology in teaching positively (45.7% of the participants agreed while 14.5% of them strongly agreed with the statement). (See Table 20: Factors that Promote Participation in Using Blackboard; see Section 4.3.2).

Referring to internal factors, many of the responses cited the internal factors around a desire to adopt new technologies or to interact with an online learning environment. This can be seen in a number of responses. For instance: “I think it is important to use new technology in teaching” and “its modern learning strategies and technical environment around us and which has become a necessary part of education”. The need to be in touch with cutting-edge technology is verified in Table 21 (Participants’ Attitudes and Opinions Regarding Blackboard; see Section 4.3.3), where more than 50% of the respondents agreed or strongly agreed with the statement “I believe Blackboard is the future of higher-education” (38.2% agreed while 16.9% strongly agreed with the statement). These views are supported by findings from the open-ended responses in which the research participants indicated that there is “The desire to keep pace with modernization and development”, that Blackboard is “modern learning strategies and technical environment around us and which has become a necessary part of education”, and “I think it is important to use new technology in teaching”.

4.4.2 Reasons for not using Blackboard in teaching

An open-ended question was also used to collect the participants’ views on why they did not use Blackboard in their teaching activities (see Table 25). The total number of participants who gave their answers to this question was 94. From this number, 13 (13.8%)
indicated that they did not have a specific reason for not using Blackboard. The rest of the participants (81) (86.2%) gave various reasons for not using the LMSs. These reasons were categorised into four groups as follows: institutional issues, technology-related issues, academic issues and student-related issues (full responses presented in table format in appendix I). The categorisation of the responses was based on the groups of factors identified in the literature review as challenges to the use of learning management systems in institutions of higher learning (see Section 2.3.3).

**Table 25: Issues that Hinder the Use of Blackboard in Teaching**

<table>
<thead>
<tr>
<th>Institutional issues</th>
<th>Technology issues</th>
<th>Academic issues</th>
<th>Student issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to the literature this includes issues related to/ including access to technology, incentives offered by the university, training, and encouraging staff to use learning management systems.</td>
<td>This includes issues such as software problems, technical malfunctions, lack of Internet support, network problems, device malfunctions and the complex nature of the software.</td>
<td>This includes issues such as acceptance of technology by staff, their attitudes towards the technology, as well as lack of knowledge and experience in using the technology,</td>
<td>Includes issues such as student acceptance of the technology, access to technology, students’ perceptions of the usefulness of the technology, their perceived ease of use of Blackboard.</td>
</tr>
</tbody>
</table>

**4.4.2.1 Institutional issues**

Institutional factors accounted for approximately 12.7% of responses (12 out of 94). The main institutional reasons identified by the participants as why they did not use Blackboard included: lack of adequate training; lack of incentives to support the use of the learning management system; and lack of support and encouragement from employer institutions.
In terms of training in the use of LMSs, 10 of the participants indicated that lack of training was a major concern as they either had not received adequate training or had not been trained at all. Some of the participants’ statements around the reasons for not using Blackboard included: “I did not get adequate training”, “lack of training and support” and “haven’t got any training”. These findings are verified by the findings from Table 20 (Factors that Promote Participation in Using Blackboard; see Section 4.3.2) where more than half of the participants (30.4%, 5.8% and 21.0%) disagreed, strongly disagreed with, or neither agreed nor disagreed respectively, to the statement that “I feel I have the necessary training to prepare me to teach using Blackboard”. This means that many of the members of faculty were either not trained or were not sure of their skills in using Blackboard.

As noted by TAM, perceived ease of use can enhance technology use and this perceived ease of use can be influenced by professional learning via training. Indeed, this was reinforced by the data shown in Table 16 (Blackboard Technologies in which the Participants Have Been Trained) which showed that participants that had had training were more likely to use LMSs (75.3%) than those who hadn’t (24.7%) (see Section 4.2.10).

Another issue that was identified was a lack of support and encouragement from the participants’ employer institutions. This featured in the participants’ responses, for example: “the lack of support and encouragement by management”; “there is no encouragement of the university to use Blackboard. There are no mandatory courses on how to use” and “There is no encouragement from the university to use Blackboard. There are no mandatory courses on how to use”. This coincides with the responses given in regard to the closed questions (Table 23: Perception of Support and Faculty Desire to Teach; see Section 4.3.4). In response to the statement “I feel there is adequate administrative support to use Blackboard effectively”, 37.1% strongly disagreed or disagreed while 30.8% neither agreed nor disagreed. This may be influenced by being reluctant to criticise their employer in a survey.
Another institutional issue was lack of incentives that support the use of Blackboard. One participant identified “lack of incentives” as one of the institutional factors that made her not use Blackboard in teaching. This is comparable to the findings based on the responses to closed questions in which more than 47% of the participants did not agree with the statement that “I feel there are workload incentives if I use Blackboard” (Table 20: Factors that Promote Participation in Using Blackboard; see Section 4.3.2). In particular, 18.1% of the participants strongly disagreed with this statement, while 29.7% disagreed. This implies that respective universities did not provide adequate incentives that would motivate academic staff to use blackboard in teaching. This is supported by an open-ended response to the statement that “there is no encouragement of the university to use Blackboard”. Combined, these issues highlight the notion that lack of training in the use of Blackboard, coupled with a lack of support for the use the LMSs were hindrances to the use of technology in the universities whose faculty members were surveyed.

4.4.2.2 Technology-related issues

The technology-related issues that were identified by 30 (31.9%) participants included software problems, inadequate technical support, system failure, and poor or lack of access to technology. These issues are addressed below.

In regard to software problems and inadequate technical support, most of the participants identified technical problems (network failure, difficulties in using the system, and failure of some functions of the system or the entire system) and lack of technical support as the reasons why they did not use Blackboard. For instance, the participants responded “technical support delayed” and “no technical support for me or my students”.

In regard to failure of the system, the participants gave reasons such as “device malfunctions”, “network problems”, “technical malfunctions” and sudden crashing of the system as problems that hindered the use of Blackboard. The different issues that have been identified are consistent with Al-Shehri’s (2010) (see Section 2.3.3.1) assertion that
software and hardware problems, as well as lack of technical support, are some of the factors that hinder the use of LMSs in higher learning institutions in KSA.

Poor access or lack of access to technology was also mentioned as a factor that hindered the use of Blackboard in teaching. For instance, one participant noted that Blackboard is “not activated yet in my department” meaning that her department was yet to be connected to the Blackboard system. Another participant identified “lack of sufficient labs to prepare students” as factor hindering access to the system by students. Poor or lack of access to technology is an issue that has been identified in many studies (e.g. Al-Shehri, 2010; AlMegren & Yassin, 2013) as one of the factors that made it difficult to use technology in universities in KSA (see Section 2.3.3.1). For instance, some universities still do not have wireless access to the internet (AlMegren & Yassin, 2013).

4.4.2.3 Academic issues

In relation to academic issues, the reasons identified by 48 (50.0%) participants for not using Blackboard include: lack of knowledge about Blackboard and lack of experience in using the system, difficulties related with using the system, and the perception that face-to-face interaction between the lecturer and the students is necessary in some courses.

Lack of knowledge about Blackboard and lack of experience in using the system featured in some of the participants’ responses such as: “lack of knowledge”, “lack of experience”, and “not enough knowledge” to use Blackboard. This was supported by the finding that 30.2% of the participants disagreed or strongly disagreed with the statement that “I have the knowledge I need to develop teaching and learning using Blackboard” (Table 20: Factors that Promote Participation in Using Blackboard; see Section 4.3.2). Lack of knowledge required to use the technology was also mentioned. This is corroborated by some of the participants who pointed out a lack of knowledge in using some technical aspects of Blackboard as the reason why they did not use the LMS. For instance, one participant noted that “the program is complex and does not give me any enthusiasm to work on it”. Another participant noted that “academic staff, unfortunately, at the University was not able to use
Blackboard because of a lack of banner which links the names of students and courses with Blackboard”.

For some participants, difficulties associated with using Blackboard were linked to the perception that Blackboard is complicated, burdensome and time-consuming, and takes away from preparing teaching materials and other academic work. For instance, one participant noted that Blackboard “increases the burden on the teacher at home”. This implies that Blackboard required lecturers to check students’ work even when they were at home, thus adding to their workloads. This is supported by the view that “it [Blackboard] can be time consuming sometimes”. However, this is not reinforced with the closed question part of the survey. In Table 21 (Participants’ Attitudes and Opinions Regarding Blackboard; see Section 4.3.3) in response to the statement “I believe blackboard technology is too complicated for both the student and the faculty to be successful”, more than 40% of the participants disagreed with the statement (10.4% strongly disagreed while 34.1% disagreed) while only 20% of the participants agreed or strongly agreed with the statement.

The participant also said that they believed that some teaching content/lessons required face-to-face interaction between the lecturer and the students. For instance, one response was that “some courses need to be face to face because they need more explanation”. Another issue is the perception or pedagogical belief that teaching in class is better and more important than using Blackboard. The perception that the traditional classroom way of teaching is better, or that face-to-face interaction between the lecturer and the students is necessary in some courses, can be seen as one of the key reasons members of faculty do not use Blackboard. These findings are corroborated by some of the findings reported in Table 21 (Participants’ Attitudes and Opinions Regarding Blackboard; see Section 4.3.3). Notably, as shown in Table 21, many participants did not believe that students learnt just as much in LMSs as they did in the traditional classroom, with 39.3% disagreeing and 8.1% strongly disagreeing with that statement that “I believe students tend to learn just as much in the Blackboard environment as they do in the traditional classroom”. This is supported by
several open-ended responses in which the participants seemed to indicate that the level of learning that was achieved through Blackboard was not the same as that which is achieved through the traditional classroom. Such responses included: “some courses need to be face to face because they need more explain”, “theoretical and practical teaching in the classroom is much better than Blackboard”, “my course does not need to Blackboard”, and “I believe case discussions in our specialty are best conducted in class”.

4.4.2.4 Student-related issues

Concerning student-related issues that hindered the use of Blackboard, 17 participants (18% of the total number) identified a number of factors, including difficulty of accessing and using LMSs, preference for traditional classroom learning, and unwillingness by students to the use Blackboard (including non-compliance with academic requirements and cheating).

In relation to difficulties with regard to the use of Blackboard, it was noted that some students were not able to use the Blackboard system. For instance, one participant noted that “students still find it hard to log in and participate due to technical difficulties”. This implies that the challenges that students had with regard to the use of Blackboard affected how lecturers could use the system.

Lack of student interaction with lecturers during the use of Blackboard, and preferences for traditional classroom learning, can be linked to two findings from the previous section. One is that there are situations in which face-to-face interaction is preferred in the course of teaching or learning. Another is that there are situations in which the course that students are undertaking is more suited to the use of the traditional classroom methods of teaching.

Unwillingness of students to use Blackboard is highlighted in responses such as: “students do not open the Blackboard and use material there”, “unwillingness of students to use it”, and “not every student goes online and check Blackboard until I tell them”. These statements are comparable to the point that not very many participants agreed with the statement that “I feel there is adequate student support to use Blackboard effectively” (Table 18: Possible Barriers to the Adoption of Blackboard; see Section 4.3.1). In fact, less
than 30% of the participants agreed with the aforementioned statement, more than 30% disagreed or strongly disagreed, while 35.9% neither agreed nor disagreed with the statement.

4.4.3 Assisting Blackboard use

The participants were asked an open-ended question about what they believed would help them to use Blackboard more in their teaching. Eighty-eight participants provided responses to this question. Nine (about 10.2%) of them indicated that they did not know what could help them to use Blackboard more. The remaining 79 (89.8 %) participants gave different views in regard to what they thought could motivate them to utilise Blackboard more in the course of their teaching activities. The responses are grouped into four categories: institutional, technology-related, academic and student-related factors (full responses can be seen in appendix J).

4.4.3.1 Institutional factors

Institutional factors were identified by 46.5% of the participants (41 of 88 participants). The comments can be further categorised into institutional support for students' use of LMSs and support for academic staff.

Firstly, instructional support for students that encourages Blackboard use was cited by a number of participants. One area that most of these participants touched on is education and training for members of faculty in how to use Blackboard. Twenty-six out 41 mentioned education or training with comments such as: “increase the number of training courses”, “provide training courses”, “providing courses on how to use it regularly” and “training and educational design skills that are consistent with the objectives of policy”. The professional development or training of students to use Blackboard was also addressed: “Educate the students in the importance of Blackboard and explain it to them.” These findings are aligned with open-ended responses in Section 4.4.2.1 which indicated that lack of professional learning or training was a barrier to LMSs use. What this means is that training or educating
faculty members and students on how to use Blackboard would increase the uptake of the system by them.

Another factor is institutional support for academic staff. One participant noted the need to “encourage member faculty to use Blackboard” while another pointed out that “financial incentives” would increase the use of Blackboard.

The emphasis that the participants placed on the need for training suggests that many of them have not received adequate training that would enable them to use the technology effectively.

This is in line with the quantitative data which found that less than 50% of the participants reported having received training in how to use Blackboard features and other technologies (Table 16: Blackboard Technologies in which the Participants Have Been Trained; see Section 4.2.10). The findings are also supported by the figures presented in Table 20 (Factors that Promote Participation in Using Blackboard; see Section 4.3.2), in which 5.8% and 30.4% of the participants strongly disagreed or disagreed, respectively, with the statement “I feel I have the necessary training to prepare me to teach using Blackboard”.

4.4.3.2 Technology-related factors

In terms of technology-related issues, 14 of the participants (15.9%) noted that increasing the number of computer laboratories as well as other necessary technological infrastructure, and providing technical support to facilitate the use of Blackboard, would make them use the technology more.

A number of suggestions centred on improving technological infrastructure. This was noted through the participants’ responses such as “quick technical support”. In particular, it was noted that there is a need for technical support to be provided to participants. The participants made statements such as “develop a system Blackboard in line with the user requirements”, and “provide technical support permanently”. The statements point to the notion that the participants’ universities either did not have adequate infrastructure or did not have adequate policies and support to facilitate the effective use of Blackboard. This is
supported by the finding that more than 35% of the participants either disagreed or strongly disagreed with the statement, “I feel the university has a clear Blackboard policy”, as shown in Table 18 (Possible Barriers to the Adoption of Blackboard; see Section 4.3.1). Many participants identified technical support as an issue that affected several aspects of learning for both students and lecturers, including administrative matters. This indicates that there are issues relating to the policies that universities have toward the use of technology. Along this line, ensuring that technical support is provided when members of faculty need it would make the use of Blackboard easier and more accepted, which would make more academic staff use the system even more. From Table 23 (Perception of Support and Faculty Desire to Teach; see Section 4.3.4), it is not clear whether or not the participants received adequate technical support for their use of Blackboard. This is because in response to the statement “I feel there is adequate technical support to use Blackboard effectively”, 36.2% of the participants either disagreed or strongly disagreed, 27.7% neither agreed nor disagreed, and 36.2% either agreed or strongly agreed. As can be seen, the percentages of participants who disagreed and the percentage who agreed with the statement were equal.

4.4.3.3 Academic factors
Of the 88 responses to this question, 27 (30%) of the participants gave some academic reasons that would support LMSs use. Most of the participants were of the view that they would use Blackboard more if the system was useful to their work and/or made the teaching process easier.

The reasons given by the participants for why they would use Blackboard point to the perceived usefulness and perceived ease of use of the technology. That is, the findings indicated that if the participants found Blackboard relevant to their work, or if they deemed the technology to be making their work easier, they would use it more in their teaching work. For instance, some of the statements given by some participants, such as that Blackboard is useful “when there is a distance education or training programs or distance courses”, when it helps “reduce the teaching load” and that the participants would use Blackboard when they saw its benefits, imply that Blackboard would be used more if it was
perceived to be useful and relevant. The usefulness of the technology is further emphasised by the response that the participants would use Blackboard more when there was “improved usability and accessibility of the system”. These findings are reinforced by some aspects of the results pertaining to the closed questions (see Section 4.3.2).

Some participants commented about being able to communicate and interact with students at any time. In particular, one participant said that she would use Blackboard if it enabled her to “communicate with students” while another indicated that she would use the system if it enabled her to “communicate with students at any time”. This can be related to the point that was noted in the literature review (Section 2.3) that learning systems provide “a communication, interaction, and collaboration tool” (Sangrà et al., 2012, para. 7). Along the same lines, another participant said that she would use Blackboard if the system enables easy “interaction with students”.

Another factor that participants said would promote the use of Blackboard is if they felt that the system would improve teaching. For instance, one female academic indicated that she would use Blackboard if the system “facilitates the teaching process”. Another participant noted that Blackboard being able to “reduce the teaching load” was a factor that would make her use the system. These two points can be linked to the notion in Section 2.3 of the literature review that elearning involves the use of the “Internet to improve the quality of learning by facilitating access to resources and services” (Idiegbeyan-Ose & Esse, 2014, p. 47). Some participants also noted that having courses that required the use of distance education is a factor that promoted the use of Blackboard. This is clear from the view that Blackboard would be appropriate “when there is a distance education or training programs or distance courses” as noted by one participant. Indeed, in the literature review (Section 2.3.4.2), it was noted that the ability to offer distance education is one of the reasons why LMSs are used in education (Culp et al., 2003).
4.4.3.4 Student-related factors

Eleven of the survey participants (12.5%) noted that having students with knowledge about how to use Blackboard would encourage them to use the system more. As was noted in the literature review, students’ acceptance of Blackboard can increase the usage of the LMS (Section 2.3.3.3) as they are the major recipients of the instruction that is disseminated through such systems. Student acceptance of Blackboard is therefore an important factor that can promote the use of the system among students and lecturers. One of the participants noted that there is a need for “sufficient knowledge for students to know how to use it” (Blackboard). Another participant indicated that there was a need for “students having knowledge in using it [Blackboard]”. The two statements imply that having students who are adept at using technologies such as Blackboard is likely to motivate members of faculty to use the technology. Support for this notion can be seen from Table 21 (Participants’ Attitudes and Opinions Regarding Blackboard; see Section 4.3.3), where more than 50% of the participants either agreed or strongly agreed with the statement “I believe adopting Blackboard in Saudi universities will encourage students to be more interested in learning”. What this implies is that when universities in Saudi Arabia adopt the use of Blackboard, then more students will be motivated to it. In turn, more academic staff members will be encouraged to use Blackboard if more students embrace the use of the system.

Finally, family support for students to use Blackboard was cited as a factor that would increase LMS use. This was indicated in the following response: “Families should understand the importance of giving their daughters the time and space to use modern technology”. This means family support for students to use Blackboard (for example, by paying for the students’ training and buying them computers) can enable the students to use technology, thereby enabling faculty members to use the technology more.

4.5 Interview Findings

This section presents the findings of the interviews with the six female academics who worked in different colleges in relation to the use of Learning Management Systems by
female academic staff in universities in KSA. The researcher sought, through these interviews, to go beyond just the survey results and provide some more in-depth data around factors affecting the adoption of learning management systems in Saudi higher education from the perspective of female academic staff.

The interviews were designed to clarify the participants’ views about the use of LMS to support the educational process in Saudi universities. The first part of this section will outline demographic information about participants in the interview including: age, the colleges and departments the participants were employed in, years of teaching experience in higher education, highest level of education, and nationality. The second part of this section will examine the internal and external factors that could support or limit the adoption of learning management systems in Saudi universities.

**4.5.1 Demographic information**

The first few questions of the interview focused on the demographic data as these factors could be correlated with the uptake of LMSs. Table 26 provides an outline of the participants’ demographic information and the results from this data are then discussed in more detail.

**Table 26: Interviewee Demographic Information**

<table>
<thead>
<tr>
<th>Code</th>
<th>Interviewee 1 (I-1)</th>
<th>Interviewee 2 (I-2)</th>
<th>Interviewee 3 (I-3)</th>
<th>Interviewee 4 (I-4)</th>
<th>Interviewee 5 (I-5)</th>
<th>Interviewee 6 (I-6)</th>
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<tbody>
<tr>
<td>Age</td>
<td>26-30</td>
<td>26-30</td>
<td>31-35</td>
<td>46-50</td>
<td>31-35</td>
<td>31-35</td>
</tr>
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<td>Department</td>
<td>College of Science</td>
<td>Deanships and Institutes</td>
<td>Deanships and Institutes</td>
<td>College of Science</td>
<td>College of Science</td>
<td>Deanships and Institutes</td>
</tr>
<tr>
<td>Length of teaching experience</td>
<td>2 years</td>
<td>4 years</td>
<td>5 years</td>
<td>17 years</td>
<td>5 years</td>
<td>One year</td>
</tr>
</tbody>
</table>
4.5.1.1 Participant’s ages

Three interviewees (50%) were in their early to mid-thirties (see Table 27). Two of these interviewees (participant’s I-3 and I-6) had no Blackboard experience. Two of the participants were in the 26-30 age group. One (I-1) had Blackboard experience and (I-2) did not. One of the six (I-4) participants was in the 46-50 age group and she had Blackboard experience. The findings from the survey (Table 13; see Section 4.2.8) and the interviews on the influence of age on the participants’ Blackboard preferences were similar. In the survey, the older participants were more likely to use Blackboard than the younger aged participants. For example, in the survey, 66.7 % of the participants aged above 55 used Blackboard as part of their teaching (Table 14; see Section 4.2.8) and this is similar to the interview results.

Table 27: Interviewees’ Ages and Blackboard Experience

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number</th>
<th>Percentage (%)</th>
<th>Never had Blackboard experience</th>
<th>Had Blackboard experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-30</td>
<td>2 (I-1) (I-2)</td>
<td>33.3</td>
<td>1 (I-2)</td>
<td>1 (I-1)</td>
</tr>
<tr>
<td>31-35</td>
<td>3 (I-3) (I-5) (I-6)</td>
<td>50</td>
<td>2 (I-3) (I-6)</td>
<td>1 (I-5)</td>
</tr>
<tr>
<td>46-50</td>
<td>1 (I-4)</td>
<td>16.6</td>
<td>0</td>
<td>1 (I-4)</td>
</tr>
</tbody>
</table>
4.5.1.2 Participants’ colleges

Three of the six interviewees came from a College of Science and three came from Deanships and Institutes (see Table 28). All the interviewees who used Blackboard (I-1, I-4 and I-5) worked in the College of Science. In the survey, most participants were from the Humanities but the interviewees were from two fields. Because the interviewees were only from two colleges, the researcher obtained limited information on the use of Blackboard across a variety of disciplines. For example, 41.6% of the survey participants from Deanships and Institutes used Blackboard and only 37.8% of survey participants who were from Science Colleges used it (Table 7; see Section 4.2.4). This finding is completely different from the interviews, in which none of the participants from Deanship and Institutes used Blackboard.

Table 28: Interviewees’ Colleges and Blackboard Use

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Number</th>
<th>Percentage (%)</th>
<th>No use of Blackboard in courses</th>
<th>Use of Blackboard in courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Science</td>
<td>3 (I-1) (I-4) (I-5)</td>
<td>50</td>
<td>0</td>
<td>3 (I-1) (I-4) (I-5)</td>
</tr>
<tr>
<td>Deanships and Institutes</td>
<td>3 (I-2) (I-3) (I-6)</td>
<td>50</td>
<td>3 (I-2) (I-3) (I-6)</td>
<td>0</td>
</tr>
</tbody>
</table>

4.5.1.3 Participants’ teaching experience

The question on the length of teaching experience had varied answers, as shown in Table 29.
### Table 29: Length of Teaching Experience and Blackboard Experience

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>Number</th>
<th>Percentage (%)</th>
<th>No Blackboard experience</th>
<th>Had Blackboard experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 years</td>
<td>1 (I-6)</td>
<td>16.7</td>
<td>1 (I-6)</td>
<td>0</td>
</tr>
<tr>
<td>2-5 years</td>
<td>4 (I-1) (I-2) (I-3) (I-5)</td>
<td>66.7</td>
<td>2 (I-2) (I-3)</td>
<td>2 (I-1) (I-5)</td>
</tr>
<tr>
<td>More than 5 years</td>
<td>1 (I-4)</td>
<td>16.7</td>
<td>0</td>
<td>1 (I-4)</td>
</tr>
</tbody>
</table>

The interview findings showed that most of the respondents had 2 to 5 years’ teaching experience (four out of the six interviewees). In the survey (Table 8; see Section 4.2.5), many of the respondents had teaching experience of 1-5 years, which aligns with the distribution in the interviews. The survey further examined the relationship between teaching experience and levels of use of the learning management system (Table 9; see Section 4.2.5). In the survey sample, most of those with Blackboard experience had 2 to 5 years of teaching experience. In the interviews, the correlation between years of teaching experience and use of Blackboard was also positive.

#### 4.5.1.4 Education level (participants’ highest academic degree)

Most interviewees (66.7%) had a master’s degree, followed by one participant (I-2) who had bachelor’s degree and one who had a PhD (I-4). Interviewees with higher levels of education were slightly more likely to have had more experience in using Blackboard, as shown in Table 30. This is similar to the survey findings. Table 10 shows that survey participants who had higher degrees tended to use Blackboard more in their teaching.
Table 30: Participants’ Highest Academic Degree and Blackboard Experience

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>1 (I-2)</td>
<td>16.7</td>
</tr>
<tr>
<td>Master</td>
<td>4 (I-1) (I-3) (I-5) (I-6)</td>
<td>66.7</td>
</tr>
<tr>
<td>Doctorate (PhD)</td>
<td>1 (I-4)</td>
<td>16.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Never had Blackboard experience</th>
<th>Had Blackboard experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor</td>
<td>1 (I-2)</td>
<td>0</td>
</tr>
<tr>
<td>Master</td>
<td>2 (I-3) (I-6)</td>
<td>2 (I-1) (I-5)</td>
</tr>
<tr>
<td>Doctorate (PhD)</td>
<td>0</td>
<td>1 (I-4)</td>
</tr>
</tbody>
</table>

4.5.1.5 Participants’ nationalities

Five interviewees were Saudis origin and one was non-Saudi. This distribution is similar to that of the survey where 91.6% of the respondents were Saudis. Participants I-2, I-3 and I-6, who were Saudi, had no Blackboard experience while the other two Saudis (I-1) and (I-5) had Blackboard experience. The non-Saudi interviewee (I-1) had Blackboard experience.

4.5.2 Actual system use

The interview sought to investigate the knowledge and use of the learning management system. Most participants were aware of the system but Interviewee 6 did not have any knowledge of the system. She was in the Deanship and Institutes and had only one year of teaching experience. She commented: “During that time we didn’t use that in the faculty. Maybe the computer faculty had that”. Another interviewee (I-2) also revealed that Blackboard was new for the higher education sector at her university, and noted:

No, we didn’t have blackboard because our faculty was not their priority.
Learning management system has started to appear this year in our faculty. (I-2)
One of the interviewees (I-1), who was in the 26-30 age group and worked in the College of Science, spoke about the ways in which she had used Blackboard features in her previous work:

I had a short experience in the technical and vocational training corporation and it helped me because they used the blackboard system. I didn’t use it too much in higher education and I just use it for correcting, I used it in the technical and vocational training corporation. (I-1)

As seen from the statement, the respondent insisted that her previous experience had helped her to understand the system use but only discussed basic teacher-centred activities of correcting assignments. Interviewee 5 (I-5), who worked in the College of Science, had experience in a Google-based LMS as well as Blackboard and compared the functions of the two systems.

I only use it [Blackboard] for the content and to upload the slides, but I have not tried to make online quizzes yet, I just upload the lectures and post notifications, upload homework, but I didn’t use it for anything else. I remember there was a feature that allows discussion between the students but I have not used it yet. We have reached a point where we don’t need the blog; we only use Blackboard. I use the content only, and I learn on the forums, I also know how to let the students discuss together and do the homework. (I-5)

This statement reveals that the interviewee certainly used Blackboard, mostly in teacher-centred ways and she was aware of the possibility of collaboration but didn’t utilise this feature. Other functions were used by Interviewee 4:

I know Blackboard, and I use it. You download the lectures on the Blackboard and you make quizzes, small tests with question on Blackboard to be available online in a certain time you tell them about and you ask them to be ready and sitting in front of their computers, then you send
them the questions, and they answer, so you teach everything online and they answer while you are sitting at your home, everyone is there in the same time, they take the lecturers online, tutorials and everything else. (1-4)

The Blackboard features identified by the interviewees in the previous statements were similar to those identified in the open-ended survey results, including electronic exams, sending emails, assessments and quizzes (see Section 4.2.10). The features described were more teacher-centred and were used to supplement face-to-face teaching.

One participant used a Google-based blog, but used it in a similar way to Blackboard features outlined earlier:

There are some subjects that aren’t linked before classes so isn’t shown on Blackboard, so I use the blog before connection. I upload slides to put the homework on until the connection is done then I can leave the blog and use Blackboard. (I-5)

This statement suggests that participants are aware of the Blackboard system as a learning management system, even if they weren’t using it currently.

4.5.3 External variables

The participants were also asked about the external factors that supported or limited the utilisation of the learning management system. Similar to the survey responses, they could be grouped into four main categories, namely institutional factors, technology factors, academic factors and student-related factors.

4.5.3.1 Institutional factors

These are the issues that are under the direct influence of the institution and include access to technology, incentives offered by the university, training, and encouraging staff to use the learning management system. Institutions contributed in both positive and negative ways.
Of the 6 interviewees, five identified positive institutional factors which encouraged the utilisation of the learning management systems at their respective institutions. Interviewee 1 who worked in the College of Science indicated that she had prior experience using Blackboard and that the university had shown commitment towards adopting the learning management system. She stated that “Sure, the university helped”, but didn’t say how it had done so.

Interviewee 2 (I-2) who worked in the Deanship and Institutes reported that she did not use a learning management system herself, but spoke about the introduction of courses, for both lecturers and students, aimed at making them familiar with elearning. She said: “The University offers courses and opens registration every month for all teaching staff beginning from lecturer to professor”. Interviewee 3, who worked in the same institute and also did not use a LMS, similarly reported that the institution had a website and intends to develop the elearning curriculum. She stated that: “They intend to develop both curriculum and system generally” (I-3).

Interviewee 4 (I-4), the most qualified of the interview participants, noted that her university had the necessary internet infrastructure required for the successful running of Learning Management System and that it provided training. She stated: “I have taken courses in the last semester that taught us ... how to use Blackboard and get the best out of it” (I-4). This interviewee had more than 5 years’ teaching experience. She praised the technology support staff and saw this as one of the positive external factors, as she explained:

The staff are cooperative too, and we receive great support, the university is really doing a huge effort to spread blackboard in all the faculties. (I-4)

Interviewee 5, who also worked in the College of Science, had a similar opinion to Interviewee 4. She noted that the administration was committed to LMS use and usually encouraged both the staff and students to utilise it. She said:
Since the last year, the university started to guide us to use Blackboard and give us training courses ... as far as I remember my first course in blackboard was three years or so ago, so the university encouraged us to use blackboard a long time ago. (I-5)

She also pointed out that the university offered courses on elearning and that most of the staff has attended these courses. She reported that “There are courses all the time, this week there was a course” (I-5).

The institutional support for LMSs through training was recognised by the interviewees, regardless of whether they used Blackboard. For instance:

- I-1 who had Blackboard experience reported that the university offered training on elearning to both students and staff.

- I-4 reported that her institution had an elearning program and that the courses were tailored to meet the individual needs of different staff members. She said that “The courses are prepared well for everyone to understand, it shows you everything from A to Z, and you make use of everything.”

- I-5 who also had Blackboard experience noted: “They send you a link to a lecture on YouTube and tell us, for example, today we will teach you how to download the lectures for the students, then in the forum they ask me a question and check if I can answer it or not and that what helped me.”

- I-6 who worked in the Deanship and Institutes and did not have any Blackboard experience also noted that: “Yeah there are trainings and they are in a regular manner. And it is repeated for the old and new staff.”

These findings correspond to the findings from the survey where 46.5% of the participants felt that positive institutional factors promoted the use of LMS (see Section 4.4.3.1). This is similar to the interviews in which 5 out of the 6 participants readily identified the role of positive institutional factors. The interviewees also reported significant commitment and
support from the institution as far as the implementation and utilisation of the system is concerned. This corresponds to the findings from the survey in which technical support from the universities was the second-highest rated element in relation to areas of support and faculty desire to teach is concerned.

Institutional factors, however, also negatively influenced the use of LMSs. Of the six interview participants, three identified negative institutional factors discouraging the utilisation of LMSs. I-1 felt the university could make it mandatory to participate in elearning to increase uptake. She stated:

As a lecturer, I put the material, activate the system with all what's useful for the student and the curriculum, but nothing forces me as a lecturer in the University to do so. (I-1)

Interviewee 2, who did not use Blackboard as part of her teaching, felt that her institution lagged behind as most of the learning approaches and technologies were still based on traditional models. As she explained, her institution was “far from developed” in elearning. This was also noted by Interviewee 3 who stated: “we use the traditional education, and we have not started the distance learning yet”. She explained that despite having a website, and elearning materials, her institution was limited to a single online reading CD and she believed the university had shown very little interest in implementing a learning management system, and that many staff members were unfamiliar with Blackboard. She also noted that although the university had an IT department its focus was on fixing devices rather than promoting LMS for teaching and learning. She felt it might be better if the LMS was owned at a local level such as the faculty level, rather than centrally located: “I think that they need more organisation. It will be better if each faculty establish commission monitoring and organizing the courses”.

While the offering of training is a positive, the training also has to be suitable for the attendees and some of the participants identified issues with the training. For instance, Interviewee 1 noted that there was a lack of interest from participants of the training and
commented on the inaccessibility of some important LMSs learning materials. She stated that “The Blackboard is applied but [there is] not enough assistance”.

Interviewee 2, who currently did not use Blackboard, stated that although her university offering training programs, she found them inadequate. She stated that “It was like course but, actually, it was not. We just learnt know how to switch on and switch off”. She later said she didn’t finish the training as it didn’t meet her needs: “Previously I took a course, once I heard it is about Learning Management System, I did not interact with it” (I-2).

From the survey data, the negative institutional issues that the participants identified as barriers to the utilisation of LMSs were the lack of adequate training and lack of incentives to support the use of the Learning Management System. These themes were also present in the interviews.

4.5.3.2 Technology-related factors

The interviewees spoke about a number of technology-related factors that impacted on or supported their use of LMSs including software problems, technical malfunctions, lack of internet support, network problems, device malfunctions and the complex nature of the software.

Of the six participants, three identified technology access and infrastructure in positive ways. They were from the College of Science and used Blackboard as part of their teaching. For instance, I-1 reported there had been no software/technical problems: “I can’t remember any errors in the system, I was actually surprised with the huge options that I had as a lecturer”. Interviewee 4 reported that technical issues and device malfunctions affecting Blackboard use were often solved as quickly as possible by the IT department. She stated that:

Any problem about the password, you should send an email to them, and they try to fix it because the electronic system here makes their response very fast. (I-4)
The same sentiments were expressed by I-5 who felt that the university’s IT department had been at the forefront in encouraging the utilisation of the system across the different departments. She stated that:

I used it the last year, and I had no problem accessing the system, I have never found the system not working, and they tell us about the updates in advance. (I-5)

The positive technological factors identified in the interviews were aligned with those identified in the survey. In the survey, the positive technological issues identified included increased demand for technology, growing technological knowledge and skills among students and a desire to adopt new technologies or to interact with online learning.

Three out of the six interviewees also discussed negative technology-related issues. Three of them were from Deanship and Institutes and did not use Blackboard in their teaching and the fourth (I-1) used Blackboard in the College of Science. Interviewee 4, who did use Blackboard, felt that it was complex as it required linking the subjects to the system at the beginning of each academic year. She said: “linking the subjects with blackboard is the main problem that I faced then connecting with the students” (I-1). I-1 highlighted issues regarding access, pointing out that sometimes it was difficult to access certain pages due to slow speeds as well as a failure by the system to recognise usernames and passwords.

(I-3) reported a lack of proper internet infrastructure within her institution. She said:

We need internet as we are language lecturers and students ask about the meaning of words and in this case, I wish I could search on internet to display word image or word translation. In fact, I use my mobile. (I-3)

She pointed out that this had contributed to inadequate utilisation of the learning management system. In the survey data, the negative technology-related issues identified included software problems and delayed technical support, poor access or lack of access to
technology, and lack of knowledge required to use the technology, as well as difficulties in using the Blackboard system. Many of these issues were also reported in the interviews.

4.5.3.3 Academic factors

The academic factors that influenced uptake of LMSs that were identified through the survey include a reduction of teaching load, increased communication and interaction with students, and LMSs making work easier/more rewarding. These were similar to the interview findings. For instance, I-4 stated that Blackboard had reduced her workload and changed the way she worked. She noted Blackboard “has everything I need and it allows me to communicate easily with the students”. She also stated that Blackboard supported her teaching work as she had all-hours access:

So you teach everything online and they answer while you are sitting at your home, everyone is there in the same time, they take the lectures online, tutorials and everything else . . . I also write notifications for them and perform small quizzes for them because it’s easier on blackboard, it is more credible. (I-4)

Similarly, I-5 noted: “all the online quizzes are available and the homework too, you can evaluate them through Blackboard”. She said this had reduced her overall workload.

The lack of LMS knowledge and experience was one of the main barriers identified by participants who did not currently use Blackboard. For instance, I-2 stated “I do not have any idea about it” and I-6, who had only one year of teaching experience, said “I do not have any background about that”.

In the survey, the negative academic issues identified were lack of knowledge about Blackboard, lack of experience in using the system, and difficulties related with using the system. These were also raised in the interviews. However, the perception that face-to-face interaction between the lecturer and the students was necessary in some courses, which was noted in the survey, was not raised in the interviews.
4.5.3.4 Student-related factors

In the survey, issues such as students having technological knowledge, family support and unwillingness by students to the use Blackboard were cited as barriers and enablers of LMS adoption. Two of the six interviewees talked about positive student related factors. They worked in the College of Science and used Blackboard. Interviewee 1 believed that having students with knowledge about how to use Blackboard would encourage staff members to use the system more, and using Blackboard allowed students to interact with each other. She said “nowadays, student and young people can use technology easily and they can use Blackboard”. I-4, who was non-Saudi and was aged between 46 and 50, said that students in her college had support from their families who provided the technology gadgets and internet at home for their daughter because it related to her field of study. She said:

There’s no house without internet connection these days, when I enter a class with 40 students for example, all of them have internet and all of them can access the internet. (I-4)

However, I-4 contradicted this statement and didn’t agree that all students had access at home. She stated “This is the problem, when the student has no internet connection at home” (I-4). Interviewee 5 also questioned students’ access and knowledge: “Maybe because they don’t deal a lot with the computer so they find it difficult”. Similar sentiments were expressed by I-6 who also reported a lack of personal computers among the students:

This point is that the students don’t have computers this is because we had few students who are from poor families and when we asked them about the computers, they would always say we don’t have computers we don’t have tablets and that is the point. (1-6)

Interviewee 4 felt that use of LMSs increased when technology was part of the profession they were studying for. She noted:

Everyone should have the computer; everyone should have internet connection, so it wouldn’t work for all the communities ... but here in my
university they [students] know well about the networks and they know how to deal with the computers because all of them come from computer science faculty so they know how to deal with Blackboard and how to use and apply it ... in computer science faculty, using Blackboard is very easy for students. (I-4)

Four of the six interviewees talked about some negative issues related to students’ technological knowledge. Interviewee 1, who used Blackboard, pointed out that despite being a useful tool, Blackboard was complex tool for some students who were not able to smoothly make use of it. She said:

One of the issues that made me think twice before putting quizzes and tests using blackboard for the students is that I know very well that the students won’t be able to deal with them easy. (I-1)

Interviewee 1 who worked in the College of Science reported that many students are still not aware of how to go about basic operations in the learning management system. She said:

The reason is that the students don’t know how to use it, for example when I ask a student to go see my Facebook page and follow the articles that I post for a certain topic then I see it’s not easy for them to do so, easier if they follow the articles that I download for them. (I-1)

She also pointed out that the training offered is not mandatory and this has contributed to lack of interest among students. She stated that:

I heard it wasn’t obligatory for them to register, there were no conditions for them to register in the course, for us as lecturers we had a problem that we don’t know what the students knew. (I-1)

All of these factors – institutional, academic and student-related – also influence female academic attitudes towards usage, a topic which this thesis now turns to.
4.5.4 Attitude towards usage

The six interviewees were asked to identify the benefits of using Blackboard and all participants could identify some positive aspects of Blackboard use. Interviewee 1, who used Blackboard in a College of Science, pointed out that utilisation of Blackboard at her institution ensured that students had constant access to important academic information. She said:

One of its advantages is that the data was always there for the students as a reminder for them about the curriculum content, the marks distribution, the main goal of the subject. (I-1)

Additionally, she believed that utilisation of Blackboard had led to increased speed in correcting errors made by students in their assignments. She stated that:

It really saved a lot of time as I use it in the quizzes as my specialisation was about accounting, I always had to deal with equations, so it was great because if it were manual such as the previous teaching method it would be hard for me to understand the different fonts and answers of the students. (I-1)

Interviewee 2, who did not use Blackboard, reported that despite her university heavily relying on traditional approaches to teaching, she wanted to use Blackboard in her institute. She stated that “I want to use Blackboard, and I will use it if the university provides it in my college”. This is a clear indicator that her attitude towards utilisation of Blackboard is positive. Interviewee 3, who worked in the same sector as I-2, also pointed out that the availability of Blackboard at her institution would have impelled her to use it. She said “I hope to use this kind of system if it is available in my institute”. Interviewee 4, who was the oldest interviewee and worked in the College of Science, said she found the whole process of elearning and utilisation of Blackboard very interesting. She said “the electronic learning and Blackboard are so great actually”. She felt that Blackboard is beneficial to both the
students and the lecturers and said that “it’s better for them and for us too, it’s an easier and faster way of teacher and student dealing together”.

Interviewee 5, who worked in the College of Science, saw Blackboard as a positive. She reported that her experience using the system was quite enjoyable. She said “I enjoyed using Blackboard; I would like to reach a higher level”. Interviewee 6, who did not use Blackboard, also had a positive attitude towards its utilisation, saying that it was useful and provided support to both the students and the lecturers. She said “I think it is useful and gives support as it is a connecting between the academic members and the student” (I-6).

However, participants also held some negative or mixed attitudes towards Blackboard. Interviewee 1, who had experience in learning and teaching using Blackboard in Australia as well as in Saudi Arabia, noted that compared to Australia, academics at her university did not seem interested in using Blackboard. She noted:

> But in my university it was not the same thing, the lecturers didn’t attend training courses most of the time, I felt that many of them didn’t want to apply for the system. (I-1)

Interviewee 6, who did not use Blackboard and worked in the Deanship and Institutes, pointed out that some staff members’ preferences for traditional learning systems had made them develop negative attitudes towards Blackboard. She said “this is a really important point as some of the staff members don’t like the change”. The findings of negative attitudes toward usage do not correspond to the findings from the survey in which a paltry 3.7% of the participants strongly disagreed, and 6.6% disagreed to the statement “I believe Blackboard is the future of higher-education”. The smaller number of those who strongly disagreed and disagreed in the survey is an indicator that Blackboard had gained wide acceptance, contrary to some of the responses given by the interviewees.
4.5.5 Perceived usefulness

The participants were also asked about the perceived usefulness of the learning management system. The responses were grouped into three main categories, namely access for female students, ease of communication with students, and ‘modern learning tool’.

4.5.5.1 Access for female students

Three of the six interviewees gave some examples for usefulness of Blackboard in teaching and accessing for women. According to I-2, who did not use the system, the system could appeal to female students due to the different visual aids that can be used alongside traditional lecture notes. She said “The female-students want [a system] such as this method in teaching”.

According to I-3 who had a master’s degree and 5 years of teaching experience, it is important for Blackboard female staff members to receive training in Blackboard and that they become more accustomed to the system. She said:

I hope that the member trains on technologies such as Blackboard and Moodle. The member should keep up with the development and technology to grow and be balanced. (I-3)

Interviewee 4 who had a PhD degree and 17 years of teaching experience reported that with technology taking over many aspects of the modern life, better results are bound to be achieved. She stated:

You know, the development that is happening now such as using easy electronic way and using the internet and high speed computers, all these issues help you get the best results. (I-4)

She was of the opinion that using Blackboard had the potential to make education for female students better: “No, I think it is better; I mean using the electronic system with the girls here is a lot better”. On the other hand, Interviewee 5, who had a master’s degree and
5 years of teaching experience, felt that there are no gender issues as far as the utilisation of the system was concerned. She believed that the system did not favour any particular gender, stating that

I don’t think such a [gender] issue would affect, I think it’s the same because as I told you, the specialization is the point, not the gender. (I-5)

Interviewee 6, who had a master’s degree and only one year of teaching experience, reported that the younger students were aware of the many benefits of such a system and would thus be more willing to use it than older students. She said “Yes very much. Because the student love using the technology and she is better in using that than the older who like traditional ways”. I-3 noted that as students at her institution were aged between 18 and 30 years and found new technologies such as Blackboard to be more useful than traditional approaches. She said “Because their ages are between 18 and 30, they are considered youth and actually they want untraditional education and they want technology” (I-3). Many academics in the survey also believed that this is the future learning mode. In the survey the highest percentage of participants 38.2% agreed and 16.9% strongly agreed that Blackboard is the future of higher education in Saudi Arabia.

4.5.5.2 Ease of communication with students

Some interviewees believed that using Blackboard helps academics to communicate with their students. According to I-4 who used the system, Blackboard is a useful tool for student learning as it facilitates faster and easier connection between the students and the tutors. She stated that “Yes, sure, it’s better for them and for us too, it’s an easier and faster way of teacher and student dealing together”. She pointed out that the system is an effective communication tool through which students can easily liaise with their lectures to gain access to different learning materials. She said:

The students just need to have a communication tool with the doctor and be able to get the academic material, the books, the questions and the marks, everything is available for them with no effort, it’s very
comfortable for the student, and any electronic system for learning is easy for the students. (I-4)

She also pointed out that Blackboard is useful in teaching as it facilitates easy communication between the lecturers and the students. She pointed out that “It’s the easiest way to communicate between the student, professor and the university” (I-4).

Interviewee 5 who used Blackboard reported that it is useful because of the better organisation it offers to both lecturers and students compared to individual blogs. She said “it’s organised, and it’s just one source for the students instead of many blogs for many subjects on the wiki space”.

Interviewee 6, who currently did not use the system, pointed out that Blackboard is quite useful in helping connect students with the academic staff. She said:

   It gives support as it is a connecting between the academic members and the student. We can also upload lectures and homework for students. They can also do homework and practice using it better than the traditional way. (I-6)

Three interviewees who used Blackboard and worked in the College of Science gave their opinion regarding its effect on academics’ work. Interviewee 1 who had a master’s degree and had 2 years of teaching experience said that the system made student data easily available, which was beneficial to the work if academic members. She said:

   One of its advantages is that the data was always there for the students as a reminder for them about the curriculum content, the marks distribution, the main goal of the subject because usually they take the subjects and don’t know what they should learn from. (I-1)

Interviewee 4, who is a non-Saudi with a PhD degree and had 17 years of teaching experience reported that apart from being useful to students, Blackboard is also useful to
the academic staff. She believed that the system had everything she needed, saying that “it allows me to communicate easily with the students”.

Interviewee 5 who had a master’s degree and 5 years of teaching experience was of the view that the Learning Management System used at their institution allowed for automatic evaluation of assignments, which made the work of academic staff much easier. She said:

And if we could apply the assignment because it evaluates the homework automatically then it would help the professors and the students, if there were available labs to test the students then the blackboard helps me and the students, I think it’s so great. (I-5)

4.5.5.3 Modern learning tool

Interviewee 2, who had a bachelor’s degree and worked in the Deanship and Institutes, believed that Blackboard is a modern learning tool. She reported that since she had never used the system, she could not say whether it was useful or not. However, she did point out that she sees its potential:

asking people about it I feel it is a good and modern teaching tool. The lecturer work will be facilitated. Also, there will be connecting between lecturers and students. (I-2)

Interviewee 4, who used Blackboard in her teaching, also reported that in general she found Blackboard to be a useful tool. She said “It’s good in higher education as the students will have experiences and they can learn new staff and technology”.

In the survey, the participants were asked about their opinions on the impact of Blackboard use on student learning, and 61.5% agreed that it had the potential to improve student learning, while only 9.6% disagreed (Table 21; see Section 4.3.3). These findings correspond to those from the interviews in which most interviewees highlighted the importance of Blackboard in student learning.
Three of the six interviewees gave some examples of the usefulness of Blackboard in student learning. According to I-1 who used Blackboard in the College of Science, Blackboard is a useful tool in student learning because it allows lecturers to guide the students through the reading processes. She said:

[Blackboard is] very useful because instead of being lost in topics you can get scores that support the information, the lecturer can guide you using daily messages as notifications such as how can he help you with your study, how to understand the curriculum. (I-1)

She was of the view that students do not have to depend wholly on lecturers when using the system since it offers more independence. She said “it doesn’t just depend on the lecture, not only to depend on the lecture and your own understanding of it” (I-1). These comments align with the web-based survey results described in Section 4.4.3.3 in which participants noted that Blackboard can improve their teaching.

4.6 Conclusion
This chapter has presented the findings of the survey and interviews that were done in two universities in the KSA in relation to the use of learning management systems by female academic staff.

The first, second and third parts of this chapter reported the findings for quantitative data (open-ended and closed responses) and the fourth part reported the findings for qualitative data (interviews).

The following chapter will discuss the results of the study in relation to the research questions posed in this study about female academics’ use of LMSs in two universities within the KSA.
5. Discussion

5.1 Introduction

This thesis explores female academic staff’s engagement with LMSs in universities within Kingdom of Saudi Arabia. To provide an understanding of this issue, an examination of female academic staff was undertaken in two universities in KSA. The three research questions are:

1. In what ways, and to what extent, do female academic staff currently use LMSs in KSA universities?

2. How do internal factors (such as beliefs and attitudes) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?

3. How do external factors (such as access, students’ attitudes, institutional and cultural values, gender segregation) support and/or limit the adoption and use of LMSs by female academic staff in KSA universities?

To address these key research questions, the Technology Acceptance Model (TAM) (F. D. Davis, 1986) was used. The TAM was applied using a mixed methods research design which employed a web-based survey of 171 female participants and in-depth interviews with six participants. The results of my analysis of the web-based survey and interview data were presented in Chapter 4. This analysis was based on the survey and interview questions. They raised many issues which require further discussion. In this chapter, the findings are discussed in terms of the specific questions that framed the research study.

This chapter is divided into four main sections based on the findings pertaining to the three research questions. The first section discusses the findings in relation to the extent to which female academics currently use LMSs in higher education in KSA, and the ways in which they use it. This section highlights information relating to the participants’ teaching area/discipline, their actual use of Blackboard, and how training influences their use of LMS.
The second section of the chapter examines how internal factors, namely the participants' attitudes towards Blackboard and the perceived usefulness of LMSs, influence the adoption and use of LMSs. This is followed by the third section that discusses how external factors (training and support) influence the adoption and use of Blackboard by female academics. The final section of the chapter presents recommendations, based on the discussion and findings, on the ways in which the adoption of LMS by female academic staff in Saudi Arabian universities can be increased.

5.2 The Extent to which Female Academic Staff Currently Use LMS in KSA Universities, and the Ways in which They Use It

The first part of this section examines the extent to which female staffs actually use LMS. It investigates more thoroughly the key finding in Al Balawi’s (2007) research and examines the extent to which the use of LMSs has increased or decreased since this research. The section discusses who is most likely to use the Learning Management System in teaching based on the participant’s teaching area, teaching experience, level of education, academic position, age, training received and attitude. The second part of this section investigates the ways that female academics currently use LMSs in their teaching and learning.

5.2.1 Extent of LMS use in KSA universities by female academic staff

This section discusses the findings, comparing them to findings from previous studies, with the focus being on Al Balawi’s (2007) study. His study reported that male academic staff members (71.4%) are more likely to utilise web-based instructions than females (only 28.6%). As outlined in the literature review, there are a variety of barriers for female academics that prevent utilisation of teaching technologies among female staff members (see Section 2.3.4.1). Al Balawi (2007) also reported that despite the low rates of utilisation of web-based instructions in university faculties, most faculty members (up to 90.9%) were willing to participate in web-based instruction. The current study reported similar findings, with most of the participants indicating that they were aware of the Blackboard system, and were willing to learn how to use it. This is a clear indicator that despite the low levels of utilisation, LMSs are slowly gaining acceptance among female teaching staff members. In
the survey, 103 participants out of the 174 indicated that they did not utilise Blackboard in teaching any subject (57.9%), however 42.1% reported that they did use Blackboard in their teaching (Table 3, see Section 4.2.2). We can see that the proportion of female academics who utilised Learning Management Systems has increased from 28.6% to 42.1% since Al Balawi’s (2007) study was conducted nine years ago.

However, a closer examination of the findings shows that the increase in LMSs is more complex, and that a number of factors impact on the degree of LMS use. The results in this study show that participants who were older, had more years of teaching experience, and possessed a higher degree, were more likely to use Blackboard. Other important factors that influenced LMS use included the participant’s teaching area, academic position, training received and attitude. The following points explain in more detail how these factors may influence the adoption of LMS in relation to Al Balawi’s (2007) findings:

- The length of an academic’s teaching experience impacts on LMS uptake. In Table 9 (see Section 4.2.5), only 27.3% of female academic staff who have less than one year’s teaching experience use Blackboard and this is quite similar to Al Balawi’s (2007) results. However, the percentage increases to between 31.8% and 50% for female academic staff who have more teaching experience. This is in line with Alghamdi and Bayaga’s (2016) research which states that the more experience in teaching the tutors have, the greater the likelihood that they will utilise technologies in teaching. The current study indicates that academic members with more teaching experience are likely to have had an opportunity to interact with elearning equipment in their institutions, and this may motivate them to use LMSs more.

- The level of education that female academics have also influences the use of LMSs. In Table 10 (see Section 4.2.6), participants who had a bachelor’s degree used Blackboard at a rate of 25%. However, those with a higher degree (master’s, doctorate and other) utilised LMSs in 40.5% to 66.7% of
their courses. This finding is similar to Seechaliao’s (2015) findings that lecturers with higher academic qualifications (master’s and doctoral degrees) tend to use technology more. Avidov-Ungar and Magen-Nagar (2014) believe that this may be because academic staff members with higher education levels tend to be more computer literate, and that higher levels of computer literacy positively correlate with more confidence, skills and knowledge of LMSs.

- The level of LMS use was stronger among participants with higher teaching positions, as shown in Table 12 (see Section 4.2.7). Participants who have higher positions (lecturers, assistants and full professors) use Blackboard more than those in other positions (instructors and teaching assistants). For instance, the group with the lowest uptake of LMSs was Teaching Assistants with 31.7%. However, this is still higher than Al Balawi’s (2007) finding. The greater uptake of LMSs among female academics with higher teaching positions may be impacted by the faculty, as those with higher academic qualifications tend to use various types of computer technologies more in their research and teaching work, and this is associated with positive attitudes towards actual LMS use (Avidov-Ungar & Magen-Nagar, 2014; Seechaliao, 2015).

- There was a positive correlation between participant age and LMS use (except for one age group). In Table 14 (see Section 4.2.8), the percentages of female academics who use Blackboard for most age groups was between 38.5% and 66.7%. The only age group that had a lower percentage of female academics who used Blackboard compared to the age groups in Al Balawi’s (2007) research was the 26-30 age group – with only 23.4% of female academics in this age group indicating that they used Blackboard. Alghamdi and Bayaga (2016) suggest this may be because most academic staff members aged 40 years and above have considerably more experience in
using ICT equipment such as computers in academic work compared to those aged 30 and below. In their study, Alghamdi and Bayaga (2016) sought to investigate academic staff members’ utilisation of LMS and their attitudes towards elearning technologies in Saudi universities. They reported that staff members aged 40 years and above were inclined to utilise LMSs more for most of their teaching activities than younger staff members with fewer years of teaching experience (Alghamdi & Bayaga, 2016). This can be attributed to the fact that the experienced staff members had attended numerous in-service training sessions and workshops on the use of LMSs, and they tend to apply what they have learned in their work. It is also noted that increasing age has an impact on people’s capacities to share (Charnkit, 2010), which means that older members of faculty are likely to use technologies such as computers more in sharing the knowledge that they gather in their research. However, the findings in the current research and those reported by Alghamdi and Bayaga (2016) go against some of the literature that indicates that younger people are technology-savvy and more adept at using technology (Yamani, 2014). Charnkit (2010) found that younger people not only have higher levels of adoption of technology, they also have the capability to adapt to new technology and can learn to use different technologies more quickly. However, as seen in this study, this does not necessarily translate into using technology for educational, teaching and learning purposes. More research is needed that targets young female academics to examine the barriers and enablers for their use of LMSs.

- This study also found that the use of LMSs is linked to training or workshops. Specifically, those who have attended training and professional development projects tend to apply what they have learned (See Table17/Section 4.2.10). Wichadee (2015) argued that the provision of training is important when a LMS is introduced for use in a learning institution. The implication of
providing training and other forms of facilitation such as workshops on the use of LMSs is that doing so makes faculty members better prepared to use LMSs in their courses (Wichadee, 2015). Also, training helps address negative attitudes that faculty members may have towards LMSs, such as the perception that a LMS is difficult to use. This point is supported by Mapuva and Muyengwa (2009), who argue that training teaching staff in the use of elearning teaching methods is a prerequisite for adoption in higher education. The findings of the present study also show that there is a strong correlation between a lack of training and LMS use; for instance, 91.8% of participants who had not received training did not use Blackboard in their teaching. This may be because those who had not been trained to use LMSs did not see the benefits of using the system and perceived it as difficult to use, which limited their use of the system (Fathema et al., 2015).

• Interestingly, this study found that participants who believed that Blackboard is the future of higher education were more willing to utilise the technology in their teaching than those who did not believe that. For example, in Table 21 (see Section 4.3.3), 55.1% of participants agreed with the statement that “Blackboard is the future of higher education”, compared to only 10.3% of the participants who were of the view that the technology was not the future of higher education. The literature argues that faculty members are more likely to use elearning technology if they have a positive attitude towards it (Wichadee, 2015). In accordance with the TAM theory, lecturers’ beliefs and attitudes towards a technology affect how they interact with that technology (Asiri et al., 2012) and how they perceive it. Thus, if members of faculty are of the view that “Blackboard is the future of higher education” because of the benefits that the system offers with respect to teaching, then they are likely to have a positive attitude towards the system and to actually use it (S. Alharbi & Drew, 2014).
The findings have shown clearly that the adoption of Learning Management Systems has been gaining acceptance among the female academic staff since Al Balawi’s study in 2007. In the present study, one of the most significant correlations was the link between the use of LMSs and the particular teaching area/ discipline taught by female academics. Therefore, this issue is discussed in more detail.

5.2.1.1 Teaching area/discipline
Across the different discipline areas (the particular teaching area), the degree to which female academic staff use Blackboard has increased from 28.6% in 2007 (Al Balawi, 2007) in all disciplines except the area of Vocational Education, which currently has a 25% uptake. As shown in Table 7 (see Section 4.2.4), the content area of the Humanities has the largest uptake with 51.3% of female academics using Blackboard (the influence of discipline is discussed in more detail in later sections). The low usage of technology in Vocational Education may be because this sector attracts a diverse cohort of learners, and these learners may have different motivations for undertaking vocational education and training. Indeed, there has been little research regarding learning and teaching models or elearning models that may suit vocational learners in particular (Brennan, 2003). The lack of research about learning or elearning models in Vocational Education may have influenced the lack of uptake of LMSs in this area (Brennan, 2003). The low usage also could be related to the fact that over time, vocational training has not been popular in Saudi Arabia, with most courses being offered relating to “social sciences and the humanities, which have traditionally been popular fields of study in the country” (Pennsylvania State University, 2013, para. 13).

The interviews showed that those from the College of Sciences were likely to also use LMSs (however, this was from a very small sample size). In the review of the literature (Section 2.3.3.3), it was noted that students who pursued courses in technology, linguistics, science or business were more likely to use learning technologies than those who pursued humanities-related courses such as languages and religious studies (Rambo et al., 2009). It is however important to note that the finding by Rambo et al. (2009) pertains to students, not academic staff. But the argument made by Rambo et al. (2009) is also supported by a finding
that was made by Prabu (2015) that the “awareness about elearning of science students is better than [that of] their counterpart(s)” taking courses that are related to arts (p. 113). The statement by Prabu (2015) can be taken to imply that students who pursue courses in the field of science are more competent in the use of elearning technologies than those in the field of arts. In other words, the implication of the assertion by Prabu (2015) is that students who take science courses are more exposed to elearning technologies than those who take arts sources. This means that because of the higher exposure that students in the field of science have to technologies such as computers, they are likely to be more adept at using elearning technologies than their counterparts pursuing courses in the arts.

5.2.2 LMS use in higher education in KSA for teaching and learning

This section explores the ways in which female academics in KSA universities use LMSs in terms of function and purpose. Two key findings arise from the data. Firstly, participation in training is related to the features actually used within LMSs. Secondly, participants use Blackboard in different ways and for different purposes. These are discussed in more detail, as they will form the basis of a number of recommendations for increasing LMS uptake in later sections.

5.2.2.1 Influence of training on actual LMS use

From the findings relating to the closed questions in the survey (see Section 4.2.10) the majority of participants who had received some instruction in the use of Blackboard had been trained in its general features (71.4%) such as providing learning content to students in formats such as text, PowerPoint slides, sound, images, audio, graphs, animations and many other features that are generally available in Blackboard. Other areas of the LMSs in which the research participants had received training, that they were therefore making use of in their teaching, included web-based lectures (Blackboard Collaborate) (78.4%), listservs (66.7%), discussion forums (63.9%), video conferencing (50%), teleconferencing (50%), and chat rooms (38.5%) (Table 17; see Section 4.2.10). From Table 17, it can also be seen that there is a correlation between training in a given aspect of Blackboard and the use of that feature in teaching. Specifically, female academics who had received training in web-based
lectures (Blackboard Collaborate) or Blackboard features were more likely to utilise
Blackboard. This suggests that the area of training can be said to be a determinant of the
function or technology feature used, as well as the extent of use (discussed in Section 5.2.1).
This is similarly outlined in a number of other studies (e.g. Albidewi & Tulb, 2014; Mapuva &
Muyengwa, 2009; Wichadee, 2015) and supports the TAM framework’s hypothesis that
external factors (such as training) have an influence on the attitudes towards a technology
(S. Alharbi & Drew, 2014). Therefore, when members of faculty are trained in the use of a
given aspect of Blackboard (such as PowerPoint slides, sound, images, audio, graphs,
animations web-based lectures and listservs), they are likely to have a positive attitude
towards that functionality and possibly use it their teaching work.

5.2.2.2 Actual use of LMS
There were a number of items of this study that examined the actual use of LMSs (although
this did not extend to observation in practice). For instance, in the open-ended questions,
some of the responses about why participants used Blackboard for teaching and learning
purposes included things such as the lecturers being able to post homework for students,
enabling students to access course materials, and the use of educational materials such as
PowerPoint and YouTube (see Section 4.4.1.1). In interviews, the research participants’
views in relation to actual system use (see Section 4.5.2) also highlight the various ways in
which the members of faculty used Blackboard, including: posting notifications and
communicating with students; sharing lecture notes, videos and literature; uploading
homework, quizzes, and tests; and discussion boards.

It could be concluded, that although female academics in this study used Blackboard in
different ways and for different purposes, the actual use of Blackboard was mostly teacher-
centred (Alshammari, 2015). As implied by Alshammari (2015), teacher-centred use of
technology in the delivery of instructions is mainly centred on what the teachers/academics
were able to do with the technology. From the data, it can be seen that the participants in
the current research generally used technology only for low-level technical tasks such as
uploading slides for students to view, administering auto-marked quizzes and to some
extent for enabling discussion forums between students. This implies that the female academics tended to only use the functions of Blackboard that were teacher-centred and were not necessarily using all the functionalities that the technology can provide.

Alshammari’s (2015) study into academics’ utilisation of LMSs in universities in KSA noted that “despite the fact that LMS has many functions and features, only one or two functions are used by academics” (p. 146). This statement implies that academics tend to use only a few of the LMS’s capabilities, which limits the full utilisation of the system’s features by both academics and students.

As outlined in the literature review (see Section 2.3.3.2), the SAMR model offers insights into how elearning is used by female academics in KSA universities. The SAMR model can be used in explaining how technologies like Blackboard can be integrated into the teaching and learning processes to enhance effectiveness and utilisation of the technology (Phillips, 2015). The model has four levels: “substitution, augmentation, modification, and redefinition” (Puente, 2006, cited by Phillips, 2015, p. 325). Substitution happens when students or teachers make use of technology as a basic substitute for non-digital options without achieving functional change (Phillips, 2015). This appears to be the level at which most academics are adopting the technology currently. Most of the female academics who used LMSs used it as a direct substitute for some functions in their work by doing basic activities such as uploading slides for students or preparing quizzes and small tests, without making any meaningful functional changes to the ways they delivered instructions to students and interact with them.

There are more functions of Blackboard that would align to the next level of the SAMR model – augmentation. At this level, the use of Blackboard involves increasing students’ and teachers’ use of technology by providing a change enabled by the technology in question. Further integration of technology can be explained at the third and fourth levels of the SAMR model (modification and redefinition), which involve changing or redefining the learning tasks being undertaken (Phillips, 2015). Therefore, higher learning institutions in KSA may need to find ways to target professional learning that enables academics to use
technology in ways that encourage augmenting, modifying and redefining teaching and learning via LMSs.

5.3 Internal Factors
This section examines how internal factors such as beliefs and attitudes influence the use of LMSs, in accordance with the second research question of the study. The use of the TAM (see Section 3.3) showed that lecturers’ beliefs and attitudes towards a technology affect how they interact with that technology (Asiri et al., 2012). This section firstly discusses the participants’ attitudes and then outlines the perceived usefulness of Blackboard.

5.3.1 Participants’ attitudes
This section discusses the findings in relation to the research participants’ attitudes and beliefs towards the use of Blackboard. Findings from previous studies (Asiri et al., 2012; Fathema et al., 2015; Wichadee, 2015) indicate that attitude has a considerable influence on whether female academics use LMSs. Based on TAM, both attitude towards the use of the LMSs and its perceived usefulness (U) affect users’ intentions to use the system (Alshammar, 2015). A user’s intention to use the system is also directly affected by the system’s perceived ease of use (E) (S. Alharbi & Drew, 2014). Attitude towards use of the system is directly affected by both ease of use (E) and perceived usefulness (U), whereas perceived usefulness (U) is directly influenced by ease of use (E). As well, TAM proposes that ease of use (E) and perceived usefulness (U) are affected by external factors. Thus, attitude towards use of LMS is affected by ease of use (E) and perceived usefulness (U) as well as external variables, and this in turn has an effect on actual system use (S. Alharbi & Drew, 2014).

In this study, there was a positive correlation between optimistic attitudes towards the use of technology and the uptake of Blackboard (Table 21; see Section 4.3.3). This study found that female academics generally had a positive attitude towards Blackboard and believed that: LMSs are the future of higher education; there are benefits of Blackboard for students; Blackboard offers a broader opportunity for higher education to students than traditional
face-to-face education; and that Blackboard provides greater access to female students given Saudi Arabia’s gender separation in higher education institutions. This is in agreement with the results of a related study in which it was found that 90.6% of academic participants believed that the use of Learning Management Systems have a promising future in higher education in KSA (Alshammari, 2015). For instance, more than 50% of the respondents agreed or strongly agreed with the statement “I believe Blackboard is the future of higher education” (Table 21; see Section 4.3.3). This was reflected in interview responses as well: “I think it is important to use new technology in teaching” and “modern learning strategies and technical environment around us and which has become a necessary part of education” (see Section 4.4.1.4).

In the current study, it was found that female academics in Saudi universities are willing to use LMSs (have a positive attitude), but other internal or external factors may affect their attitude negatively and this led to a low level of uptake of LMSs. The academics’ attitudes towards use of Blackboard are affected by factors such as the perceived usefulness of Blackboard (i.e. how the members think Blackboard helps them), university policies, and the perceived ease of use of the system (i.e. whether the academics think Blackboard is easy to use in accordance with the training that they have received). Based on the above description, since attitude is directly influenced by both ease of use (E) and perceived usefulness (U), and perceived usefulness (U) is directly influenced by ease of use (E), perceived usefulness (U) is worth exploring further. Thus, the following sections will discuss perceived usefulness and the influence of external factors.

There is significant difference between the findings in the current research, where more than 50% of the respondents (female academics) believed that Blackboard is the future of higher education, and Alshammari (2015) which found that 90.6% of the academic participants believed that the use of LMS has a promising future in Saudi Arabia’s higher education. The difference can be attributed to the fact that in the current study, only those findings relating to female academics were considered for analysis, whereas the study by Alshammari (2015) considered results from both female and male academics. The difference can also be linked to the finding that compared to male academics fewer female academics use web-based learning in Saudi Arabian universities (Al Balawi, 2007), which could have an impact on female academics’ general attitudes towards LMSs.
5.3.2 Perceived usefulness

This section discusses the findings about the research participants’ views in regard to the perceived usefulness of Blackboard. Based on TAM, it was noted that users’ intentions to use LMSs were directly affected by the system’s perceived ease of use, which in turn affected the perceived usefulness of the system (S. Alharbi & Drew, 2014; F. D. Davis, 1986; Lule et al., 2012; Venkatesh & Bala, 2013). In a study using TAM, S. Alharbi and Drew (2014) found out that “there is a significant positive relationship between the perceived usefulness and behavioural intention to use an LMS” and that “there is a significant positive relationship between the perceived usefulness and attitude towards usage” (p. 151). These two statements imply that when a technology is perceived to be useful, users are likely to have a positive attitude towards it, which influences their intention to use the technology and how they actually use it. In the current study, the female academics were willing to use Blackboard because of the system’s perceived usefulness for improving teaching, helping in the administration of coursework, helping in the assessment of students, and improving communication with students. This means that female academics are more willing to use LMSs if they feel that the system can help them accomplish their tasks or make their work easier.

The perceived usefulness of a technology – that is, the degree to which an individual believes that using a certain system will enhance their job performance or workplace conditions – has an impact on female academics’ attitudes towards the use or adoption of that technology (Wichadee, 2015). A number of research participants across the open-ended questions and interviews felt that Blackboard was useful, for improving teaching by: helping “reduce the teaching load”; supporting administration (“helps in organising the various aspects of the course by allowing me to post instructions on the conduction of the activities”); communication with students (“to post homework for students”); and conducting assessments and quizzes (“makes conducting of quizzes and exams easier, faster, and more organised”). This highlights Blackboard’s perceived usefulness in enhancing work performance by improving how female academics teach, communicate with students,
and post materials and homework to students. This may directly impact on the actual use of LMSs.

This is significant as the TAM framework supports the view that for academics to use technology and LMSs, they need to see or perceive the benefits that the technology offers. Therefore, if faculty members have to believe that a LMS is useful (Alshammari, 2015; Palahicky, 2015; Wichadee, 2015) before they will adopt it, efforts should be made to reinforce positive beliefs/attitudes towards technology and there should be a focus upon promoting usefulness of technology to targeted users.

Another area of the perceived usefulness of Blackboard is related to making it easy for female students to access educational materials from female academics, as was expressed in answers to open ended questions and in interview responses. For instance, female academics felt Blackboard: “provides educational resources to students at any time” and “allows the student the opportunity to go back and verify the information at any time”. It enables students to participate in group discussions and access materials even if they missed the physical classroom: “If the student missed the face-to-face classroom, the lecture will be available on Blackboard”. Similarly, Blackboard can increase female students’ access to higher education in KSA because it reduces constraints that may be caused by large student numbers, long distances and inadequate resources. These barriers were identified in the literature review (see Section 2.3.3.3) (Macharia & Nyakwende, 2010). This is significant given that female students are separated from male students in higher education institutions in KSA. In the current study, 57% of respondents in the survey believed that because of gender separation in the Saudi Arabian higher education system, Blackboard is a useful teaching tool as it makes it possible for female students who may not otherwise be able to get access to higher education to study in KSA. This is important for this research because when a LMS like Blackboard is perceived to be useful by both students and academics, as it is in this case, it goes a long way in motivating learners and their tutors alike to use the system.
5.4 External Factors

This section reports on how external factors influence the use of LMS. This relates to the third research question of this study. Two external factors (training and support) emerged from the findings as significant. Training was identified as a key enabler to the use of LMSs in the current study. Similarly, support from various quarters such as the education institution, the government, peers and students, was identified as a factor that affected the use of LMSs by female academics. These two factors are discussed next.

5.4.1 Training

The provision of training can be regarded as one of the factors that promotes the use of LMSs by female academics. The survey and interview findings showed that academics who had received training in areas such as web-based lectures (Blackboard Collaborate) or Blackboard features were more likely to use Blackboard. On the other hand, members of faculty who had not attended training were less likely to use Blackboard, which highlights the importance of elearning training generally and LMSs in particular.

Based on TAM, training (as an external factor) is important because it affects both the perceived usefulness and perceived ease of use of LMSs, which in turn have an impact on a user’s intention to use the LMSs. In other words, training has an important influence on users’ acceptance of a technology. This is because both the ‘easy to use’ and ‘usefulness’ aspects of a technology predict attitudes towards the technology (F. D. Davis, 1989; Renny & Siringoringo, 2013). Therefore, it can be said that when training on how to use LMSs is provided, users become more aware of the usefulness of the technology and whether it is easy to use, which influences their attitude towards, and hence acceptance of, the technology.

It was noted that successful delivery of elearning calls for significant investment by institutions in equipment and technology, training of staff, and student monitoring to ensure that the technologies are used effectively (Albidewi & Tulb, 2014; Al-Shehri, 2010). Further, it was noted that “after instructors get training, they can make use of LMSs in their
course easily” (Wichadee, 2015, p. 59). This statement can be related to a number of findings from the study. For example, from the survey results, the fact that female academics who had received training were using Blackboard more implies that training may have made it easier for them to integrate the technology in their work. As well, interviewee I-1, who had some experience in using Blackboard, noted that their university offers training on elearning to both students and staff. Similarly, it was noted that there is a need to “Educate the students of the importance of Blackboard and explain it to them”. This shows there is a need to train students to use Blackboard since it is after training that the students come to see the LMSs as useful and easy to use, which can in turn influence their intention to use and their actual use of the system.

On the other hand, lack of training or poor training hinders the adoption and hence use of LMSs. This is shown by the fact that one interviewee who was not using Blackboard at the time of carrying out the current research did not like the training they were provided and said during the interview: “It [the training] was like a course but, actually, it was not. We just learnt know how to switch on and switch off”. This means the training was not helpful as it did not delve into the actual use of LMSs. Also, some of the responses to the open-ended questions about why some participants were not using Blackboard were that there was a “lack of training and support” and “I did not get adequate training”. These statements imply that lack of training in LMSs limits the use of the technology, a point that is supported by various authors (Azlim et al., 2014; Fathema et al., 2015). It was noted that “students do not open the Blackboard and use material there” and that there is “unwillingness of students to use [Blackboard]”. What this means is that because of some reasons (which could include lack of training), some students are not as willing or able to use Blackboard as they should be. This in turn negatively affects their attitudes towards using the system, meaning that in the end, the affected students were not able to use the system.

Overall, the findings suggest that because of the importance of training, training itself may need to shift from a focus on technology (how to use technology) to targeted professional learning that focuses on teaching and learning possibilities, perceived usefulness, and
promoting a positive attitude towards technology use for female academics (as well as students) in universities in KSA.

5.4.2 Supports

Within the survey findings, different forms of support also influenced the adoption of LMSs by female academics including government support, technical support, and administrative support from the institutions which influence uptake (see Section 4.3.4).

Support from the government was identified as one of the greatest forms of support that the female academics received for using LMSs effectively. This is because of the Saudi government’s policy to enhance the use of elearning in higher education institutions (A. Alharbi, 2013), and this is an enabler to using LMSs in higher education in KSA (see Section 2.3.4.2). Notably, a segment of the participants in the current study (37.8%) felt they would receive more support from the university if there was a clearer policy on the use of Blackboard. Some also suggested that there is less support from peers and universities for female academics to use a LMS (Blackboard). This suggests that universities could do more to support female academics, and that female academics who are knowledgeable in the use of Blackboard could help their colleagues to use the LMS.

Further, it was found in the current research that failure to provide technical support was identified as one of the factors that limit the use of Blackboard, as shown through statements such as “technical support delayed” and “no technical support for me or my students” (Section 4.4.2.2). In the literature, it was noted that providing technical support to faculty members is essential to making sure that there is a successful transition from the traditional classroom mode of teaching to online teaching (Alhomod & Shafi, 2013). On the other hand, inadequate technical support and lack of clear policies on elearning hinder the adoption and use of technology (Azlim et al., 2014; Fathema et al., 2015; Maina & Nzuki, 2015). As implied by Alhomod and Shafi (2013), it is important to offer the technical support that faculty members require so that they can effectively move away from conventional methods of classroom teaching to the use of LMSs. This means that when the necessary
support is not provided, academic staff may not be able to use a LMS to its full potential, and this has a negative impact on the adoption and usage of the technology.

Turning to students, it was noted that 50% of the research participants agreed or strongly agreed with the statement “I believe adopting Blackboard in Saudi universities will encourage students to be more interested in learning”. The significant support of the statement implies that if more could be done to encourage students to see the benefits of the LMS and get to know how to use it (i.e. perceived usefulness and perceived ease of use), then they will be motivated to use it (intention to use) and then use it (actual use). Similarly, more family support that encourages their students to use modern technology (such as buying students computers and training them on how to use information technology) could increase student support for LMSs. This was highlighted through responses such as “students still find it hard to log in and participate due to technical difficulties”, meaning that such students have not had adequate support that can enable them to use LMSs effectively. Similarly, if students’ families do not provide the support mentioned above, students will not be adequately motivated to use LMSs at their learning institutions (Kanthawongs & Kanthawongs, 2012).

In accordance with the TAM theory, external factors such as provision of support (or lack of it) influence users’ internal beliefs such as whether they perceive a technology to be useful or how they judge the technology with reference to how easily they can use it (Davis, 1989; Renny & Siringoringo, 2013; Wichadee, 2015). At the same time, perceived ease of use and perceived usefulness have an influence on users’ attitudes towards a technology, and this ultimately affects the behavioural intention to use the technology and whether the technology is actually used (Alharbi & Drew, 2014). These findings suggest that enablers for LMSs in KSA universities should include a clear Blackboard policy for their academic staff and students. Also, infrastructure and technical support is needed to ensure that female academics and their students have access to the required technology.
5.5 Recommendations

Based on the results of this study, there are a number of recommendations that may increase LMS adoption by female academic staff in Saudi Arabian universities. Emphasis should be put on increasing enablers to the use of LMSs while reducing barriers or reasons that hinder the use of LMSs by female academics. Some specific recommendations are discussed below.

Aligned with the TAM framework, to promote the use of LMSs such as Blackboard, there is a need to improve external factors such as training and the provision of support to female academics and students with respect to the use of the LMS. The study found that younger female academics (age range of 26-30 years), particularly those teaching courses in Vocational Education, are the ones who used Blackboard the least. Some of the younger academics were not using Blackboard in any of the courses that they taught, while very few were using Blackboard in most or all of the courses that they taught. The younger participants were also the group that had the lowest educational qualifications (bachelor’s degrees or lower), the least teaching experience, and the least experience in using Blackboard (less than two years). Therefore, the training for female academics should primarily target younger academics to reap the benefits of LMSs. Training could also be aimed at students, as some of the participants noted that students were not provided the required support to effectively use Blackboard. In all these efforts, there is also a need to emphasise the usefulness of training, so that more female academics and students partake in the training.

Providing infrastructure and technical support that improves the use of LMSs is also critical in encouraging the use of technology. Similar to other recent studies in KSA (e.g. AlMegren & Yassin, 2013; Al-Shehri, 2010) and elsewhere (e.g. Venter et al., 2012), this study found that universities may lack the infrastructure to support elearning. Some participants in the current study reported a need for more computer laboratories and enhanced technological infrastructure for female students. Therefore, developing the required infrastructure in universities and other institutions of higher learning will support academics, particularly
female academics, to use elearning technologies like Blackboard. More importantly, there is a need to identify barriers such as poor network infrastructure and lack of necessary technical support, and to address them as noted above in order to ensure that female academics and their students have easy access to the required technologies.

Since it was found that some of the participants were of the view that their universities did not have a clear policies that support the use of LMSs, it is important for universities to emphasis technology policies and how these might shape teaching and learning. In the survey findings, only 32.2% of the participants agreed with the statement that “I feel the university has a clear Blackboard policy” while 37.8% felt that their university did not have a clear policy regarding the use of Blackboard. Similarly, in the literature, is has been found that a lack of policy and administrative support hinders the adoption and use of Learning Management Systems (Asiri et al., 2012; Fathema et al., 2015). What this means is that the lack of clear policies to guide the adoption and use of Blackboard and other LMSs is an issue that institutions of higher learning need to look into to promote the use of technology by their academic staff members. Therefore, it is recommended that universities and other higher learning institutions should have clear policies regarding what is to be achieved using the LMS. Finally, universities should ensure that female academics and students are familiar with the usage guidelines of the technology that is adopted. This is because female academics and students can only be motivated to use a technology in large numbers if they understand how the technology works, and if they are conversant with the ethical issues that pertain to the use of the technology.

Another recommendation that could enhance the adoption of LMSs by female academics relates to deliberately targeting female academics who are involved in Vocational Education, the field of study which has the lowest use of LMSs. Promoting the use of LMSs by female academics in Vocational Education is particularly important given that it was noted that the Ministry of Higher Education in KSA is making efforts to improve the quality and quantity of “jobs-training” fields like vocational training (Pennsylvania State University, 2013). At the same time, Vocational Education is pursued by a diverse group of learners who
have different goals and interests (Brennan, 2003). Therefore, efforts to promote the use of LMSs in Vocational Education needs to include initiatives which make the use of LMSs in teaching easier. As such, there is a need for concerted efforts by the Ministry of Higher Education in Saudi Arabia and universities to ensure that as the quality of training improves, LMS use is embedded in various teaching practices as a way of enhancing quality were appropriate.

Providing the required equipment, technical support, training academic staff and their students to use LMS, and making them understand the importance of using the technology will certainly create positive attitudes towards the use of LMSs. This means that ultimately, academics in Vocational Education will come to realise that LMSs such as Blackboard are not only useful but also easy to use. By understanding the usefulness of learning management systems like Blackboard and understanding that the technology is easy to use, more faculty members in the Vocational Education discipline may start using the LMS.

Another recommendation relates to the need to carry out research that looks at the following areas.

There is a need to carry out research on age-related issues around LMS use centred on the inconsistency of findings in relation to LMS users’ age and actual use of LMS. For instance, while this research and other studies (e.g. Alghamdi & Bayaga, 2016) have found that older academics use LMSs more than younger academics, Yamani (2014) finds that younger people are more adept at using technology. Moreover, Charnkit (2010) argues that younger people have a higher levels of adoption of technology, and also possess the ability to adapt to new technology and learn to use new technology more quickly. As such, there is need to find out why younger female academics do not use technology much when it comes to using the technology for teaching. The findings can then be used to develop strategies that encourage younger female academics to use LMSs.

There is a need for further research on barriers to the use of LMSs in Vocational Education because this study found there is very low use of Blackboard in this field. In addition,
Brennan (2003) has pointed out that there is a dearth of research about learning or elearning models in Vocational Education. Therefore, further research on elearning models related to vocational education can help in providing an understanding of the barriers to the use of LMSs in Vocational Education. Understanding the barriers can in turn help in the formulation of strategies to remove such barriers and encourage more academics in Vocational Education to use LMSs.

There is also a need for observation of teaching practice (as opposed to self-reporting) in the field of female academics’ use of LMSs, as this will help to provide a more complete picture of LMS utilisation. Specifically, research that involves observation will provide more insight into the ways in which learning management system is used, and the extent of that use, thus making it possible to understand first-hand any challenges in the use of elearning technology.

5.6 Conclusion

The chapter has provided an analysis of the findings of the research based on the research questions. It has addressed the ways in which female academics in KSA universities currently use Blackboard, and the extent of that use. It has also analysed how internal factors and external factors affected the female academics’ adoption and use of the LMS. It has been noted that older female academics with higher qualifications and higher teaching positions tend to use Blackboard more than their younger colleagues (26-30 years old) with lower academic qualifications and teaching positions. The female academics used Blackboard in activities such as posting notifications, sharing lectures notes, uploading homework, quizzes and small tests for students, and embedding PowerPoint and YouTube content. The internal factors that have been discussed as having an influence on academics’ adoption and use of the LMS are the users’ attitudes towards the LMS and the perceived usefulness of the technology. The discussion has also addressed how two external factors, namely training and support, influence acceptance and utilisation of Blackboard by female academics in institutions of higher learning in KSA. Based on the discussion and findings of the research,
several recommendations were provided on how to increase LMS adoption by female academic staff in Saudi Arabian universities.
6. Conclusion

6.1 Introduction
This study investigated the factors that influence the adoption of Learning Management Systems by female academics in Saudi Arabian universities. The research examined the external and internal factors that determine the extent to which female academics in universities in Kingdom of Saudi Arabia use LMSs. This chapter presents a summary of the findings and provides recommendations for future studies. It opens by providing an overview of the thesis. This is followed by a discussion of the implications for the study in four areas (elearning technology implications, academic implications, student-related implications and implications for Saudi Arabian higher education). Recommendations are given in each of these areas. This is followed by an outline of the contributions of the study to new knowledge and recommendations for future research.

6.2 Overview of the thesis
The introductory chapter provided an outline of research questions and aims. It provided some context to the research and highlighted that as Blackboard is the LMS that is most commonly used in higher education institutions in KSA (Zouhair, 2010), it was chosen for investigation in this study. The use of LMSs is seen as a key element of elearning in higher education, yet Al Balawi (2007) found that only 28.6% of female university staff in KSA use web-based learning compared to 71.4% of their male counterparts. There was a need for an inquiry into why such a small percentage of female academics use LMSs, and this became the focus of this study. The introductory chapter also explained the significance of this study and discussed the geography and history of KSA and the social and economic factors that influenced the study context.

The literature review chapter (Chapter 2) outlined the context of higher education in KSA. It included an overview of the current issues facing higher education and examined the status
of women in higher education in KSA, especially female academic staff. This section also reviewed the elearning issues facing female academics in KSA, and the need for research into their use of LMSs in KSA. The second section of this chapter discussed elearning in higher education in KSA. The discussion provided an overview of the influence of users’ attitudes towards elearning and the enablers and barriers to the use of LMSs.

The methodology chapter (Chapter 3), began by describing TAM theory (F. D. Davis, 1986), which identifies user perceptions and intentions behind the use of technology. This theoretical framework was selected for this study as it provides a means of examining the external and internal factors that influence technology use or lack of use. Specifically, TAM posits that a user’s acceptance of a technology can be predicted based on their behavioural intentions, their attitude towards the technology, and their perceptions regarding the ease of use and usefulness of the technology (S. Alharbi & Drew, 2014). This framework also provided a basis for researching the ways in which the perceived ease of use and perceived usefulness of the technology may influence the impact of external variables on the attitudes and behavioural intentions of users towards the technology, and hence how these perceptions affect users’ actual use of the LMS. This framework also influenced the research methods. The general research design was outlined. This began with an overview of participants, data collection and analysis for both quantitative data (from a survey which included 16 closed questions and three open ended questions) and qualitative data (from interviews with six female academics) were discussed. The chapter concluded with an overview of the criteria for the research evaluation, ethical considerations and a discussion of the limitations of the research.

Chapter 4 presented the quantitative and qualitative findings of this study involving female academics in two universities in KSA. The first and second sections presented the findings from the closed questions in the survey, outlining background information about participants in the survey and providing a list of statements by participants about the factors influencing their use of Blackboard.
The third section of Chapter 4 outlined the responses to the open-ended interview questions in order to examine the reasons for using or not using Blackboard, and some self-identified recommendations from participants that might increase Blackboard use. The final section presented the interview findings which are based on TAM themes.

In the discussion chapter (Chapter 5), the main results of the research were presented. The aim of the discussion chapter was to analyse the findings and compare and contrast them with findings from other studies as presented in the literature review and methodology sections to determine whether the study’s research questions were answered. Recommendations were provided on ways to increase the adoption of LMSs by female academics in KSA universities. The recommendations focus on the provision of training and support to help ensure that more female academics have access to and are able to use LMSs in their work.

6.2.1 Summary of key findings

The aims of the research were to examine the extent to which female academics in Saudi Arabian universities use LMSs, and to determine the internal and external factors that influence the uptake of LMSs and how these factors affect the use of technology in higher education institutions. Another important aim was to provide recommendations, based on the findings of the research, on what can be done to increase the use of Learning Management Systems by female academic staff in Saudi Arabian universities. The main findings of the research are as follows:

- It was noted that age, level of education and teaching position influence the extent to which female academics use LMSs. Older academics (40 years or older), those with higher educational qualifications (master’s degree holders and above), and those in higher teaching positions tend use Blackboard more. LMS use varies depending on the discipline. For instance, it was found that female academics in the Vocational Education department used Blackboard less than academics in other departments such as the Humanities department.
• It was found that Blackboard was used mostly for basic, teacher-centred functions such as posting notifications for students, disseminating lecture notes, uploading homework, small tests and providing PowerPoint and YouTube content. Also, it was found that the level of use of Blackboard was influenced by the level of training that the academics had received in regards the use of LMSs.

• The internal factors that influence the adoption of LMSs by female academics in Saudi Arabian universities as identified in the research included the academics’ attitudes towards LMSs and their perceptions of the usefulness of the technology. In regard to attitude, the academics generally had a positive attitude towards Blackboard and believed that: LMSs are the future of higher education; Blackboard is beneficial to students; Blackboard provides students more opportunities for higher education than conventional systems of teaching; and Blackboard increases females’ access to tertiary education in KSA. The perceived usefulness of Blackboard was found to be important as an internal factor that influenced female academics’ use of elearning technology. Blackboard was perceived to be useful because according to the research participants, it had the potential to help improve teaching, supported the administration of various functions in instruction delivery, enabled communication with students, and provided a platform for disseminating assessments and quizzes. In related studies, it has been established that there is a significant positive correlation between the perceived usefulness of a LMS and the behavioural intention to use it (Alharbi & Drew, 2014), which in turn influences the actual use of the system. One implication of this statement and the findings is that the more academics believe that an elearning technology is useful, the more likely they are to put the system into actual use. Therefore, this study concludes that universities should emphasise the usefulness of LMSs, since it is only when female academics believe that a given technology is useful that they will actually use it.

• In regard to external factors, training and provision of different kinds of support were identified as the key factors that influenced the adoption of LMSs by female academic staff in Saudi Arabian universities. Training was important because it
influenced both the perceived usefulness and perceived ease of use of a LMS, which in turn affected users’ intentions to use the LMS. In regard to the provision of support, it was found that technical support from the government, support from other academics, student support and administrative support from institutions of higher learning are necessary to ensure that female academics use LMSs. As noted by the research participants, government support is one of the most important forms of support for encouraging female academics to use LMSs effectively. However, more needs to be done to ensure that universities have policies that entrench the use of LMSs, and to ensure that there is peer and student support for the effective utilisation of elearning technologies such as Blackboard.

The research findings that have been summarised above have several implications in relation to the aims of the study, the responses to the study’s research questions and the relationship between the findings and those of previous studies. The following section thus presents an analysis of the implications of the study.

6.3 Implications of the study
The implications have been grouped into four sections: implications related to elearning technology, academic implications, implications for students, and implications for Saudi Arabian higher education. These sections reflect the way in which the literature review discussed elearning and the use of elearning technology in KSA. They also reflect the barriers and enablers to the use of learning management systems.

6.3.1 Implications related to elearning technology
The findings of this research can be used as a means of facilitating a discussion about ways to increase the use of elearning technology and LMSs among female academics in Saudi Arabian universities. In particular, one major finding of the research is that a significant number of participants in the study believed that elearning technology (achieved via Blackboard) is the future of higher education in KSA and were therefore willing to use the
technology in their work (see Section 5.2.1). Based on the findings, key strategies that may encourage greater technology adoption include:

- Providing female academics with the required elearning equipment and infrastructure such as computers (both desktops and portable computers) computer laboratories and internet infrastructure to ensure that academics and their students have unrestricted access to the elearning facilities that they need. Providing technical support targeted at female students and academics may also increase LMS use. As discussed in Section 4.4.3.2, ensuring that technical support is provided whenever female academics need it would make learning management systems more accessible. Given that female students often have limited access to technology due to family and cultural factors, having access at various times may also support students’ use of technology. In accordance with the TAM theory (Section 3.3), the more users believe that a technology is easy to use, the more they will adopt it.

6.3.2 Academic implications
One of the major findings in the research is that older female academics with higher academic qualifications (master’s degrees or higher) and higher job positions (lecturers, assistants and full professors) use LMSs more (Sections 4.2.6 and 4.2.7 and discussed Section 5.2.1). Making LMSs more useful to all female academics can be achieved in the following ways:

- Targeting female academics when providing training on the use of elearning technology. Having training in the use of a LMS that has a teaching and learning focus and is tailored to particular disciplines (rather than just training on how to use a particular technology) may also encourage more female academics to use LMSs in their work. Introducing younger female academics to the use of elearning technology as soon as they take teaching jobs at universities may also target a population that is not using technology to its full potential. This can be achieved through the provision of on the job training as soon as female academics are recruited.
6.3.3 Student-related implications

The research noted that having students with knowledge on how to use elearning technology, in this case Blackboard, can encourage members of the teaching staff to use the system more (see Section 4.4.3.4). The following steps can be taken to increase students’ acceptance and use of LMSs in Saudi Arabian universities:

- Providing training to students on how to use LMSs and the usefulness of the system: In the review of the literature (e.g. Fathema et al., 2015), it was noted that positive perceptions regarding the usefulness and ease of use of LMSs are positively correlated to student acceptance of elearning technologies. As more students start using LMSs, it can be expected that more and more female academics will be motivated to use elearning technology in their work.

- Providing the necessary support that acknowledges the impact of gender separation for female students: More than 50% of the research participants believed that in Saudi Arabia’s gender-separated higher education environment, a LMS is a good teaching tool. Therefore, there is a need to enhance institutional support, peer support and technical support to ensure that more female academics are able to use LMSs.

6.3.4 Implications for Saudi higher education/institutions

One of the key findings of the research was that institutional support for students and academic staff is required to ensure that elearning technology is accepted and used in higher education institutions in Saudi Arabia (see Section 4.4.3.1). Thus, the Saudi Arabian Ministry of Higher Education and institutions higher learning could take the following steps to increase the uptake of LMSs by female academics:

- Focusing on increasing the use of LMSs such as Blackboard: It was noted in the research that the current use of Blackboard is largely teacher-centred, meaning that it revolves around what academics can do with the technology rather than its full capabilities (Alshammari, 2015). According to the SAMR model, the current use of Blackboard is only at the substitution level (Puentedura, 2006,
cited by Phillips, 2015), meaning that academics use Blackboard for basic functions such as uploading learning materials for students. However, the LMS can also be used to augment, modify and redefine the manner in which teaching and learning is done using Blackboard (Puente dura, 2006, cited by Phillips, 2015). Therefore, in the future, universities and the Ministry of Higher Education in KSA need to find ways through which they can make LMSs to be used at the levels of augmenting, modifying and redefining instruction delivery and learning. This requires provision of training and all the support (in terms of technology, facilities and policies) that can enable students and female academics to use LMSs more.

- The Ministry of Higher Education could also consider rewarding universities that extensively adopt the use of LMSs as a way of motivating the universities to encourage their academics to adopt the use of e-learning technology on a larger scale.

6.4 Contribution to New Knowledge

This study extended research on why fewer Saudi female academics use LMSs, a key finding of Al Balawi’s (2007) research, and applied the TAM theory to investigate the factors that affect female academics’ use of LMSs.

The study has added new knowledge on what is known about the ways and extent to which female academics in Saudi Arabian universities use LMSs. The research found that overall, female academics in Saudi universities use Blackboard for basic functions such as uploading learning materials for students and administering tests and quizzes. This is reinforced by Alshammari’s (2015) study which reported that academics in Saudi Arabian universities use LMSs for “only one or two functions” (p. 146). Therefore, there is a need to increase awareness about the usefulness of LMS functionalities and the possibilities for teaching and learning for different disciplines.
Another contribution of the research is in relation to the different perceptions that exist regarding the age groups who use LMSs. Younger people are generally more adept at using technology, and it may seem logical to assume they are therefore more likely to use LMSs (as suggested by Charnkit (2010) and Yamani (2014)). However, the current study found that older academics make more use of Blackboard than younger academics. Since the findings of this study are in agreement with those of Alghamdi and Bayaga (2016), the results help in reinvigorating the debate on how age, experience and academic qualifications affect faculty members’ use of LMSs.

The study also contributes to knowledge regarding the influence of discipline on LMS use. This finding is the basis for a call for further research to understand why there is a difference in LMS use according to discipline. Another significant contribution of the research is the finding regarding external and internal factors that affect academics’ use of LMS. Significant research has been carried out in this area (e.g. Alghamdi & Bayaga, 2016; Alharbi & Drew, 2014; Alshammari, 2015). This study’s contribution is unique because of the focus on female academics. In particular, this study has made it possible to understand some of the enablers as well as barriers to the use of LMSs from the perspective of female academics.

Based on the contributions of the current study, the following are some recommendations for future research:

- There is need for further research on why the use of LMSs in Saudi Arabia is largely teacher-centred and why Saudi academics only use a few LMS functionalities. Such research would help reveal the barriers that limit the extent of the use of LMSs by female academics.
- Research could also examine actual use of LMSs. The present study is limited in that it only draws upon self-reported data. Research into actual use would provide another lens to examine the issues identified here.
- Another area that needs further research is in the influence of academics’ age on their use of LMSs. Since there are different research findings regarding how age
influences the use of LMSs, the issue is worth exploring further in order to find ways in which younger female academics could be encouraged to use LMSs more.

- Future research could also focus on elearning models that are appropriate for use in Vocational Education since the research found low use of LMSs by academics in this particular discipline and the review of literature revealed that there has been little research on elearning models suitable for Vocational Education.

6.5 Conclusion

This thesis presents the details of research that examined the external and internal factors that affect learning management system adoption among female academics in two Saudi Arabian universities. The research also sought to understand the extent of use and actual use of learning management systems by female academics in the two universities that were studied. The TAM theory (F. D. Davis, 1986) was employed as a basis for understanding the factors that have an influence on the intention to use technology. To achieve the research’s objectives, the mixed methods approach based on a constructionist epistemology and an interpretivist theoretical perspective was employed to collect data. It was found that female academics in the universities that were part of the study use LMSs largely for basic functions such as uploading learning materials for students. In addition, it was noted that the use of a LMS is mostly teacher-centred. More importantly, the research found differences in the use of LMSs based on female academics’ age, teaching experience, level of education attained and discipline or teaching area. The results suggest that although many female academics agree that a LMS is an important tool, actual use is limited, especially among younger members of faculty and those teaching in the Vocational Education discipline. Therefore, several recommendations have been provided, key among them being to offer training and support to female academics to enhance LMS use. Areas for further research into factors that limit the use of LMSs by female academics were identified.
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Appendix

Appendix A: Interview questions

1. Tell me a little about yourself?
   - e.g. How long have you been teaching at the university level?
   - e.g. How long in this institution?

2. Tell me about your experiences in using a LMS.
   - What systems are you familiar with?
   - What do you use them for?
   - Do you use blackboard? If so why? How? (Can you provide me with an example?)
   - What challenges do you face using a LMS?
   - How does the university help you?

3. What do you think about using a LMS in higher education?

4. Tell me about what factors help you to use an LMS?
   - Personal factors?
   - Access?
   - Student attitudes?
   - Gender issues?
   - Cultural factors?
   - Staff assistance?
   - Training?
   - University incentives?

5. Tell me about what factors limit you to use an LMS?
• Personal factors?
• Access?
• Student attitudes?
• Gender issues?
• Cultural factors (female only university)
• Staff assistance?
• Training?
• University incentives?
Appendix B: Survey in English Language

Introduction

Factors influencing the adoption of Learning Management Systems in the Kingdom of Saudi Arabian Universities by Female Academic Staff

The project is being conducted in order to examine the way in which female academic staff in Saudi Arabian use e-learning (in particular, Learning Management Systems). It will investigate the internal and external factors that influence e-learning. The aim of the research is to provide recommendations that could increase e-learning adoption by female academic staff in Saudi Arabian universities.

Your participation may help direct the future directions of e-learning in the Kingdom of Saudi Arabia, and may inform research/publications that may be of assistance to other providers and researchers.

Your participation in this research project is voluntary. All responses remain confidential.

This web-based survey should take 5 minutes to complete.

This research has been approved by the RMIT Human Research Ethics Committee (CHEAN 0000018808-07/14). If you have concerns about the ethical conduct of the project, please contact the Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001.

If you have any questions about this research, please feel free to contact the Principal Research Student: Monerah Algahtani, monerah.algahtani@rmit.edu.au. Or supervisor: Dr Jennifer Elsdon-Clifton Jennifer.elsdon-clifton@rmit.edu.au.

Section 1: Demographic Questions and General Blackboard Questions

This section consists of personal and professional information, and general questions about Blackboard. For each item, please select the most appropriate answer to yourself.

What is the University you are currently employed at?

- King Saud University.
- Princess Nourah bint Abdulrahman University.
What is your College?

What is your Department?

How many years of teaching experience do you have?
- Under 1 year
- 1 ~ 5 years
- 6 ~ 10 years
- 11 ~ 15 years
- More than 15 years

What is your highest academic degree?
- Bachelor
- Master
- Doctorate
- Other please specify

What is your position?
- Teaching Assistant
- Lecturer
- Assistant Professor
- Instructor
- Full Professor
- Other please specify

What is your Gender?
- Male
- Female

What is your Age?
- Under 25 years
- 26 ~ 30 years
- 31 ~ 35 years
- 36 ~ 40 years
What is your nationality?

- Saudi
- Non-Saudi (please provide your nationality)

What is the number of courses/subjects you typically teach over a 1 year period?

- 1 ~ 3 courses/subjects
- 4 ~ 6 courses/subjects
- 7 ~ 9 courses/subjects
- More than 9 courses/subjects

How many courses/subjects do you use Blackboard as part of your teaching?

- No courses/subjects
- For some of the courses/subjects I teach
- For most of the courses/subjects I teach
- For all of the courses/subjects I teach

How many years have you been using Blackboard as part of your teaching?

- Never had Blackboard experience
- 1~3 years
- 4~6 years
- 7~9 years
- More than 9 years

Select the Blackboard technology(s) in which you have training. (Select all that apply)

- None
- Blackboard features
- Discussion forum
- Listservs
- Chat Room
- Teleconferencing
- Videoconferencing
- Web-based lecture (Blackboard Collaborate)
- Other ________ (Please specify)
Section 2: Barriers Factors: Factors Inhibiting or Discouraging participation us

Section 2: Barriers Factors: Factors Inhibiting or Discouraging participation use of Blackboard.

This section consists of factors that are possible barriers that discourage Blackboard adoption. For each item, please select the response that best describes your beliefs, feeling, or attitudes on the scale Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>- I feel I have adequate knowledge to use new technologies in education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel I have adequate knowledge to use Blackboard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel I have adequate knowledge about how to teach using Blackboard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel I have enough time to develop teaching and learning experiences on Blackboard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel the university has a clear Blackboard policy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel there adequate peer support to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel there is adequate technical support to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel there is adequate campus network infrastructure to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel there is adequate administrative support to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel there is adequate governmental support to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- I feel there is adequate student support to use Blackboard effectively.</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>- I believe there is adequate access to technology for students to use Blackboard effectively.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 3. Incentives Factors: Factors Encouraging Participation use Blackboard.

Section 3. Incentives Factors: Factors Encouraging Participation use Blackboard.

This section consists of factors that could possibly encourage you to participate in Blackboard. For each item, please select the response that best describes your beliefs, feeling, or attitudes on the scale Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>- I have the knowledge I need to develop teaching and learning using Blackboard.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I believe that Blackboard is appropriate for my courses/subjects.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- I feel I have the necessary training to prepare me to teach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 4. Attitudes and Opinions Regarding Blackboard.

This section consists of general questions about your attitudes and opinions regarding Blackboard. For each item, please select the response that best describes your beliefs, feeling, or attitudes on the scale from Strongly Agree to Strongly Disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe Blackboard is the future of higher-education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I believe students tend to learn just as much in Blackboard environment as they do in the traditional classroom.</td>
<td></td>
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</tr>
<tr>
<td>I believe Blackboard provides a valuable service to students.</td>
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</tr>
<tr>
<td>I am concerned that Blackboard will put my job at risk.</td>
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<tr>
<td>I believe that Blackboard opens higher-education to a broader range of students than traditional face-to-face education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe Blackboard technology is too complicated for both the students and the faculty to be successful.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I believe Blackboard offers students enough opportunities for interaction.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe Blackboard will create more stress for me as an instructor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will improve student learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe adopting Blackboard in Saudi universities will encourage students to be more interested in learning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I believe that due to gender separation in the Saudi higher education system, Blackboard is a good teaching tool.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I believe adopting and developing Blackboard in the Saudi universities will create a challenge for faculty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 5. Attitudes and Opinions Regarding Blackboard.

What are some of the reasons you use Blackboard in your teaching?
What are some of the reasons you don’t use Blackboard in your teaching?

What do you believe would assist you to use Blackboard more in your teaching?
Appendix C: Survey in Arabic Language

Factors influencing the adoption of Learning Management Systems in the Kingdom of Saudi Arabia

Section 1: Demographic Questions and General Blackboard Questions

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:

Email:

Phone:

What is your current role?

Name of the university or organization:

Name of the department:

Name of the lecturer:

Please provide your contact details:

Name:
ما اسم الفسم الذي تعمل به؟

كم عدد سنوات خبرتك في التدريس؟
- أقل من سنة
- 1-5 سنوات
- 6-10 سنوات
- 11-15 سنة
- أكثر من 15 سنة

ما هو أعلى مؤهل حصلت عليه؟
- بكالوريوس
- ماجستير
- الدكتوراه
- آخر

ما مرتبتك الحالية؟
- مساعد
- محاضر
- استاذ مساعد
- استاذ
- آخر

ما هو حسبت؟
- شكر
- أbate

ما رأيك؟
- أقل من 25 سنة
- 25-30 سنة
- 30-35 سنة
- 35-40 سنة
- 40-45 سنة
- 45-50 سنة
- أكثر من 50 سنة

ما هي جنسك؟

- معيونية
- غير معوية (أو غير ذكر الجنس)

كم عدد المقررات التي تقوم بتدريسها خلال السنة؟

- 3-4 مقرر
- 5-6 مقرر
- 7-9 مقرر
- أكثر من 9 مقرر

كم عدد المقررات التي تستخدم فيها بلاك بورد كجزء من تدريسك؟

- لا استخدمه
- بعض المقررات
- أغلب المقررات
- جميع المقررات

كم سنة وانتم بلاك بورد كجزء من تدريسك؟

- لا سنة
- 1-3 سنوات
- 4-6 سنوات
- 7-9 سنوات
- أكثر من 9 سنوات

ملاحظات/التعليمات التي ترغب في استخدامها في مجال البلاك بورد:

(بإمكان اختيار أكثر من قنبلة)

- مراجعة
- ملاحظات البلاك بورد
- منهجية المناقشة
- مسيار الدراسة الجماعية
- فهم الدراسة
- مهارات الثقافية
- مهارات الكردية
- مهارات الأطفال الأقلية

https://rmit.asia.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview&T=SA54PHQJFyWgq4E5dLqF0
Section 2: Barriers Factors: Factors Inhibiting or Discouraging participation us

القسم الثاني: العوامل والأسباب التي قد تعوق استخدام البلاكبورد

ويحتوي هذا الجزء على أسئلة عن العوامل والأسباب التي من الممكن أن تعوق استخدام واعتماد البلاكبورد. فضلاً حدد رأيك بخصوص الظاهرة المعنية من خلال الردود المذكورة.

<table>
<thead>
<tr>
<th>موافق بشدة</th>
<th>لا موافق</th>
<th>موافق بدرجة</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Section 3. Incentives Factors: Factors Encouraging Participation use Blackboard

القسم الثالث: العوامل المتشجعة لاستخدام البلاكبورد

يحتوي هذا الجزء على العوامل التي يمكن أن تشجع على المشاركة في البلاكبورد.

<table>
<thead>
<tr>
<th>موافق بشدة</th>
<th>موافق بدرجة</th>
<th>غير موافق</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 4. Attitudes and Opinions Regarding Blackboard

القسم الرابع: الرأي والآراء بشأن البلاكبورد

يحتوي هذا الجزء على أسئلة حول الرأي والآراء بشأن البلاكبورد.

https://rmit.asia.qualtrics.com/ControlPanel/Ajax.php?faction=GetSurveyPrintPreview&T=SA54PHQJYyWgg459kJYg0
القسم الخامس: المواقف والآراء بشأن بلاكبورد

ما هي بعض أسباب استخدام بلاكبورد في التدريس؟

ما هي بعض الأسباب التي تجعلك ترغب في استخدام بلاكبورد في التدريس؟

ما الذي تعده بمساعدك على استخدام بلاكبورد أكثر في التدريس؟
### Appendix D: Interview coding for one participant

<table>
<thead>
<tr>
<th>TAM origin</th>
<th>Code</th>
<th>Interview 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Information</td>
<td>• Age</td>
<td>• I am a professor assistant, my main specialization is communication</td>
</tr>
<tr>
<td></td>
<td>• Department</td>
<td>• My specialization at the university is networks</td>
</tr>
<tr>
<td></td>
<td>• Length of Service</td>
<td>• Faculty of Computer science, networks and communication specialization</td>
</tr>
<tr>
<td></td>
<td>• Degree</td>
<td>• This is my second year in the university</td>
</tr>
<tr>
<td></td>
<td>• Faculty position</td>
<td>• I am a professor in engineering faculty, Zagazig university for 15 years, I have been teaching for 15 years</td>
</tr>
<tr>
<td></td>
<td>• Nationality</td>
<td>• [university] Zagazig in Egypt</td>
</tr>
<tr>
<td></td>
<td>• System Experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Work history</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Educational history</td>
<td></td>
</tr>
<tr>
<td>Actual System Use</td>
<td>• Actual LMS Use (AU)</td>
<td>• I know it and I use the blackboard.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• You download the lectures on the blackboard and you make quizzes, small tests with question on the blackboard to be available online in a certain time you tell them about and you ask them to be ready and sitting in front of their computers, then you send them the questions and they answer, so you teach everything online and they answer while you are sitting at your home, everyone is there in the same time, they take the lecturers online, tutorials and everything else.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• [use] Since I came here, this year and the previous one. in Princess Nora University</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• I download tutorials for the students on the blackboard, I also write notifications for them and perform small quizzes for them because it’s easier on the blackboard, it is more credible.</td>
</tr>
<tr>
<td></td>
<td>• Actual System Use Blackboard features (ASU-Bb)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Actual system use Other system (ASU- Other)</td>
<td></td>
</tr>
<tr>
<td>External Variables</td>
<td>Level 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• External Variables Positive (EV-P)</td>
<td>• The university has internet connection and the students can use it from the labs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The university give the faculties courses in the blackboard, I have taken courses in the last semester</td>
</tr>
<tr>
<td></td>
<td>• External Variables Negative (EV-N)</td>
<td></td>
</tr>
</tbody>
</table>
that taught us as doctors how to use the blackboard and get the best out of it.

- No, they offer it for us and if we have time then we can join and it’s regular in certain times, so if I missed it one time then I can join the next one, so who is not committed to lectures at the same time of the course can join the course and who can’t then he can join the next course
- It’s according to your needs.
- the university provide that but in our faculty it’s available for the members and the students and provided by the university.
- The faculty gives these courses for us, but the university gives them for the students.
- the courses are prepared well for everyone to understand, it shows you everything from A to Z and you make use of everything.
- In the faculty if we had a problem about the website then the faculty fix it, but if the problems is about the university then the university fix it.
- The staff is cooperative too and we receive a great support, the university is really doing a huge effort to spread using the blackboard in all the faculties.

<table>
<thead>
<tr>
<th>Level 2</th>
<th>External Variables institutional issues negative (EVII-N)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Level 2</th>
<th>External Variables technology-related issues positive (EVTRI-P)</th>
</tr>
</thead>
</table>

- but here in Princess Nora University they know well about the networks and they know how to deal with the computers because all of them come from computer science faculty so they know how to deal with the blackboard and how to use and apply it, ... in computer science faculty, it’s very easy for them.
- Any problem about the password, you should send an email for them and they try to fix it because the electronic system here makes their response very fast and they always follow up with you and ask if you are satisfied or if you have any comments, they also ask you about your opinion of the blackboard, how to use it, your suggestions to develop it and so on.
- I tried that by myself and found it is easy and comfortable for me as academic staff.
- It’s all using the e-mail, we send emails and if you don’t have their mail the you can call them by phone and they answer right away and send you a message
asking if everything is okay and the problems are fixed or not, sometimes they also tell us if there’s a problem that is going to happen, for example the blackboard is going to stop from 5 to 8, they tell us in advance so we don’t have problems and be ready, so they tell us an out everything, if there’s a problem or maintenance issues.

- The technical support and the IT always help when there’s a problem, they always try to fix the problems and when the system fails they fix it, they never stop, there’s a great cooperation of the employees of the IT and the technical support.
- We have technical support in the faculty but the blackboard support is at the university.
- as you see it’s computer science faculty so we have no issues with using the computer at all.

### Level 2

- **External Variables**
  - technology -related issues negative (EVTRI-N)
  
  so the problem mainly would be in the other faculties, it would be very hard for the students to learn how to use it,
  - Maybe it’s hard for them to understand it and use it, they have no clue how to add the marks or put the quizzes, some people can’t really use it as they know nothing about the computer so using the blackboard for them is really hard, besides that putting the subjects on the blackboard requires time and effort, the system could fail at any time and nothing would work by then until the system is back, that’s what happens for any electronic system.

- **External Variables**
  - academic-related issues negative (EVARI-N)
  - Yes sure, the university sends to the faculties that they should use the blackboard as it’s an official website for the university, trusted website of the university and the university is the one that asked to use it officially, so the university always tell the faculties that the blackboard is the official communication tool between the student and the professor.
  - There’s no obligation, the point is that it’s an official tool that has everything you need and the university made it for you then why won’t you use it?
<table>
<thead>
<tr>
<th>Level 2</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• External Variables student-related issues positive (EVSRI-P)</td>
<td>• The university has internet connection and the students can use it from the labs.</td>
</tr>
</tbody>
</table>
| • External Variables student-related issues negative (EVSRI-N) | • everyone should have the computer culture, everyone should have internet connection, so it wouldn’t work for all the communities,  
• This is the problem, when the student has no internet connection at home then this would be the only problem, I think that there’s no house without internet connection these days, when I enter a class with 40 students for example, all of them have internet and all of them can access the internet, but what you say about that they could be not able to access the internet or have some issues at home, I didn’t face that with any student till now. |

### Attitude towards usage (ATU)

<table>
<thead>
<tr>
<th>Level 2</th>
<th>Level 2</th>
</tr>
</thead>
</table>
| • Attitude towards usage positive (ATU-P) | • the electronic learning and the blackboard are so great actually.  
• Yes, sure, it’s better for them and for us too, it’s an easier and faster way of teacher and student dealing together  
• but it’s a great communication tool if applied then we would enjoy great results and cooperation, you know because it’s an official way from the university, you can access the university website of Princess Nora University, you can put all what you want in it, it’s safe and high quality because it’s under an academic place such as the university. |
| • Attitude towards usage negative (ATU-N) | • The problem of the blackboard is that you should link the subjects to the system at the beginning of the academic year so you can download the subjects and so the students can log in and see them, so linking the subjects with the blackboard is the main problem that faced me then connecting the students to me. |
| • Attitude towards usage mixed (ATU-M) | • |

### Perceived Usefulness (PU)

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Perceived Usefulness (PU-P)</td>
<td>• It’s good in higher education as the students will have experiences and they can learn new staff and technology, besides it’ easier in dealing with as you need to contact connect to the students all the time put tutorials and lectures for them, if the students</td>
</tr>
<tr>
<td>Level 2</td>
<td>have problems about then they can use the academic guidance, you always need to be connected with them so you can have the best results that you seek for.</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>• Perceived Usefulness in teaching (PUT)</td>
<td>• It’s the easiest way to communicate between the student, professor and the university</td>
</tr>
<tr>
<td>Level 2</td>
<td>The students just need to have a communication tool with the doctor and be able to get the academic material, the books, the questions and the marks, everything is available for them with no effort, it’s very comfortable for the student, any electronic system for learning is easy for the students</td>
</tr>
<tr>
<td>• Perceived Usefulness in student learning (PUS)</td>
<td>• Yes, sure, it’s better for them and for us too, it’s an easier and faster way of teacher and student dealing together</td>
</tr>
<tr>
<td>Level 2</td>
<td>Yes, it has everything I need and it allows me to communicate easily with the students.</td>
</tr>
<tr>
<td>• Perceived Usefulness on improving academic members’ working (PUIA)</td>
<td>• Yes, sure, it’s better for them and for us too, it’s an easier and faster way of teacher and student dealing together</td>
</tr>
<tr>
<td></td>
<td>• when the students use these modern ways then they could enjoy better thinking and higher levels.</td>
</tr>
<tr>
<td></td>
<td>• Maybe some students don’t prefer the electronic system or don’t have enough experience to deal with it, check the marks, they always ask for a paper and they like the manual system more, but that’s very rare as we are in a high technology era and most of them are adapted with that.</td>
</tr>
<tr>
<td></td>
<td>• Because when you need to connect with the students you can reach them with no need for phone or mail, you deal with all the students in one way and they know the same things, everyone uses this system and it’s equal for all of them</td>
</tr>
<tr>
<td>Level 2</td>
<td>You know, the development that is happening now such as using easy electronic way and using the internet and high speed computers, all these issues help you get the best results,</td>
</tr>
<tr>
<td>• Perceived Usefulness on other related reasons (PUOR)</td>
<td>• No I think it’s better, I mean using the electronic system with the girls here is a lot better.</td>
</tr>
</tbody>
</table>
I have no difference between men and women, but I think girls are better about this or maybe they prefer this way because men can go out at any time and they can use the library, it's easy for them to go anywhere and as the doctor and get the information. So, the blackboard and electronic learning is a lot better for the girls or women as everything becomes easier, they can do everything at home, the report, the search, everything is easy to do at home, they don't have to go out and print anything, she can just send it while staying at home, so the online system saves a lot of effort for the girls especially.
Appendix E: Ethical approval.
Design and Social Context College Human Ethics Advisory Network (CHEAN)
Sub-committee of the RMIT Human Research Ethics Committee (HREC)

Notice of Approval

Date: 12 September 2014
Project number: CHEAN B 0000018808-07/14
Project title: Factors influencing the adoption of Learning Management Systems in the Kingdom of Saudi Arabian Universities by Female Academic Staff
Risk classification: Low Risk
Investigator: Dr Jennifer Elsdon-Clifton and Monerah Fahdi Algahtani
Approved: From: 12 September 2014 To: 30 June 2016

I am pleased to advise that your application has been granted ethics approval by the Design and Social Context College Human Ethics Advisory Network as a sub-committee of the RMIT Human Research Ethics Committee (HREC).

Terms of approval:

1. Responsibilities of investigator
   It is the responsibility of the above investigator/s to ensure that all other investigators and staff on a project are aware of the terms of approval and to ensure that the project is conducted as approved by the CHEAN. Approval is only valid whilst the investigator/s holds a position at RMIT University.

2. Amendments
   Approval must be sought from the CHEAN to amend any aspect of a project including approved documents. To apply for an amendment please use the ‘Request for Amendment Form’ that is available on the RMIT website. Amendments must not be implemented without first gaining approval from CHEAN.

3. Adverse events
   You should notify HREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Participant Information and Consent Form (PICF)
   The PICF and any other material used to recruit and inform participants of the project must include the RMIT university logo. The PICF must contain a complaints clause including the project number.

5. Annual reports
   Continued approval of this project is dependent on the submission of an annual report. This form can be located online on the human research ethics web page on the RMIT website.

6. Final report
   A final report must be provided at the conclusion of the project. CHEAN must be notified if the project is discontinued before the expected date of completion.

7. Monitoring
   Projects may be subject to an audit or any other form of monitoring by HREC at any time.

8. Retention and storage of data
   The investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

In any future correspondence please quote the project number and project title.

On behalf of the DSC College Human Ethics Advisory Network I wish you well in your research.

Suzana Kovacevic
Research and Ethics Officer
College of Design and Social Context
RMIT University
Ph: 03 9925 2974
Email: suzana.kovacevic@rmit.edu.au
Website: www.rmit.edu.au/dsc
Appendix F: Permission letter from King Saud University.

Permission letter from King Saud University.

Appendix

To: ____________________________

Subject: Permission Letter

The Department of ____________________________

King Saud University

Dear Sir/Madam,

This is to confirm that student ____________________________ has been granted permission to participate in the ____________________________ project.

The project will commence on ____________________________ and continue until ____________________________.

The student will be supervised by ____________________________, and the project will be conducted in ____________________________

We request that the student be given the necessary facilities and support to complete the project successfully.

Thank you for your cooperation.

RMIT University

[Signature]

[Stamp]
Appendix G: Permission letter from Princess Nourah bint Abdulrahman University.

Kingdom of Saudi Arabia
Ministry of Higher Education
Princess Nourah bint Abdulrahman University

Appendix G

Permission letter from Princess Nourah bint Abdulrahman University.

To:

To:

From:

From:

RMIT University

Subject: Permission for a Study Visit

Dear Sir/Madam,

I am writing to request permission for a study visit to RMIT University, which is a public university in Australia. We would like to arrange a visit for a delegation from the University of Saudi Arabia to RMIT University to exchange experiences and share best practices in the field of higher education.

The delegation will consist of faculty members, administrators, and students from our university. The visit will be scheduled for the week of [date], and we hope to spend a total of [number of days] days at RMIT University. During the visit, we would like to have the opportunity to observe classes, meet with faculty members, and discuss potential areas of collaboration.

We understand the importance of maintaining high standards of academic integrity and confidentiality, and we assure you that all information shared during the visit will be treated with the utmost confidentiality. We are committed to respecting the policies and procedures of RMIT University.

We would be grateful for your consideration of our request. Please let us know if there are any additional details or information that you would require.

Thank you for your time and consideration.

Yours sincerely,

[Your Name]
Deputy Vice-Chancellor
## Appendix H: Reasons for using Blackboard in teaching

(81 participants)

<table>
<thead>
<tr>
<th>Improve Teaching (26 responses)</th>
<th>Improve Student Learning (13 responses)</th>
<th>Improve working (33 responses)</th>
<th>Other (20 responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Display video</td>
<td>• Allows the student the opportunity to go back and verify the information at any time. Allows students the opportunity to exchange information and experiences.</td>
<td>• Speed</td>
<td>• Required from the university.</td>
</tr>
<tr>
<td>• Attract the attention of the students.</td>
<td>• to prepare the student in the field of self-learning skills. teach students responsibility in the delivery of assignments.</td>
<td>• Ease of use to save time and effort and the accuracy of the collection of student work and achievement.</td>
<td>• New and effective technique, also, keep up with the technical evolution.</td>
</tr>
<tr>
<td>• Changing the usual teaching methods to reach the output of a strong education and learning.</td>
<td>• delivery of the full educational materials for students.</td>
<td>• to facilitate communication with students by emails.</td>
<td>• My the field.</td>
</tr>
<tr>
<td>• Help in providing new and easy application evaluation strategies.</td>
<td>• Support the students to each other and exchange different views through discussions in the Forum.</td>
<td>• Facilitate communication with students process. Adjusts the delivery requirements at a specific time.</td>
<td>• The tremendous developments in education technology.</td>
</tr>
<tr>
<td>The student and the teacher becomes aware of the level of progress or academic failure and therefore follow-up and propose solutions.</td>
<td>• ease to use quizzes through it.</td>
<td>• Rapid and official communication with students. saving time and effort in the preparation of the scientific material.</td>
<td>• Trends Princess Nourah University in use.</td>
</tr>
<tr>
<td>• provide scientific material interactively.</td>
<td>• Attract the attention of the students.</td>
<td>• Ease of communication.</td>
<td>• The desire to keep pace with modernization and development.</td>
</tr>
<tr>
<td>• ease to use quizzes through it.</td>
<td></td>
<td>• Save time.</td>
<td>• Remember everyone's rights</td>
</tr>
<tr>
<td>• Attract the attention of the students.</td>
<td></td>
<td>• Provide time for discussion using blackboard.</td>
<td></td>
</tr>
</tbody>
</table>
- Interaction. 
- Interactive way with the students. 
- To clarify points of scientific material to be taught either draw a lesson demonstration linking with rest of the items, to display section contributes to the clarification or explanation of the scientific material to be taught. 
- To view the lesson material. 
- the best ways to interact with the students. 
- use powerpoint, youtube, classjump in teaching. 
- Easier in dealing with students. 
- improve the quality of teaching. 
- Sourcing and lectures. 
- the interaction with the student. 

<table>
<thead>
<tr>
<th>More interaction opportunity for students. More opportunity to see students writing in English.</th>
<th>classroom environment and time cannot provide.</th>
</tr>
</thead>
<tbody>
<tr>
<td>provide educational resources for students at any time, and to involve students in the learning process and make the student-centred.</td>
<td>Easy to work and interact with students.</td>
</tr>
<tr>
<td>students can keep scientific article that are discussed throughout the courses.</td>
<td>communicate.</td>
</tr>
<tr>
<td>provide more than one scientific material for students at same time and place.</td>
<td>Facilitate communication with the students. It gives flexibility in teaching.</td>
</tr>
<tr>
<td>My students are very pleased with the organization and clarity in the course.</td>
<td>Fast and easy and available for students.</td>
</tr>
<tr>
<td>If the student missed the face-to-face classroom, the lecture will be available on Blackboard.</td>
<td>The ability to download resources related to lectures.</td>
</tr>
<tr>
<td>announcement of grades in the future (to prepare online tests and lectures) the use of certain features (plagiarism checker).</td>
<td>Saving time and effort.</td>
</tr>
<tr>
<td>I can update my students about lesson.</td>
<td>Easy communication with the students.</td>
</tr>
<tr>
<td>Save the time and effort.</td>
<td>Time-saving, economic.</td>
</tr>
<tr>
<td>Upload some material Upload syllabus Announcements to students.</td>
<td>I can update my students about lesson.</td>
</tr>
</tbody>
</table>

- widespread use of the technology by students in this days. 
- I love everything that has to do with technology. 
- It's modern learning strategies and technical environment around us and which has become a necessary part of education. 
- When absent from the lecture. 
- compatible with the possibilities of these days. 
- I think it is important to use new technology in teaching. 
- more privacy than public blogs.
- Teach some courses theory.
- Create a new teaching technique different from traditional teaching atmosphere.
- I post homework and work we need to do in class worksheets we chat in the chalkboard.
- Helps in conduction of standardized exercises. Allows item analysis of MCQ questions, enabling me to easily and quickly identify students who require extra training in certain topics.
- Interaction with students.
- the use of technology to achieve the interaction between teacher and students and between students with each other.
- effective in the diversity of assessment tools

| Connects Article students outside the classroom. |
| Helps in organizing the various aspects of the course (by allowing me to post instructions on the conduction of the activities, and allowing online submission of requirements and establishing deadlines). Makes conduction of quizzes and exams easier, faster, and more organized. |
| It keeps record of all teaching activities, texts, announcements, and updates. It helps keep everyone accountable, students and instructors alike. |
| Planning from the beginning of the academic year. punctuality and discipline. |
| Ease of sending e-mails, download some lectures resources instead of hard copies and circulated among students. |
| Easier for the professor and students communicate in a formal way. |
| Able a discussion, and the use of short tests that are corrected automatically, and the participation of scheduled files for female students, and to |

- keep up with everything new in the field of Education Technology. |
- It became imposed from college. |
- use technology is more important for staff and students. |
- Use of Technology. |
- Keep up with technology. |
- Mandatory requirement by the department.
| The active participation of students to enrich lectures with resources and articles at any time not only during the class. | inform the students on their assessments and continuously updated, send an e-mail group or the use of declarations and notification messages to remind students and notice to delivery dates and tests and all this makes it easier for a professor of communication with the students. |
| Support interaction between the students and the professor. |-effective tools it provides. |
| Convenient asynchronous learning, students and instructors are available beyond work hours, more interactive, everything is documented, helps save paper, ability to copy courses from one semester to another. | Reduce the administrative burden of the correct receipt of the duties and ease of communication with students. |
| Saves a lot of time - allows the student contact at any time. | Communication with students. |
| Ease of communication and access to information. |
## Appendix I: Reasons for not using Blackboard in teaching

(94 participants)

<table>
<thead>
<tr>
<th>Institutional issues (12 responses)</th>
<th>Technology issues (30 responses)</th>
<th>Academic issues (48 responses)</th>
<th>Student issues (17 responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• I did not get adequate training.</td>
<td>• Some software problems.</td>
<td>• Needs to practice and</td>
<td>• Some students complacency</td>
</tr>
<tr>
<td>• Lack of incentives.</td>
<td>• Technical support delayed.</td>
<td>continuing education.</td>
<td>when a new program and</td>
</tr>
<tr>
<td>• Lack of training courses.</td>
<td>• The difficulty of use.</td>
<td>• Perhaps the difficulty of</td>
<td>create excuses of others in</td>
</tr>
<tr>
<td>• The lack of support and</td>
<td>• Weakness of the system where</td>
<td>learning.</td>
<td>convincing non-compliance or</td>
</tr>
<tr>
<td>encouragement by management.</td>
<td>the frequency of complaints from</td>
<td>• The nature of the material</td>
<td>delivery obligations or</td>
</tr>
<tr>
<td>• There is no encouragement</td>
<td>academics that many of the</td>
<td>that I teach are based on</td>
<td>provide short-exams and</td>
</tr>
<tr>
<td>from the university to use</td>
<td>features on the system do not</td>
<td>practical training and the</td>
<td>became used as a means</td>
</tr>
<tr>
<td>Blackboard.</td>
<td>work.</td>
<td>need to meet the students.</td>
<td>cheating among students for</td>
</tr>
<tr>
<td>There is no mandatory courses on</td>
<td>• Weak technical support.</td>
<td>• Staff’s timing is closely</td>
<td>exams.</td>
</tr>
<tr>
<td>how to use.</td>
<td>• No technical support for me</td>
<td>monitored. I think Blackboard</td>
<td>• Difficulties for students</td>
</tr>
<tr>
<td>• No training.</td>
<td>or my students.</td>
<td>in this case is an additional</td>
<td>(such as difficulties in</td>
</tr>
<tr>
<td>• Non-training faculty and</td>
<td>• I am forced to lift educational</td>
<td>burden on faculty members as</td>
<td>contacting or provide</td>
</tr>
<tr>
<td>students.</td>
<td>materials for each class</td>
<td>they are required to teach</td>
<td>devices to have).</td>
</tr>
<tr>
<td>• No training courses.</td>
<td>separately even if they were the</td>
<td>almost double the time</td>
<td>• Lack of Internet availability at some of them and the lack of time with others.</td>
</tr>
<tr>
<td></td>
<td>same materials and the same</td>
<td>required for each course.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>instruction article, so I opened</td>
<td>• Lack of knowledge.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a blog article and lift all the</td>
<td>• Increase effort on faculty</td>
<td></td>
</tr>
<tr>
<td></td>
<td>materials there.</td>
<td>members by using both the</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>traditional way of teaching</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and Blackboard system and.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Not enough time to prepare</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>everything in advance and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>follow-up with students.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

279
<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have not be trained.</td>
<td>Although I took a course in it, but I still did not know many details.</td>
</tr>
<tr>
<td>Not enough training.</td>
<td>Increase the burden on the teacher at home.</td>
</tr>
<tr>
<td>Lack of training and support.</td>
<td>Some Courses need to be face to face because they need more explain.</td>
</tr>
<tr>
<td>Haven’t got any training.</td>
<td>Theoretical and practical teaching in the classroom is much better than Blackboard.</td>
</tr>
<tr>
<td>Software problems.</td>
<td>Academics experience may limit instruction in the use of Blackboard.</td>
</tr>
<tr>
<td>Technical support is not available.</td>
<td>Inability to use Blackboard perfectly and the fear of lack of success because I am busy.</td>
</tr>
<tr>
<td>Technical malfunctions.</td>
<td>The complexity of the establishment of lectures and assignments and corrected.</td>
</tr>
<tr>
<td>Crash sudden.</td>
<td>Lack of knowledge.</td>
</tr>
<tr>
<td>Lack of technical support.</td>
<td>Using blackboard in my courses may add more teaching load.</td>
</tr>
<tr>
<td>Technical problems.</td>
<td>The effort and the time required to prepare the scheduled.</td>
</tr>
<tr>
<td>Not enough technical support.</td>
<td>Lack of time.</td>
</tr>
<tr>
<td>Technical problems.</td>
<td>Require time.</td>
</tr>
<tr>
<td>The Internet and technical support.</td>
<td>I do not have technical skills to use it.</td>
</tr>
<tr>
<td>Device malfunctions.</td>
<td>Students do not open the Blackboard and use material there.</td>
</tr>
<tr>
<td>Technical issues.</td>
<td>Some families still look at it as a waste of time and do not provide support for their daughters.</td>
</tr>
<tr>
<td>Technical and network problems.</td>
<td>I use other technological means to communicate with my students.</td>
</tr>
<tr>
<td>Technical problems.</td>
<td>Online network not available for students easily.</td>
</tr>
<tr>
<td>Lack of technical support.</td>
<td>I think students need training.</td>
</tr>
<tr>
<td>Problems with network connection.</td>
<td>Unwillingness of students to use it.</td>
</tr>
<tr>
<td>Frequent technical problems.</td>
<td>Lack of interaction of students in the classes.</td>
</tr>
<tr>
<td>Technical problems.</td>
<td>Non-students interaction with Blackboard.</td>
</tr>
<tr>
<td>Lack of technical support.</td>
<td>The lack of interaction of students.</td>
</tr>
<tr>
<td>Some technical complexities.</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td></td>
</tr>
<tr>
<td>Lack of sufficient labs to prepare students.</td>
<td></td>
</tr>
<tr>
<td>Not activated yet in my department.</td>
<td></td>
</tr>
<tr>
<td>Difficulty of using some features like quizzes and evaluations.</td>
<td></td>
</tr>
<tr>
<td>Having each section of the same course separately.</td>
<td></td>
</tr>
<tr>
<td>Not being able to complete a full training.</td>
<td></td>
</tr>
<tr>
<td>Personal interactions with the teacher are a must important.</td>
<td></td>
</tr>
<tr>
<td>Meeting students in class and showing them the learning materials in person is more effective.</td>
<td></td>
</tr>
<tr>
<td>Lack of human interaction and to identify the personalities.</td>
<td></td>
</tr>
<tr>
<td>Lack of enough experience.</td>
<td></td>
</tr>
<tr>
<td>I do not know what it is.</td>
<td></td>
</tr>
<tr>
<td>I don't need it in subjects which I teach.</td>
<td></td>
</tr>
<tr>
<td>Not enough knowledge.</td>
<td></td>
</tr>
<tr>
<td>I believe case discussions in our specialty are best conducted in class.</td>
<td></td>
</tr>
<tr>
<td>I use alternative modes of communication with my students (e.g. project-based systems development using computing platforms).</td>
<td></td>
</tr>
<tr>
<td>It takes time and effort.</td>
<td></td>
</tr>
<tr>
<td>It need time.</td>
<td></td>
</tr>
<tr>
<td>The pressure of work and the large number of courses, a large</td>
<td></td>
</tr>
<tr>
<td>Students does not accept the Blackboard and they prefer the traditional method.</td>
<td></td>
</tr>
<tr>
<td>Not every students go online and check blackboard until I tell them.</td>
<td></td>
</tr>
<tr>
<td>Some student lack of use of computer skills. Student unwillingness of this way of teaching.</td>
<td></td>
</tr>
<tr>
<td>Students are forced to login to interact, which may not suit the student time.</td>
<td></td>
</tr>
<tr>
<td>Students still find it hard to log in and participate due to technical difficulties.</td>
<td></td>
</tr>
</tbody>
</table>
- Need time.
- Time is needed to follow up on the responses of students and their participation and take down content, questions and management estimates.
- It can be time consuming sometimes.
- A lack of time and the large number of courses and number of students.
- Many responsibilities and the large number of students.
- No knowledge and I do not have time.
- My course does not need to black board, because it is light course "medical terminology".
- Lack of knowledge.
- I feel I do not have the competency to use it properly.
- Options very complex and many, and all materials related to my courses present on the Personal site provided by the university.
- Complexities.
| • Academic staff, unfortunately, at the Princess Noura university not be able to use Blackboard for lack of banner which links the names of students and courses with Blackboard. • The program is complex and does not give me any enthusiasm to work on it. • |
Appendix J: Things that assist to use Blackboard more in teaching
(88 participants)

<table>
<thead>
<tr>
<th>Institutional (41 responses)</th>
<th>Technology (14 responses)</th>
<th>Academic (27 responses)</th>
<th>Student (11 responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Eligible training course.</td>
<td>• Find technical support required.</td>
<td>• Communicate with students at any time.</td>
<td>• Sufficient knowledge for students to know how to use it.</td>
</tr>
<tr>
<td>• Training courses.</td>
<td>• Create a supportive technique.</td>
<td>• Facilitate the teaching process - change the types of teaching - to facilitate communication with the students - keep abreast of technical developments.</td>
<td>• The large number of students.</td>
</tr>
<tr>
<td>• Link upgrade. And linking differentiation between applicants to attend conferences.</td>
<td>• Quick technical support.</td>
<td>• Communicate with students. Grades inclusion which ensures privacy.</td>
<td>• Student interaction.</td>
</tr>
<tr>
<td>• Educate students and faculty members about it.</td>
<td>• The availability of technical support.</td>
<td>• Instructors should motivate students to use it more often.</td>
<td>• Families should understand the importance of giving their daughters the time and space to use modern technology.</td>
</tr>
<tr>
<td>• Ensure student data is linked in Blackboard via banner system.</td>
<td>• Develop a system Blackboard in line with the User Requirements.</td>
<td>• When there is a distance education or training programs or distance courses.</td>
<td>• Connections with Students.</td>
</tr>
<tr>
<td>• Adopted by the university. Members and students training to use it. And follow-up training.</td>
<td>• Solve technical problems and administrative support continuously.</td>
<td>• Force academics to use it.</td>
<td>• The quality of students use.</td>
</tr>
<tr>
<td>• Provide training courses.</td>
<td>• Strong technical support.</td>
<td>• Continuous encouragement and the desire of students.</td>
<td>• Student enthusiasm.</td>
</tr>
<tr>
<td>• Found on the courses of previous similar experiments was activated Blackboard where and how the impact and interaction of the students.</td>
<td>• Technical support.</td>
<td>• Full knowledge and familiarity with technology.</td>
<td>• Make it as a reference for student only.</td>
</tr>
<tr>
<td>• The existence of appropriate infrastructure. Force academics to use blackboard.</td>
<td>• Technical support.</td>
<td>• Provide time for use it and increase educational quality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Quality of the Internet and good speed and its availability for teacher and student.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase the number of training courses.</td>
<td>Provide technical support permanently.</td>
<td>Habituation (Getting used to).</td>
<td></td>
</tr>
<tr>
<td>University should provide adequate labs and regular maintenance.</td>
<td>Technical support.</td>
<td>Allocation of time and incentives to prepare scheduled.</td>
<td></td>
</tr>
<tr>
<td>Educate the students of the importance of Blackboard and explain it to them. Encourage faculty members to use Blackboard and incentives for those who commit it.</td>
<td>Good background in technology and its use in teaching.</td>
<td>Reduce the teaching load.</td>
<td></td>
</tr>
<tr>
<td>Simplifying the tools and knowledge of the differences between them feel as similar and frequent closer to programming them into a program that everyone can use it.</td>
<td>Provide technical support.</td>
<td>Easiness of interaction with students.</td>
<td></td>
</tr>
<tr>
<td>Providing courses on how to use it regularly.</td>
<td></td>
<td>Knowing how it will add to my current teaching methodology.</td>
<td></td>
</tr>
<tr>
<td>Encourage member faculty to use Blackboard.</td>
<td></td>
<td>Discussions with students.</td>
<td></td>
</tr>
<tr>
<td>Training courses.</td>
<td></td>
<td>Have a good skills to use Blackboard.</td>
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</tr>
<tr>
<td>Define the blackboard for academics and make training courses in a more organized.</td>
<td></td>
<td>The nature of the courses.</td>
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</tr>
<tr>
<td>Having enough training.</td>
<td></td>
<td>Developing the educational process and change from the routine.</td>
<td></td>
</tr>
<tr>
<td>Training.</td>
<td></td>
<td>When classes are cancelled or in case of students who have a valid excuse for being absent and do not wish to miss &quot;class&quot;.</td>
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</tr>
<tr>
<td>The reaction catalyzed from students.</td>
<td></td>
<td>Uploading courses and submit assignments.</td>
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</tr>
<tr>
<td>Students’ acceptance.</td>
<td></td>
<td>Do not give academics member any administrative work, and should reduce of teaching hours.</td>
<td></td>
</tr>
<tr>
<td>Students having knowledge in using it.</td>
<td></td>
<td>When I see Blackboard’s benefits.</td>
<td></td>
</tr>
<tr>
<td>Sensitize academic members and students of the importance of use blackboard.</td>
<td>Smaller numbers of students and lower teaching loads and administrative responsibilities.</td>
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<td></td>
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<tr>
<td>Financial incentives.</td>
<td>Improved usability and accessibility of the system.</td>
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<td></td>
</tr>
<tr>
<td>Providing adequate training for staff and students as well.</td>
<td>Taking courses or workshops.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training and educational design skills that are consistent with the objectives of policy.</td>
<td>The nature of the courses and number of students.</td>
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<td></td>
</tr>
<tr>
<td>Facilitate the use of technology.</td>
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<tr>
<td>More workshops &amp; protect confidentiality.</td>
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<tr>
<td>More hands-on workshops.</td>
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<tr>
<td>More training for both the students and the instructors.</td>
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<tr>
<td>Educate students about what Blackboard is, hold workshops for faculty members individually each member separately.</td>
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<tr>
<td>A good training</td>
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<tr>
<td>Training Courses and encourage academics to attend them.</td>
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</tr>
</tbody>
</table>
• More training and instructions.
• Educate how to use it and what its benefits. Also, establish workshops regularly.
• More training.
• I hope academics are forced to use blackboard by the university policy, so lecturers would be ready to teach using it without any obstacles.
• Educate both me and my students how to deal with such programs.
• Training in the use of Blackboard for students and faculty members and development.
• Increase the number of computer labs at the university for exams.
• Provide technicians in each college to respond to inquiries.
• Providing network facilities.
• Provide equipped with online labs for students.
• Provide infrastructure, laboratories equipped.