Academics’ Adoption and Usage of
Learning Management Systems
in Saudi Arabia’s Universities

Mohammed Saleh A. Alshammari
MSc Information System Management

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Computer Science and Informatics
Centre for Computing and Social Responsibility
Faculty of Technology
De Montfort University

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In The Name of Allah, the Most Beneficent, the Most Merciful

To my mother Salma and my late father Saleh, the reason of my existence!

To my wife/best-friend Hanan whose care, support, and advice were the huge reasons behind my success

To my daughters Reema and Salma, the causes of my happiness.
Abstract

Learning Management Systems (LMS) have become a common feature in contemporary Higher Education institutions worldwide. LMS literature shows that the level of interest and/or knowledge among academics towards the importance and usefulness of these systems, and the opportunities they can bring to the teaching process are key factors affecting the degree of use of LMS in HE. To date, most of these studies have taken place in the context of developed countries, and there is only limited research in other areas. In recent years, LMS have been adopted widely in Saudi Arabia’s Higher Education sector, however, there are no strong and detailed data regarding the subject in this context, which could impede future developments. On the other hand, academics were chosen as the main focus of this investigation because studies have revealed that they have the most vital role in promoting and enhancing the use of LMS. Therefore, this research investigates academics’ adoption and usage of LMS in Saudi Arabia’s universities; it aims to understand the adoption conditions and identify what factors truly affect the adoption process and to what level are the systems being used and why.

The investigation was guided by Grounded Theory research principles. Initially, a review of the literature identified the nature of LMS along with the issues confronting academics when they are trying to use it to its full potential in supporting the delivery of their courses. Afterwards, questionnaires were employed to further explore the phenomenon in its examined context, i.e. Saudi higher education. The generated data and concepts were then used to guide the research process and to develop interview questions. The interviews were carried out at three Saudi universities with a range of stakeholders, which signified the primary data source in this investigation.

Analysis revealed that LMS did not emerge as a well-established component of academics’ activities in Saudi universities despite the positive view respondents expressed towards it. Findings also explained why LMS was either considered a secondary method to support face-to-face teaching, or under-utilised in fully online courses. Furthermore, findings revealed the primary factors influencing academics’ level of use of LMS. Moreover, there were issues identified in relation to the academics’ development and training for LMS, which had a significant effect on the academics’ level of use of LMS.

Findings were then integrated into a substantive theory and a theoretical model, which represents the research primary outcome. The theoretical outcomes offer abstract explanation of the phenomenon about adopting innovatory systems in Saudi universities, LMS in this instance. In conclusion, suggestions for improving the current provision of LMS in Saudi Universities are made.

Overall, this study provided an insight into the environment surrounding the early adoption phases of LMS in Saudi universities, which offers a better understanding of the phenomenon. Subsequently, this will help enhance the adoption process in current contexts and assist in the better future utilisation of these systems in similar situations.
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<tr>
<td>BECTA</td>
<td>British Educational Communications and Technology Agency</td>
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<td>BL</td>
<td>Blended Learning</td>
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<td>E-Learning</td>
<td>Electronic Learning</td>
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<td>ELS</td>
<td>Electronic Learning Systems</td>
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<td>E-Teaching</td>
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<td>HE</td>
<td>Higher Education</td>
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<td>HEC</td>
<td>Higher Education Council</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>IS</td>
<td>Information Systems</td>
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<td>JISC</td>
<td>Joint Information Systems Committee</td>
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<td>LAMS</td>
<td>Learning Activity Management System</td>
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<td>LMS</td>
<td>Learning Management Systems</td>
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<td>MHE</td>
<td>Ministry of Higher Education</td>
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<td>MOOC</td>
<td>Massive Open Online Course</td>
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<td>NCeDL</td>
<td>National Centre for E-learning and Distance Learning</td>
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<td>OS</td>
<td>Open Source</td>
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<td>SA</td>
<td>Saudi Arabia</td>
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<td>VLE</td>
<td>Virtual Learning Environment</td>
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<td>WBIS</td>
<td>Web-Based Information Systems</td>
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<td>WWW</td>
<td>World Wide Web</td>
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CHAPTER 1
Introduction
1.1 Overview

The following research forms an examination of the adoption and usage of Learning Management Systems (LMS) by academics in Saudi Arabia’s Higher Education (HE) system. It explores the relationship between academics’ practice and technology, focusing on LMS in particular. An in-depth literature review identified the nature of LMS along with the issues confronting academics when using them to their full potential in HE. The literature revealed that the role of teachers is vital in promoting and enhancing LMS.

Studies, however, show that there is a lack of interest and/or knowledge among some academics towards the importance and usefulness of LMS, and the opportunities they can bring to the learning process. Numerous reasons may underpin this attitude towards LMS, and some key aspects were identified through the review, where the literature, for example, showed that LMS have many limitations, which is influencing their adoption by academics.

Most researchers however have studied the academics adoption of LMS in the Western context, with only few investigations undertaken in other areas. Additionally, no strong data regarding the subject in the context of Saudi Arabia could be identified, thus providing no evidence - to date - about the adoption of LMS in HE by academics, which can decelerate or prevent future developments. Therefore, an empirical research study examining the adoption and usage of LMS by academics in the HE sector in Saudi Arabia was essential for enduring future developments. An in-depth investigation of the relationship between academics and LMS in Saudi universities offers a clearer understanding of the situation, which may allow LMS to become a more comprehensive element of the teaching and learning environment.

This chapter puts forward an overview of the research problem, including its aims, central questions, structure and a justification of its significance. There is also a statement of the relevance to the examined context and the general field of knowledge (Figure 1).
1.2 Research rationale

In the late 1990s, and driven by the World Wide Web (WWW) revolution, web-based education systems emerged alongside traditional face-to-face teaching and learning. It became the target for contemporary Higher Education institutions to use the internet to provide Web-Based Information Systems (WBIS) services for students, academics, and other stakeholders (Cox and Emmott, 2007). LMS as a WBIS (2.7) were developed to manage e-learning over the internet; they are the most common E-Learning Systems (ELS) used in HE worldwide (Lameras et al., 2012; Persico et al, 2014; Song, 2011). The interest in adopting LMS in HE institutions is driven by many reasons, such as their efficiency and enhancement for teaching and learning, their responses to student expectations, to address the needs of the huge numbers of learners around the globe, and their capability to manage and control the teaching process (Coates et al., 2005). The interest in adopting LMS is also driven by some institutional pressures such as ‘isomorphism pressures’ (DiMaggio and Powell, 1983; Meyer and Rowan, 1977) and ‘rationalised myths’ (Meyer and Rowan, 1977). In addition to the above drivers behind LMS adoption, this study reveals two local reasons that drive Saudi universities in particular to adopt LMS - first, the gender segregation system and second, the limited number of universities and their restricted locations, i.e. in major cities, compared to the huge number of learners around the Kingdom who are looking for opportunities to learn.

LMS, such as Blackboard (Blackboard Inc, 2014) and Moodle (Moodle, 2014) offer Virtual Learning Environments (VLE) that support teachers in “creating and managing online courses and provide them with a great variety of features which can be included in the course such as learning material, quizzes, discussion forums, assignments, and so on” (Graf et al., 2008). Nonetheless, current LMS still fail to offer a high level of satisfaction for their users (García-Penalvo et al., 2011; Persico et al, 2014; Schoonenboom, 2014; Tan, 2014 in Tracey, 2014).

The main issues in current LMS, for the purpose of this research, may be perceived from different angles, such as the users’ perspective (i.e. teachers and learners), or from the LMS themselves (e.g. their design, capabilities, limitations, convenience). However, issues perceived by the end-users (i.e. teachers and learners) remain the most important element of any LMS.

With the spread of LMS use among higher education institutions, new issues emerged and continue to grow within these systems; the teaching portal in an LMS is one of the areas covered by researchers and developers. In an attempt to identify or solve some of the issues in the teaching portal, a range of approaches with different foci have been explored; these include, but are not limited to, the analysis of current systems and/or the development of existing and
new functions and interfaces along with interactivity subjects (Chen, 2009; Conole and Culver, 2010; Li, 2009).

An example of analytic approaches can be found in Blin and Munro (2008), Drent and Meelissen (2008), García-Peñalvo et al. (2011), Laverty et al. (2012a), Schoonenboom (2014), and Afshari et al. (2009). Some of these analyses reveal that only a few of the functions provided in LMS are used by academics, and the researchers concluded that the reason behind this is teachers’ lack of interest in, and/or lack of knowledge of, the capabilities and benefits that LMS and software can bring to both the courses and the users (Conole and Culver, 2010; Ertmer and Ottenbreit-Leftwich, 2010). Ertmer and Ottenbreit-Leftwich (2010, p. 257) suggest, “it is no longer appropriate to suggest that teachers’ low-level uses of technology are adequate to meet the needs of the 21st-century learner. Using technology simply to support lecture-based instruction falls far short of recommended best practice”. Furthermore, they believe that “it is time to shift our mindsets away from the notion that technology provides a supplemental teaching tool and assume, as with other professions, that technology is essential to successful performance outcomes”. Ertmer and Ottenbreit-Leftwich also claim that recent definitions of high-quality teachers must be based not only on content and pedagogical knowledge but also on “being able to support differentiated instruction and data-based decision making, efforts that benefit immensely from the use of new technology tools” (Ertmer and Ottenbreit-Leftwich, 2010, p. 257).

Moreover, Conole and Culver (2010) found out through their investigation that there was a “lack of uptake and impact of technologies”, and that “teachers lack the time to explore and experiment with new technologies”. They reached the conclusion that “teachers do not know enough about how the different technologies can be used and how they can be integrated into their teaching” (Conole and Culver, 2010, p. 680). This study identified a number of issues preventing or limiting the use of LMS functions by academics.

On the other hand, in another recent study, Ertmer and Ottnbreit-Leftwich (2010, p. 259) contend that “teachers can think they are doing a great job, even if they or their students never use technology”. The study also suggests that although this may have been true 20 years ago it is no longer the case and that “we need to broaden our conception of good teaching to include the idea that teaching is effective only when combined with relevant ICT tools and resources” (ibid, p. 259). Information and Communications Technology (ICT) tools and technology in general represent a ubiquitous element in students’ lives. The majority of students today are ‘digital native’, a diverse range of digital devices is readily available to them, and they have a
great reliance on them. Therefore, using technology in teaching has become a demand rather than an option, and these tools have proved their usefulness and value in academic delivery.

According to Linckels et al. (2009), the lack of knowledge on the use of ICT in education can lead to “a lack of clear direction on where e-learning is headed and how teachers and administration can plan for its effective implementation in their schools” (Linckels et al., 2009, p. 157). As a result, “it’s time to close the digital gap. Students have changed, so the way teachers teach must change to keep students engaged in the classroom” (Knezek, 2008, p.4).

In addition to teachers’ lack of interest in and/or lack of knowledge of what can LMS offer to their teaching activity, many studies during the last few years drew attention towards issues in LMS themselves; this included its claimed poor design (Cao et al., 2009; Hotrum, 2005; Tan, 2014 in Tracey, 2014; Vrasidas, 2004). Consequently, other limitations in LMS have also been identified and are highlighted in the following chapters (Cook et al., 2007; Rubin et al., 2010; Vovides et al., 2007). These limitations have affected today’s teaching and learning activities and their processes; moreover, LMS are being considered as learning management ‘tools’ rather than complete learning environments (Hotrum, 2005).

Therefore, attention towards the relationship between teachers and technology as well as issues facing teachers in their adoption of new technologies should be advocated for and interrogated in more studies. In other words, research must focus more on the teaching functions of LMS than on the other parts of the system due to the role that teachers play in spreading the use of LMS and their incorporated tools. Gibbs and Gosper (2006) support this approach; they state that “the next generation of learning technologies and systems will only take us forward if educators have a much greater stake in controlling how they are developed”.

This is to say that an in-depth investigation of the teachers’ adoption and usage of LMS is essential in order to improve the usage of these systems to their full potential. These systems are dispersed throughout the world and in many cases they have completely replaced face-to-face teaching and learning (i.e. fully online e-learning) systems. Therefore, the question is no longer whether they are suitable environments for teaching and learning; rather the question is how can we improve them to overcome their weaknesses in order that they become a comprehensive alternative to face-to-face teaching and learning?
1.3 Research aim and questions

LMS is a common feature in today’s HE sectors, and is currently being promoted in universities globally. Studies affirm that academics have a chief role in spreading the use of this technology among students. In Saudi Arabia, LMS is relatively a new approach in HE that is spreading rapidly but with limited studies tracking, guiding or explaining this process or the contexts whereby these systems are being introduced. Therefore, this research aims to develop a clear understanding of the processes and conditions associated with the adoption of LMS by academics in Saudi universities. This aim is achieved by accomplishing a number of objectives, which are best reflected in the following research questions (Table 1):

Table 1 Research questions

<table>
<thead>
<tr>
<th>Supporting questions</th>
<th>Main research question: How are LMS adopted by academics in Saudi universities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What is the relationship between education and technology?</td>
</tr>
<tr>
<td>2.</td>
<td>What is the status of e-learning in Saudi Arabia’s HE sector?</td>
</tr>
<tr>
<td>3.</td>
<td>What is the relationship between Saudi academics and technology, and with LMS in particular?</td>
</tr>
</tbody>
</table>

1.4 Organisation of the thesis

This thesis is divided into nine chapters; the first four chapters establish the bases of the undertaken research, whereas, the five following chapters represent the primary and empirical part of the research. All chapters open with an introduction followed by a detailed explanation of its topic and end with a summary. These chapters discuss the following topics (see Figure 2):

Chapter one: (Introduction) sets out the overall research problem, the aims and objectives of the thesis, and identifies the research questions.

Chapter two: (The Generation of LMS) explores LMS by reviewing the paradigms of technology for education, the concept of E-learning, and the consequences of Web 2.0 applications in education leading to the concept of LMS, where its definitions, features, and content are described. Also in this chapter, ‘openness in education’ is explored through discussing open-source LMS and MOOCs.

Chapter three: (Teaching with LMS: with a Special Focus on the Saudi Context) the first part reviews ‘teaching’ and ‘e-teaching’ as concepts, then discusses teaching and technology in HE.
The second part explores the HE sector and university systems in SA as the main examined area in this research.

Chapter four: (Research Methodology) explores the different research methodologies and methods and selects the most appropriate data gathering and analysis techniques for this research. It explains in further detail the adoption of the *Grounded Theory* (GT) research methodology as the primary method followed in this research.

Chapter five: (Initial Data Gathering Stage: Questionnaires) questionnaires in this research are adopted as an initial approach to data gathering, they are applied to explore the examined phenomenon and identify some of the key concepts. The process applied in designing, analysing and verifying the questionnaires along with their findings are explained and presented in this chapter.

Chapter six: (Main Data Gathering Stage: Interviews) all the practical aspects associated with the main data gathering process, i.e. the interviews, are explained in this chapter. This includes the preparation of the interviews, the implementation process, the interview sample, the analysis process and strategies to establish validity.

Chapter seven: (Research Findings: Academics Adoption of LMS in Saudi Universities) the research findings from all the examined sources are accumulated, organised and discussed in this chapter. They represent the concepts constituting the phenomenon of LMS adoption in Saudi universities by academics, which are combined in a general framework at the end of the chapter.

Chapter eight: (Research Outcomes: Theoretical Integration) the purpose of this chapter is to integrate the research findings and raise the level of abstraction in order to produce a substantive grounded theory and model that explain the examined phenomenon in a more general approach.

Chapter nine: (Research Conclusion and Recommendations) is the concluding chapter that summarises the chief outcomes and contributions of this research. A set of empirical recommendations towards improving the adoption process of LMS by academics are stated along with a list of suggested future research.
Academics’ Adoption and Usage of Learning Management Systems in Saudi Arabia’s Universities

Chapter 1 Introduction

Chapter 2 The Generation of LMS

Chapter 3 Teaching with LMS: with Special Focus on the Saudi Context

Chapter 4 Research Methodology

Chapter 5 Initial Data Gathering Stage: Questionnaires

Chapter 6 Main Data Gathering Stage: Interviews

Chapter 7 Research Findings: Academics Adoption of LMS in Saudi Universities

Chapter 8 Research Outcomes: Theoretical Integration

Chapter 9 Research Conclusion and Recommendations

Figure 2 Organisation of the thesis
CHAPTER 2
The Generation of LMS
2.1 Introduction

This research is concerned with the adoption and usage of LMS in the HE sector by academics; this includes the usage of these systems and the integrated services and functions they offer, along with the issues associated with their use, the causes of these issues, and available solutions for resolving them. This chapter discusses the basis and background of the relationship between teachers and LMS by briefly looking at the introduction of technology in education, together with the evolution of this relationship until the E-Learning Systems (ELS) were developed.

This chapter also examines and discusses LMS as the main ELS used globally (Lameras et al., 2012; Persico et al., 2014; Song, 2011). The definition of LMS, with its types, content and issues, along with some attempts towards overcoming some of its limitations, are discussed. The other section that this research is interested in, i.e. teaching through LMS, is also discussed in further detail in chapter three. After discussing LMS as a teaching and learning environment, this chapter highlights another dimension of LMS, to discuss it as Web-Based Information Systems (WBIS) followed by a discussion of the outcomes and conclusions from this chapter.

The primary questions to be addressed in this chapter, to support the overall aim of the research are; what is the relationship between technology and education? When did this relationship initiate? How did technology affect the teaching process in HE? These questions along with other sub-questions derived from the main ones, provide the basis of this review.

2.2 Paradigms in ‘Technology for Education’

Throughout the ages, teachers have used tools to help students learn. In the early twentieth century following the invention of radio and television, the relationship between education and technology was born.

There were many approaches to introducing technologies as a new tool in the field of education, which aimed to assist teachers in their teaching activities and processes. Because of this new relationship, the term ‘Educational Technology’ emerged and was often used interchangeably with other terms such as ‘Instructional Technology’ and ‘computer-based learning’, which developed at certain stages in its history, and often reflected some of its components (Hedberg and McNamara, 2002). The term ‘Educational Technology’, however, takes different forms over time and place, and “no one has so far managed to come up with an alternative, universally-acceptable name” (Ellington et al., 1993).
Definitions of the phrase ‘Educational Technology’ are always changing because of the continuous developments in technologies. While in the 1930s educational technology referred to audiovisual (AV) communications in education, nowadays, the term has evolved to refer to electronic equipment in education that provides virtual environments, and in the future it may be redefined to cover something more intelligent (Roblyer and Doering, 2010). Therefore, definitions of ‘Educational Technology’ should be placed “in their historical context” (De Vaney and Butler, 1996, p. 2). Saettler (1990) agrees with this notion as he points out that educational technology’s definitions are changing over time as a result of changes in resources. In the same context, Seels and Richey (1994) believe that ‘Educational Technology’ and ‘Instructional Technology’ are similar, yet they promote the term ‘Instructional Technology’ for certain reasons; e.g. it is more common and covers many practice settings (Seels and Richey, 1994). They defined ‘Instructional Technology’ as “the theory and practice of design, development, utilization, management, and evaluation of process and resources for learning” (Seels and Richey, 1994, p. 5). This definition has been described as the most famous definition of educational technology (Garrison and Anderson, 2003; Januszewski, 2001). Seels and Richey’s (1994) definition remains the most appropriate, as it covers both theoretical and practical dimensions. Although the term ‘Instructional Technology’ is the most common, ‘Educational Technology’ is still used. More recently ‘Educational Technology’ was defined as “a combination of the processes and tools involved in addressing educational needs and problems, with an emphasis on applying the most current tools: computers and their related technologies” (Roblyer and Doering, 2010, p. 8), which involves further emphasis on practical elements.

The relationship between education and technology has been represented in multiple forms during its history; but recently Roblyer and Doering (2010) have summarised and examined different historical perspectives of ‘Educational Technology’ from four groups of education experts which, in their opinion, “shape current practices in the field” (ibid, p. 6-8) (see Table 2).
## Table 2 Four perspectives that shaped educational technology
Source: extracted from (Roblyer and Doering, 2010)

<table>
<thead>
<tr>
<th>Educational Technology as:</th>
<th>Perspectives</th>
<th>Organisation &amp; Members</th>
<th>Historical View</th>
<th>Current View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media and AV communications (1930)</td>
<td>AECT</td>
<td>Serves library-media educators</td>
<td>Began with a focus on delivering information as an alternative to lectures and books, using devices to carry messages (e.g. films, TV) during instruction. Later added an emphasis on online and computer/information systems as “media”.</td>
<td>Still focuses on technologies as media. Most AECT divisions still focus on concerns of library-media educators.</td>
</tr>
<tr>
<td>Instructional systems and instructional design (1960s-1970s)</td>
<td>ISPI</td>
<td>Serves higher education and industry instructional designers, trainers.</td>
<td>Originally National Society for Programmed Instruction: emphasised making instruction and training more efficient.</td>
<td>Focus is on creating and validating instructional systems to improve productivity and competence in the workplace.</td>
</tr>
<tr>
<td>Vocational training (1980s)</td>
<td>ITEA</td>
<td>Serves technology education teachers</td>
<td>Until the 1980s it was the American Industrial Arts Association. Focused on skills with manufacturing, printing, woodworking, and metals.</td>
<td>Focuses on technology-related careers and promoting technological literacy through hands-on experiences that use technology in the context of learning mathematics, science, humanities, and engineering concepts.</td>
</tr>
<tr>
<td>Computer systems (1960s)</td>
<td>ISTE</td>
<td>Serves technology-using teachers, administrators, and higher education personnel.</td>
<td>Until the 1980s, this was the International Council for Computers in Education (ICCE). Focused on computer systems to support and deliver instruction.</td>
<td>Merged with the IACE; formerly AEDS. Advanced uses of technology in K-12 education and teacher education and technology skill standards for teachers and students.</td>
</tr>
</tbody>
</table>

Currently, educational technology refers to electronic equipment used in education (Roblyer and Doering, 2010) where the term ‘e-learning’ is generally used to describe the current relationship between education and technology.

### 2.3 E-learning as a concept

According to Browaeys and Wahyudi (2006), ‘e-learning’ conceptually refers to the diversity of learning activities. It has its roots in computer-based learning using CD-ROMs as the main tool for that age (Cross and Hamilton, 2002), against those who consider ‘audiovisual learning’ as e-
learning. Because of improvements in the internet, the concept of ‘e-learning’ expanded to involve new learning activities such as virtual classrooms, conferencing boards, discussion rooms, and so on (Talbot, 2007).

Consequently, new concepts appeared in learning environments, such as distance learning and open learning. Although these terms are often considered the same (Becker, 2004), the literature shows some differences. While ‘distance learning’ can be defined as the “learning situation where instructors and learners are separated by distance, time, or both” (Raab et al., 2002 in Liaw, 2008, p. 864) or - as Moor (1991) describes - “a distance of understandings and perceptions”, ‘open learning’ as a concept does not have a unified definition and is often referred to as ‘open-access’.

Writing in 2004, Romiszowski stated that there were more than 20 different definitions of ‘e-learning’ in literature, which reflect various understandings of the term (Romiszowski, 2004). In their article, however, Sangra et al. (2012) developed an inclusive definition of ‘e-learning’ that was accepted by the majority of the scientific community, which according to them would help researchers and research develop e-learning aspects further. In order to produce the definition, they reviewed existing definitions from literature and carried out a survey with recognised experts in the field of education and ICT. They identified four different categories which e-learning definitions were derived from or oriented towards; “1) technology-driven; 2) delivery-system-oriented; 3) communication-oriented; and 4) educational-paradigm-oriented” (ibid, p. 148). As a result, they formed the inclusive definition that broadly represents the majority of understandings and directions:

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

The authors then evaluated the outcome through consulting 33 experts using a Likert scale from 1 to 4, and 31 of the 33 consulted positively rated the definition with only two additional aspects being suggested for consideration; these related to evolution of technologies and socioeconomic factors. Therefore, this late and relatively inclusive definition has been adopted in this research.
2.4 E-learning and Web 2.0

The World Wide Web (WWW) first emerged as “a work tool for scientists at CERN and then developed into a vast information repository that provided access to a large number of users” (Wang and Zahadat, 2009, p. 80). Initially, it was “read-only” since the information that it offered was one way only and provided little interaction for users.

Later, around 2003, a shift to a new use of web applications was noted, as many new software designs appeared to fit a second generation of internet viz. Web 2.0. While Web 1.0 tools are described as a means of receiving information through the internet, Web 2.0 tools empower the users to become “producers and distributors of rich media” through the internet (Gray et al., 2010, p. 33). It has however been recognised that the seeds of what has become known as the “read/write or shared content nature of Web 2.0 appeared in 1980 in Tim Berners-Lee’s prototype web software” (Franklin and Harmelen, 2007, p. 4).

The term ‘Web 2.0’ was originally introduced by O'Reilly (2005) (Conole and Alevizou, 2010; Safran et al., 2007; Strawbridge, 2010). ‘Web 2.0’, similarly to ‘e-learning’, can refer to a variety of activities, tools, and applications. According to Ullrich et al. (2008, p. 705), “the term Web 2.0 is used to describe applications that distinguish themselves from previous generations of software by a number of principles”. In this discussion, Selwyn’s definition of ‘Web 2.0’ is used as it covers most Web 2.0 criteria:

“Web 2.0’ is an umbrella term for a host of recent internet applications such as social networking, wikis, folksonomies, virtual societies, blogging, multiplayer online gaming and ‘mash-ups’”. (Selwyn, 2008, p. 4)

Selwyn clarifies that although “differing in form and function, all these applications share a common characteristic of supporting internet-based interaction between and within groups” (Selwyn, 2008, p. 4). The term ‘applications’ here was used to refer to Web 2.0 components. He also uses other terms, i.e. ‘social software’, ‘Web 2.0 tools’ and ‘Web 2.0 services’ to describe Web 2.0. In addition to Web 2.0 applications and Web 2.0 services, Franklin and Harmelen (2007) use Web 2.0 systems; they argue that all three terms can be used interchangeably to describe Web 2.0 software. Nevertheless, a new WWW environment driven by Web 3.0 “will integrate users’ generated data to create new meaning”, which is different from Web 2.0 that “is understood as being based on users’ participation, [whereas] Web 3.0 will be based on users’ cooperation” (Barassi and Treré, 2012, p. 1270).
2.4.1 Web 2.0 ‘tools’

The term ‘tools’ was used to describe Web 2.0 applications in many studies (Conole and Alevizou, 2010; Gray et al., 2010; Linckels et al., 2009; Roder and Brown, 2009; Strawbridge, 2010). As the use of Web 2.0 expanded, many tools have emerged and as a result, some scholars have attempted to categorise these tools using different perspectives (Conole and Alevizou, 2010; Crook, 2008; Strawbridge, 2010). For instance, Crook categorises them according to what he calls ‘human dispositions’; i.e. the playful (games and virtual worlds), the expressive (media publication and sharing), the reflective (blogs, wikis, and social networks) and the exploratory (recommenders, syndication, folksonomies) (Crook, 2008).

Web 2.0 has changed many social communication aspects, and has allowed more social activities to take place through the internet as users are able to share videos, images and documents (e.g. YouTube, Flicker, and Slideshare), communicate and collaborate, and self-publish (e.g. wikis, blogs, Facebook, and Twitter). They can also create their own virtual world (e.g. Second Life) (Conole and Alevizou, 2010). Therefore, new terms such as ‘social world’ and ‘social 2.0’ have been introduced (Madden and Fox, 2006), and even such activities which in some cases are considered ‘self-activity’ are becoming more socially acceptable, like teaching and learning activities. The following sections discuss how Web 2.0 has influenced the teaching and learning environment.

2.4.2 Web 2.0 in education

As the concept ‘Web 2.0’ evolved and spread (e.g. in the year and a half following the appearance of the term ”Web 2.0”) there were more than 9.5 million citations in Google (O'Reilly, 2005), many other terms also appeared such as ‘business 2.0’, ‘medicine 2.0’, ‘journalism 2.0’, and even ‘sex 2.0’” (Crook, 2008, p. 6).

‘Learning 2.0’ or ‘Education 2.0’ has been used as a subject in many studies (Downes, 2005; Karrer, 2006, Redecker et al., 2009), where the idea of ‘learning 2.0’ was first introduced by Downes in 2005 (Rayson, 2007). He initiated the term ‘e-learning 2.0’ to describe how e-learning evolves alongside the WWW. In the same context Safran et al. (2007) describe ‘e-learning 2.0’ as a term that summarised the influences of Web 2.0 on e-learning.

Rayson (2007) summarised what Downes (2005) and Karrer (2006) said about ‘e-learning 2.0. They both present e-learning 2.0 as social networks (blogs, wikis, podcasting, etc.) that allow anyone to be self-publishers (Rayson, 2007).
Rayson concurs with Downes that “the model of e-learning as being a type of content, produced by publishers, organized and structured into courses, and consumed by students, is turned on its head” (Downes, 2005, Rayson, 2007, p. 3). Nowadays, it is clear that students can create and share learning materials and resources. “Rather than being composed, organized and packaged in static learning objects, new evolving e-learning contents can be dynamically created, aggregated, classified, syndicated and shared by students” (Ferretti, 2008, p. 116).

Web 2.0 tools, currently, are widely used in teaching and learning as there are many websites that cover the most common learning and teaching tools, such as ‘100 Top Tools for Learning’, 'Box of Tricks' and ‘Back to school with Web 2.0’. These websites organise the tools in many ways; for instance, ‘100 top tools for learning’ (Figure 3) organises the tools under different attributes; tool name and a short description, users’ level of satisfaction, i.e. usefulness; platform type, i.e. online, mobile, server, desktop, whether it is free or commercial, and the number of votes it attracted. It also provides users’ comments on each tool.

As can be noted from the examples below (Figure 3), many Web 2.0 tools for learning and teaching were not originally designed for this purpose, but for other uses that have since been adopted into the e-learning field, because using these tools appropriately can offer good opportunities to enhance teaching and learning.

### 2.4.3 Web 2.0 in Higher Education

In order to understand to what extent Web 2.0 tools have been integrated into HE institutions, the following section discusses two recent reports about the utilisation of Web 2.0 tools in the HE sectors of developed countries. The first one by Conole and Alevizou (2010) discusses this subject in relation to HE in countries registered in the ‘Organisation for Economic Co-operation and Development’ (OECD). The second report by Franklin and Van Harmelen (2007) covers Web 2.0 utilisation in the United Kingdom’s (UK) HE sector.

Conole and Alevizou (2010) studied Web 2.0 tools utilities in the HE settings particularly in recently developed sites for learning and teaching. Their study’s aim was to identify and adopt evidence on performance and the obstacles encountered in using Web 2.0 tools in higher education in OECD countries. Their research was particularly inspired by reports that gave accounts of the Web 2.0 tools utility in HE.
They found that “although national variations regarding the deployment and pervasiveness of Web 2.0 exist, several common themes emerge”, these themes suggest that students and teachers are not ‘homogeneous’; “there is a gap between the expectations/promise of the use of technologies and the actual experiences and uses. The digital divide is still evident; within the student body, but also between tutors and learners” (Conole and Alevizou, 2010, pp. 41-2).

On the other hand, the use of Web 2.0 tools for ‘content design’ in teaching and learning in HE was examined by Franklin and van Harmelen in 2007. Their published report was based on a project that was conducted between March and May 2007. It mainly comprises existing research studies, a web-based workshop (webinar), and interviews with university personnel who have applied Web 2.0 tools for learning and teaching. The report showed the impact Web 2.0 tools have on the process of education in universities including learning, teaching and evaluation, communication with school communities, attachments with industry, sustaining contact with
graduates, and expanding participation. In addition, this study focused on the package
distribution of Web 2.0 tools, consisting of textual, video and sound data. This report
highlighted the challenges associated with the implementation of the fresh technology in
universities, as identified from the outcome of the experiments conducted on the utility of Web
2.0. This report also makes recommendation to the Joint Information Systems Committee
(JISC) on the guidelines and assistance to the UK’s HE community in their progressing
investigation, adoption and adaptation of the Web 2.0 systems. Moreover, the report gave an
account of the implementation of Web 2.0 tools in various universities in the UK including
Warwick, Leeds, Brighton and Edinburgh.

Franklin and van Harmelen (2007) concluded that Web 2.0 tools will change the whole HE
sector, including how universities consider the complete learning and teaching processes which
will allow “greater student independence and autonomy, greater collaboration, and increased
pedagogic efficiency” (Franklin and van Harmelen, 2007, p. 27).

More recently, the majority of studies in the field have confirmed the positive results of Web
2.0 integration in the HE sector (Tess, 2013). For example, some studies’ findings revealed that
Web 2.0 applications increased students’ engagement (Irwin et al., 2012; Sadaf et al., 2012),
while others revealed that they increased communications between peers (Brady et al., 2010)
and communication between students and teachers (Falahaha and Rosmala, 2012). A few
studies, however, reported that time spent on Web 2.0 sites such as ‘social networking sites’ can
impact students’ achievement in a negative way (Kirschner and Karpinski, 2010; Paul et al.,
2012).

Overall, studies showed that there is a gap between the opportunities that technologies, Web 2.0
in particular, offer for learning and teaching environments and the actual use of these
technologies. Most studies/reports cited above emphasise the role that teachers can play in order
to promote the use of Web 2.0 tools in HE. For instance, Franklin and van Harmelen (2007)
point out that universities (e.g. the University of Leeds) that promote Web 2.0 tools directly to
the staff before students have access to them has resulted in these tools becoming very popular
with staff and subsequently they have been used widely by students as part of a module or
programme of study. In other words, it can be said that in order to promote a wider use of Web
2.0 tools among HE students, teachers’ recommendations and interaction through these tools is
essential.

Therefore, due to the significant role teachers can play in promoting the adoption of new
technologies in HE learning environments, including the use of LMS functions and the
opportunities they can provide, this research focuses on academics teaching through these systems.

### 2.5 Learning Management Systems (LMS)

As mentioned above, the Learning Management System (LMS) is the main system used in HE institutions around the world (Lameras et al., 2012; Persico et al, 2014; Song, 2011). As also discussed earlier (1.2), many reasons have driven the widespread adoption of LMS either globally or in the context of Saudi Arabia. Therefore, this form of ELS is further discussed here, with a particular focus on academics’ adoption of these systems as the main interest of this study.

#### 2.5.1 What is LMS?

LMS is often used interchangeably with other terms such as Virtual Learning Environments (VLE), Course Management Systems (CMS), Managed Learning Environment, and Learning Platform. They all refer to the management of teaching and learning over the internet away from the physical classroom, by using the same common tools or software (Aydin and Tirkes, 2010; Bednar et al., 2013; McGill and Klobas, 2009). Some scholars differentiate between these terms. For instance, Black et al. (2007) distinguish between CMS and LMS, as the former focuses on course management rather than learning management. Others differentiate between LMS and VLE (Dobozy and Reynolds, 2010), (see Moore et al, 2011). This divergence, however, does not change the fact that they all share the same common tools and features.

A ‘Learning Management System’ (LMS) is

“A software environment that enables the management and delivery of learning content and resources to students. It provides an opportunity to maintain interaction between the instructor and students and to assess the students by providing immediate feedback on the online quizzes” (Martin, 2008, p. 138).

Currently, there are more than 100 LMS available (Mallon et al., 2009; Shauf, 2010), and common LMSs in HE are categorised under two groups: Open-source LMS (2.5.3), like Moodle, Sakai, Coursework and Segue, and Commercial systems, like WebCT, Blackboard, Learn.com and Desire2Learn; however, WebCT is currently owned by Blackboard Inc.

Dalsgaard (2006) presents an overview of common reasons behind the popular use of LMSs in many parts of the world: he declares that,
“E-learning is organised and managed within an integrated system. Different tools are integrated in a single system, which offers all necessary tools to run and manage an e-learning course. All learning activities and materials in a course are organised and managed by and within the system. LMS typically offer discussion forums, file sharing, management of assignments, lesson plans, syllabus, chat, etc”. (Dalsgaard 2006, p. 2)

Generally, LMS usability, flexibility, and accessibility for use [24 hours a day, seven days a week] are the most significant characteristics that have attracted users (Dobozy and Reynolds, 2010).

### 2.5.2 Features and content in LMS

All LMS contain common functions or features; and while some of these systems may have more or fewer tools than others, this however does not exclude them from being considered as LMS (Kennedy, 2009). The main features and tools of LMS comprise. 1) learning materials, 2) communication tools, 3) teachers’ functions/tools, and 4) students’ functions/tools (Dong and Li, 2005; Kennedy, 2009).

#### Learning materials

Learning materials are often composed of texts, videos and images in addition to links to external resources. Teachers provide these materials and students can access them and present them to, or discuss them with, each other as well as upload them.

#### Communication tools

Effective communication and collaboration tools between teachers and students are the key to the success of LMSs (Arh et al., 2006). Communication in LMS can be asynchronous (where participation does not occur at the same time, e.g. discussion board and email) and synchronous (where participating happens in the real time, e.g. instant messaging) (Kennedy, 2009; Zsolt and István, 2008) As examples of communication tools, video-conferencing, email or forums.

#### Teachers’ functions

Teachers’ tools and functions include course management tools that enable them to upload learning materials, construction learning units, calendar, assessments, course announcements, evaluations, and track students tasks among other uses (Zsolt and István, 2008). Teachers usually select some of these tools depending on what they consider more suitable for different
modules, or which follow their teaching objectives and methods better than others do. More details regarding the teaching portal in LMS are provided in 3.3.3.

**Students’ functions**

Students’ tools allow them to interact with their teachers, peers and learning materials, and enable them to undertake self-study. Some examples of these tools and functions include data management, collaborate interaction, test enhancement, discussion boards, online assessment, outcome assessment, content editor and dynamic content.

### 2.5.3 Openness and open-source LMS

The meaning of ‘openness’ in e-learning and developments in this area are discussed in this section, followed by an explanation of Open-Source LMS, which is one of the two types of LMS, with where commercial systems being the other type.

#### 2.5.3.1 Openness as a concept

What does ‘openness’ in ELSs refer to? According to Peters (2009), ‘Openness’ as a general notion of “political, social, and psychological metaphor” existed in the West before the spread of “modern democracy, scientific communication, and the rise of the knowledge economy” (Peters 2009, p. 81). Further, he posits that

“Openness has appeared as a global logic based on free and open source software constituting a generalised response to knowledge capitalism and the attempt of the new mega-information utilities such as Google, Microsoft, and Amazon.com to control knowledge assets through the process of large-scale digitization, of information...to enforce intellectual property law in the international context” (ibid, pp. 81-2).

Recently ‘Openness’ as a concept has been employed in e-learning studies and within more than one e-learning organisation, as discussed below. Nonetheless, the question that arises here is - what does an ‘open ELS’ refer to?

The uses of the term ‘open’ in e-learning usually refers to the system as having an ‘**open access**’ to courses and education resources online, e.g. OpenLearn by the Open University, and ‘OpenCourseWare’ by Massachusetts Institute of Technology (MIT) and the University of Phoenix. According to the MIT website, “OCW makes the course materials...available on the Web, free of charge, to any user anywhere in the world”. A broader meaning of openness in e-
learning has been presented by Conole (2009), who believes that “openness” can cover all the main stages of the academic lifecycle. She suggests four stages of ‘openness’: open design, open delivery, open evaluation and open research. In each stage she raises questions about what the “scenario of the future might be”.

As an example of an open learning system, Zhu (2009) proposed a design of an e-learning environment that is based entirely on web-service. He believes that in order to achieve such systems an open interface and architecture should be developed, and that this open architecture and interface design can enable seamless interaction and integration between learners, teachers, and administrators.

The open learning system as an interactive environment, however, needs to be designed taking account of the fact that teachers and learners “require the freedom to play and to actively construct the world of meaning” (Peters, 2009, p. 89). In open learning systems, educators and learners “create, shape and evolve knowledge together, deepening their skills and understanding as they go” (www.capetowndeclaration.org).

2.5.3.2 Massive Open Online Courses (MOOCs)

The openness principle has motivated a more recent online learning option, namely the Massive Open Online Courses (MOOCs). MOOCs take place online; they may, or may not, be affiliated with a university; and they are much larger than standard college classes (Kennedy, 2014). Further, involvement in MOOCs is voluntary, as “they generally have no prerequisites, fees, formal accreditation, or predefined required level of participation (McAuley et al., 2010 in Liyanagunawardena et al., 2013).

The Learning Technologies Centre and Extended Education at the University of Manitoba presented the first MOOC in 2008 (Liyanagunawardena et al., 2013). Recently, in 2013, MOOCs were developed through an international co-operative partnership of 62 world-class universities under the name Coursera (Coursera Inc., 2014) (Liyanagunawardena et al., 2013).

Liyanagunawardena et al. (2013) presented the first systematic review of literature examining MOOCs as a primary subject. The review covered publications between 2008 and 2012 and as a result categorised 45 peer-reviewed papers into eight themes according to their areas of interest. The paper also offered a quantitative analysis of the publications, in addition to identifying gaps in the presented studies and recommendations for further investigations.
Similarly, in a review of MOOCs, Kennedy (2014) revealed three key characteristics: “varied definitions of openness, barriers to persistence, and a distinct structure that takes the form as one of two pedagogical approaches” (Kennedy, 2014, p. 1).

On the other hand, teacher’s experience and identity as an essential aspect of MOOCs has been discussed by a group of MOOC teachers (Ross et al., 2014). In their study, Ross et al. (2014) explain variations of MOOCs and teachers’ position and experience in each type (i.e. xMOOC and cMOOC). They then reflect on their own experience with the Coursera-based MOOC entitled *E-Learning and Digital Cultures* (EDCMOOC), which started in January 2013. They conclude by

> “Acknowledging the complexity of teacher positions and experiences can contribute crucial perspectives to debates about what the MOOC is for and what it can accomplish, including new ways of thinking about retention and access. To include and work with these perspectives, we need a richer and more robust conceptualization of the teacher within the MOOC” (ibid, p. 67).

The adoption of MOOCs, however, is still limited demographically to European and North American users with few learners from Asia and Africa. Nonetheless, “recognition for MOOCs and their accreditation is another area of debate” (Liyanagunawardena et al., 2013, p. 219). Moreover, according to Liyanagunawardena et al. (2013), cultural issues within MOOCs courses, and more significantly, the ethical dimension of using data produced through MOOCs need further examination. Additionally, issues associated with “increased access, intellectual property, economic models, and personalized learning” within MOOCs are also areas that could benefit from further research (Saba, 2013 in Kennedy, 2014, p. 11).

### 2.5.3.3 Open-Source LMS

Open-Source LMS (OS-LMS) are the opposite type of commercial LMS or closed-Source LMSs, which means that these systems are code-free and available to download from the Internet. Most OS-LMS enable the user to view codes, download them, and modify them to his/her interest as well as redistribute copies for others (Moyle, 2003). These codes, however, are subject to the provisions of the licence issued by the author; there are a number of OS software licences such as the GNU General Public Licence (GPL) and the BSD licence.

Some examples of OS-LMS include Moodle, Sakai, ATutor and Dokeos. The questions that arise at this point are; What are the differences between commercial LMS such as Blackboard and WebCT and OS-LMS? and, Are the OS-LMS as good as their opposite commercial ones?
Scholars have compared the two types from different perspectives (Ganjalizadeh and Molina, 2006; Lewis and MacEntee, 2005) and some have compared the different OS-LMS (Aydin and Tirkes, 2010; Reyes et al., 2009). In summary, they concluded that, although some OS-LMS meet the quality of commercial LMS, the final calculation of the OS-LMS costs show that they are not free as “the total cost of ownership of open source software is hard to calculate” since they “require highly skilled, motivated, and creative technical personnel” (Ganjalizadeh and Molina, 2006, p. 3). ‘Moodle’ as an OS-LMS, however, has been mentioned as ‘the best at the moment’ (Aydin and Tirkes, 2010; Reyes et al., 2009).

In this research, however, the purpose is not to compare these LMS since they all share the most common tools and features; rather it is to highlight their features in order to encourage academics in the HE sector to use them to their full potential.

2.6 Issues and approaches towards enhancing LMS

Although LMS offer new opportunities for teaching and learning as a main ELS currently used in HE institutions all over the world (Lameras et al., 2012; Persico et al., 2014; Song, 2011), they also bring with them a number of associated challenges, and many studies have identified and investigated a number of these related issues.

The remainder of this section draws attention to the limitations in LMS that are creating major barriers and which are in turn affecting teachers’ efficiency and innovation. It discusses some attempts towards resolving these issues and enhancing the system.

2.6.1 Issues in LMS

In addition to the limitations in LMS (discussed below), some focus on the design of the systems is also essential, since the design side also has a role to play, and influences the use and adoption of the system and its tools.

Design in general “is a term that bridges theory and practice” (Beetham and Sharpe, 2007, p. 6), while in the teaching and learning process, design is not a new idea as teachers in traditional face-to-face education adopt it when they plan and prepare their everyday lessons (Britain, 2007). ‘Design’ as a term has been used in ELS in many contexts; for instance, the term ‘instructional design’ was used mainly in North America ‘to refer to pedagogic design’ with a focus on ‘learning objects’ (Britain, 2007; Conole, 2008). More recently, the term ‘Learning Design’ has evolved from ‘instructional design’, but moved beyond a focus on ‘learning
objects’ to a focus on ‘learning activities’ (Beetham and Sharpe, 2007; Conole, 2008); however, whether we use ‘Learning Design’, ‘instructional design’ or other terms such as ‘educational design’, or ‘curriculum/course design’, “all the terms tend to focus on the importance of ‘design’. This is regarded as a good term around which to reclaim the scholarship of teaching and rethink pedagogy for a digital age and in the new information economy” (Cross and Conole, 2009). Many questions, however, have arisen regarding the lack of LMS designs, as it is considered a tool to manage learning ‘rather than as a learning environment’ (Cao et al., 2009; Hotrum, 2005; Vrasidas, 2004).

In Hotrum’s (2005) paper *Breaking down the LMS walls*, he discussed the effects that a LMS has on the design and delivery of e-learning. He cites a number of weaknesses in LMS design, and argues that LMS are based upon the classroom paradigm instead of the effective usage of Web-based technology; this approach provides “replicating features of face-to-face instruction that function less effectively in the online environment”. According to this notion, the LMS “is designed as a learning management tool, rather than as a learning environment creation tool” (Hotrum, 2005, p. 3). It is clear that LMS contain more controlling features than learning characteristics, which affect the courses’ designs and organisation as well as the way that teachers interact with learners (Rubin et al., 2010). In addition, a parallel relationship has been identified between the way content is organised and the way learners organise knowledge in their minds (Browaeys and Wahyudi, 2006; Koohang et al., 2009; Lee, 2010).

Moreover, literature argues that LMS design is influenced more by its vendors than by the needs of its users, i.e. teachers and learners (Cook et al., 2007; Gibbs and Gosper, 2006; Hotrum, 2005). This, as mentioned previously, leaves limited space for learning needs which results in many limitations in LMS. Many scholars discuss these limitations, Rubin et al. (2010), for instance, draw attention to three examples. The first is the limitation in Blackboard’s ability to visually group weekly material on to one page, which would be beneficial for students as it would allow them to access all weekly material, whereas the existing system forces weekly work to be spread across several pages. In order to access this material multiple clicks are required, which may mean that some of the work is missed. The second limitation that Rubin and colleagues (2010) point out is Blackboard’s inability to provide regular, private, formative feedback in discussion forums in the LMS, which generates a disincentive to faculty. As an example, they state that version 6.3 of Blackboard requires 12 different steps to obtain feedback. Finally, they emphasise that in fully online courses communication is very important; therefore, its tasks should be simplified. Rubin et al (ibid) point out that, unfortunately, some LMS involve
manual and time consuming processes to keep track of the level of student participation and to inform them.

Other examples of LMS limitations were noted by Vovides et al. (2007); in fact, they believe that most LMS have limitations such as “browser compatibility issues and template-driven structures”. They affirm that LMS are often used as a ‘one size fits all’ that does not take into account the variations in learners’ knowledge and skills. This leads to the fact that many teachers use LMS mostly as a delivery mechanism for the topics’ materials (Vovides et al., 2007). In other words, LMS are mainly used as “a document repository or local supermarket with 24/7 access” (Dobozy and Reynolds, 2010, p. 98).

What is more, e-learning is influenced by LMS forms; these forms focus on the first part of the term ‘e’ rather than the second part ‘learning’ (Browaeys and Wahyudi, 2006). Many scholars have attempted to solve this problem from different perspectives, some introduced a new term ‘e+learning’ in an attempt to emphasise the learning part in e-learning (Doneva et al., 2007), whereas others have rethought pedagogy in designing ELS for the same purpose (Beetham and Sharpe, 2007; Mayes and De Freitas, 2007). What is more, questions such as “How do we ensure that pedagogy exploits the technology, and not vice versa?” (Laurillard, 2009, p. 6) and statements like “ensuring learning takes place through e-learning courses must be a priority in designing instruction for e-learning courses” (Koohang et al., 2009, p. 91) are an attempt towards redirecting ELS from being a learning management tool to a learning environment that reflects the holistic aspects of learning. That is to say, “using new technologies does not mean to reject traditional and successful teaching strategies” (Ardito et al., 2006, p. 272); on the contrary, these attempts try to take control of the technology to be guided by educational needs, not the other way around.

In support of this approach, Mayes and De Freitas (2007) argue that ELS-designs should be based on clear pedagogy principles. They emphasise the importance of learning theory when designing ELS, as this will clearly guide us in a particular direction. They conclude; “theory and practice must be aligned within a coherent and workable model of education” (Mayes and De Freitas, 2007, p. 23). A brief discussion of learning theories and their relation to ELS-design follows.
2.6.2 Attempts to enhance LMS-design

Here, the two most common approaches used in the enhancement of LMS-designs are briefly discussed; however, other approaches may be found.

2.6.2.1 Through adopting learning-theories in LMS-designs

Learning theories can be defined as *methods to describe how learning occurs* (Baruque and Melo, 2004). The importance of learning theories in designing ELS has been a subject for many studies; however, scholars focus on three learning theories - behaviourism, cognitivism and constructivism - as they are considered the main learning theory schools (Baruque and Melo, 2004; Nagowah and Nagowah, 2009; Sheng et al., 2010). Additionally, these theories are the most relevant and applicable to e-learning (Dyke et al., 2006).

These three major learning theories are characterised by certain features. Behaviourism, for instance, focuses on the learner’s behaviour in response to external stimuli.

“The theory of behaviourism concentrates on the study of overt behaviours that can be observed and measured. It views the mind as a 'black box' in the sense that responses to a stimulus can be observed quantitatively, totally ignoring the possibility of thought processes occurring in the mind” (Good and Brophy, 1990 in Lee, 2010, p. 494).

The last part of this statement, however, is considered the main weakness in the behaviourism theory. On the other hand, while behaviourism focuses on *outside* the mind, cognitivism focuses on *inside* it. From a cognitivism perspective, “learning is described as a change in knowledge stored in memory” (Baruque and Melo, 2004, p. 6). Cognitivists believe that the mind plays the key role as an information processor that transforms “the information received into knowledge and skills within human memory” (Lee, 2010, p. 494).

Finally, yet importantly, constructivism according to Lee (2010, p. 494) “builds upon behaviourism and cognitivism in the sense that it accepts multiple perspectives and maintains that learning is a personal interpretation of the world”. Koohang et al. (2009, p. 92) defined constructivism learning theory “as active construction of new knowledge based on a learner’s prior experience”. As a result, “learning is the process where individuals construct new ideas or concepts based on prior knowledge and/or experience” (McGovern, 2010). From the constructivist theory viewpoint, “learners construct or at least interpret their own reality based upon their perception of experiences” (Lee, 2010, p. 494).
Many scholars (Baruque and Melo, 2004; Conole et al., 2004; Lee, 2010) have studied these theories in order to link modern ELS-designs with a common solid base. This is to say that we definitely have to relate our developments and designs to some theoretical basis as “if we do not do this, then the way that we teach is likely to be done by experiment and by responding to things without knowing why things work” (Reece and Walker, 2006, p. 53).

Baruque and Melo (2004) presented another approach to designing e-learning courses; they suggest a methodology that is not based on a particular learning theory, but instead adopts an eclectic approach. Their suggested methodology incorporates several principles from different learning theories.

Conole et al. (2004) adopted the three learning theories defined above in designing ELS and justified their use and “how they might be realised in the context of e-learning” (Conole et al., 2004, pp. 18-9). In addition, they propose a model for learning that they believe “articulates the key components of existing learning theories, displays their inter-relationships and offers a means of mapping them against each other”. They noticed, however, that there is a “lack of application of models and theories by e-learning practitioners” who “find the diverse array of theoretical perspectives alien and overwhelming” (McNaught, 2003 in Conole et al., 2004, p. 18). Similarly, Mishra (2002) developed a design framework for the online learning environment based on the three learning theories defined above (Figure 4) as she integrated all three theories and their key instructional approaches into one eclectic system.

Moreover, Cress and Kimmerle (2008, in Laurillard, 2009) proposed a model of the role of Wikis. The proposed model is based on a combination of two theories: Piaget’s (1977) cognitive theory, and Luhmann’s (1995) social systems theory. This model “offers a rich theoretical analysis of how developing a Wiki could help people enhance their individual knowledge through an iterative process of both social and individual cognitive systems” (Laurillard, 2009, p. 6).

It is vital to note that not all learning theories are appropriate for designing ELS. Some of them are more applicable than others, and “the literature has consistently documented that constructivism learning theory is an appropriate match for e-learning design” (Koohang et al., 2009, p. 92). Nevertheless, learning theories are part of the design of some ELS; however, for an ELS to be successful, other important features must be studied and integrated in the system’s design.
2.6.2.2 Through integrating new functions, tools and services in existing LMS

In their attempts to solve the limitations of ELS, many scholars have tried to improve LMS-design by integrating new functions, tools and services to enhance its functions (Burdescu and Mihaescu, 2007; González et al., 2009; Graf et al., 2008; Khan et al., 2010; Phankokkruad and Woraratpanya, 2009). However, these attempts are limited to one or two functions and still depend, for their major role, on researchers and developers rather than users; that is, teachers and students. For instance, the Learning Activity Management System (LAMS) is an environment “for designing, managing and delivering online collaborative learning activities” which can be integrated with LMS (lamsinternational.com). It provides teachers with more activities than LMS do; it is also more flexible, easy to use and allows teachers to share their ideas and designs; however, it tends to focus more on learning activities and has a limited range of activities.

2.7 LMS as Web-Based Information Systems

Although LMS is a teaching and learning environment that has been subject to evaluation from multiple educational perspectives and theories as discussed above (2.6), it is also a Web-Based Information Systems (WBIS) that can be evaluated according to Information Systems (IS) success measures (Lee and Lee, 2008; Song, 2011). In their search for IS success measures, DeLone and McLean (1992) point out that there are almost as many IS measures as there are studies. They produced the DeLone and McLean IS (D&M IS) Success Model in (ibid) then in
ten years and - based on consideration of many researchers’ contributions - they updated it (DeLone and McLean, 2003). Both articles are heavily cited in IS studies due to the massive use of the D&M IS success model as a theoretical basis (Lowry et al., 2007; Urbach and Müller, 2012; Urbach et al., 2009). The original model includes six dimensions of IS success: system quality, information quality, use, user satisfaction, individual impact, and organisational impact (Figure 5), and the updated model also includes six dimensions: information quality, system quality, service quality, (intention to) use, user satisfaction, and net benefits (Figure 6). There are three main differences between the two models: the updated one includes addition of two dimensions - service quality and intention to use (instead of use) - and the individual impact and organisational impact dimensions replaced by one dimension; that is, net benefits.

Figure 5 Original D&M IS Success Model
Source: DeLone and McLean (1992, p. 87)

Figure 6 Updated D&M IS Success Model
Source: DeLone and McLean (2003, p.24)
The interrelations between the six dimensions in the updated model (Figure 6) can be interpreted thus: there are three dimensions to evaluate a system - information quality, system quality and service quality. These three dimensions affect consequent use or intention to use and user satisfaction. Using the system and user satisfaction will result in certain benefits. The net benefits will influence both further use of the system and user satisfaction (Urbach and Müller, 2012).

As a WBIS, LMS effectiveness can be measured based on the D&M IS success model. Learning content, which is the product that is created by LMS, can be measured according to ‘information quality’ dimension. Many researchers contend that content quality is a significant factor for IS to succeed, particularly in the WBIS context (Palmer, 2002; Tate et al, 2007; Urbach et al, 2010). In IS, ‘system quality’ refers to its familiarity and ease of use based on the user’s judgment (Doll and Torkzadeh, 1988; Rai et al., 2002). The LMS quality can be measured according to teachers’ and students’ belief in its familiarity and ease of use when employing it. It is also important to measure students and teachers interactions with the tool as a service process that the IS unit offers to its users. This can be measured according to the ‘service quality’ dimension, while bearing in mind that teachers in the LMS environment also receive questions from students that relate to technical problems. The quality of LMS as a system, the quality of its content and the quality of the support services it offers to its users all affect teachers’ and students’ levels of satisfaction and use of it. These two dimensions - teachers’ and students’ level of satisfaction and use - are also critical in measuring LMS success.

Although the main aim of this study is not to evaluate LMS from either educational or IS perspectives but rather to investigate the academics’ adoption and usage of it, the previous discussion highlights some of the reasons that affect academics’ adoption and usage of LMS as discussed in several sections of this study (e.g., (2.6.1; 3.3.1; 3.4.3; 7.3; 7.5).

**2.8 Discussion and Conclusion**

This chapter has paved the way to the practical part of this research. The review of the various related elements of the subject drawn from different studies provided us with a deeper understanding of the problem and the associated variables, in addition to the attempts and methods used or suggested towards solving the problems.

Earlier in the chapter, during the discussion on the evolution of the relationship between education and technology up to the stage of e-learning, we concluded that LMS represent the major ELS, which is used globally. In addition, the definition, background, content and issues of
LMSs were highlighted along with the attempts that are currently been made in the field to enhance LMS designs. This has shown how technology has transferred from being a tool in the learning process to a complete learning environment, i.e. a LMS, which created an alternative to traditional face-to-face learning; this indicates that developing LMS should be based on the above perspective in order for them to be successful. LMS is also discussed as a WBIS just prior to this conclusion.

Within the context of this research, this conclusion should be applied not only to the analysis and development of the current status of e-learning in SA, but also to spread awareness among educators/teachers in Saudi Arabia’s HE sector about the real function of LMS. Moreover, there should be a focus on how teaching will be changing in spite of this relatively new learning method, i.e. web-based, which may have strong impacts on the ways that teachers/educators teach, and the tools they currently use or will have to use in the future.

Even though research on the topic of e-learning has covered a broad spectrum of the subject, still, the need to understand the status of e-learning in SA is essential before drawing conclusions and making recommendations. For this reason, it was necessary to gather the required data through investigating teachers’ knowledge of the different elements covered in this review; these elements formed part of the variables examined, which are discussed in further detail in the following two chapters.

Nevertheless, the variables obtained through this chapter, which were used for the practical part of this research that investigates the subject in SA are, briefly, the general knowledge of HE teachers of ELS and the specific LMS they use, or which is made available through their institution. This includes questions such as what are they, what are they used for, what do they consist of, and for who were they designed? Another variable is related to Web 2.0 tools; this should help to build an understanding of teachers’ levels of knowledge about these tools in terms of availability and usefulness. Additionally, an important variable retrieved through the review is about issues and obstacles in LMS as a general environment; however, the next chapter identifies more teaching-related variables.

The LMS limitations discussed earlier in this chapter raise questions regarding the future of LMS, to the extent that some researchers such as Kennedy (2009) discuss whether LMS should be considered outdated to some extent. Furthermore, Stiles (2007 in Kennedy, 2009, p. 62) asks whether the LMS is “becoming a barrier to innovation rather than acting as an agent of change”. In the same context, Wilson et al. (2006 in Kennedy, 2009, p. 63) commentate on LMS stating that “they are widespread, but may not represent the best solution to the perceived challenge”.

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They suggest that Web 2.0 tools can replace LMS as a new technology; however, this has only proven to be partially true as we can find that Web 2.0 tools have actually became a major element of current LMS. Nonetheless, Kennedy (2009) agrees with this but suggests that Web 2.0 technologies can be a substitute for any LMS not just part of it.

In this chapter, the researcher has discussed Web 2.0 tools together with their utilisation in HE institutes, and established that Web 2.0 tools have been integrated into LMS in order to enhance their performance and to overcome the limitations in the systems; however, only few of these limitations were overcome. Although it has been suggested that Web 2.0 tools may overtake LMS, studies reviewed and presented within this chapter support that this notion is not applicable in current environments, and that Web 2.0 tools cannot stand as a complete replacement for LMS. This also can be justified through understanding what an LMS represents in HE institutions not only as a learning tool but rather a complete system, that manages all aspects of the teaching and learning process (e.g. fully online e-learning), and this cannot be accomplished through Web 2.0 tools alone.

This is to say that, despite the fact that there are quite a number of limitations in LMS, until a better alternative that is able to manage e-learning in HE institutions appears, the use and spread of LMS will continue. These systems, so far, are the most appropriate e-learning management methods in modern HE institutions, and the need for them will increase as long as the demand for HE continues, particularly within today’s contemporary lifestyles, in addition to the increase in the number of institutes and the programmes they offer.

Since the main focus of this research is on teaching in HE in the region of Saudi Arabia, it is essential to study the subject with more emphasis on the relationships between LMS and teachers in Saudi universities. Therefore, chapter three covers this area in more detail through an analytic review of the literature that describes teachers’ relationship with LMS with special focus on the Saudi region.
CHAPTER 3
Teaching with LMS:
with a Special Focus on the Saudi Context
3.1 Introduction

After discussing the development of E-Learning Systems (ELS) and the range of features associated with in them, it is essential to elaborate further on the main area this research is concerned with, LMS in HE with a focus on Saudi Arabia (SA) as the context of this study.

As elucidated in the previous chapter, academics have a significant role to play in the uptake of LMS in the overall education process. However, this relationship between academics and technology, LMS in particular, requires further clarification and understanding, which is addressed at the beginning of this chapter. Following this, an explanation of SA’s HE system is presented along with a demonstration of the LMS in use and their settings and relationship with academics. Finally, the three universities under study and their selection process are described in detail.

In brief, this part of the research studies the core area of the problem investigated within the context it is being examined. The findings should then help form the practical part following this stage.

3.2 Teaching and e-teaching

Online teaching is a form of teaching that could be explained initially through an understanding of the conceptual and theoretical meanings of ‘teaching’. There are numerous definitions of ‘teaching’ in the related literature. For instance, Trigwell et al. (2002) defined it as an activity that helps students change their conceptions. Harvey and Knight (1996) described it as planned activities to promote learning in others, and stated that good teaching “brings learners to transformation” (ibid, p. 147). These broad definitions summarise different tasks that teachers undertake such as searching for and preparing learning materials, managing classrooms, giving feedback, and motivating students (Hoon, 2008). Teachers hold different conceptions and theories of the meaning of ‘teaching’, therefore they adopt different teaching strategies (Akerlind, 2004; Fox, 1983; Hoon, 2008). Fox (1983) conducted a study to understand the teachers’ conception of the meaning of ‘teaching’ by asking the following question: ‘What do you mean by teaching?’ Based on teachers’ responses to the question, four theories of teaching emerged: these are transfer theory; shaping theory; travelling theory; and growing theory. From the point of view of transfer theory, the student is viewed as a container – a vessel - to be filled, whereas teachers that apply shaping theory view the student as ‘clay or wood or metal to be shaped’ – that is, something malleable. He refers to these two theories as simple theories. In contrast, he refers to travelling and growing theories as developed theories, as the former views
teaching as a process to help the student on an unfamiliar trip, whereas teachers who hold with growing theory view teaching as “being a matter of encouraging and helping students in their personal growth and development” (ibid, p. 152). Nonetheless, he mentioned that developed theories of teaching are not always better than the simple theories, because considering the teaching context and students’ needs is essential in deciding which teaching theory is better to follow.

Similarly, Akerlind (2004) undertook a study that investigated academics’ understanding of being a university teacher. The study findings revealed a range of understandings that fall under four categories: 1) ‘teacher transmission-focused experience’ where the main aim for the teacher is to cover material; 2) ‘teacher–student relations-focused experience’ where the teacher aims to develop excellent relations with students in order to be satisfied of their response to his/her teaching; 3) ‘Student engagement-focused experience’, where the focus is mostly on the student in terms of engaging them with the subject in order to increase students’ self-motivation for learning, and 4) ‘student learning-focused experience’, whereby the teacher aims to “encourage students to think critically and originally, to question existing knowledge, explore new ideas, see new dimensions and become independent learners” (ibid, pp. 367-9). He concluded that several authors suggest that developing university teachers’ understanding of the nature and the different concepts of teaching rather than “the traditional approach of focusing on teaching methods and techniques” is the best method to undertake in teachers development programmes (ibid, pp. 373-4), which has been similarly supported by Gregory and Salmon (2013), (See section 3.3.2).

Given this, it has been found that the above conceptual theories of teaching have emerged in current e-teaching (Murphy, 2007). Teachers bring to the virtual environment most of the traditions established in the physical classroom including experiences, norms, procedures, activities, beliefs, perceptions, and ways of knowing and behaving (ibid). This is most likely to be the case with teachers who have long experience that is gained mostly from the physical classroom environment, unlike new teachers. ‘E-teaching’ is a concept that has emerged from the development of e-learning. Stahl (2004, p. 156) defines e-teaching as a term that “stands for all uses of information technology in the process of education”, which emphasises the general activity, not the users’ roles. Other authors (e.g. Daukilas et al., 2008; Osguthorpe and Graham, 2003 in Butrimienė, 2008; Shields and Behrmann, 2000, and Wentling et al., 2000) believe that e-teaching and e-learning are similar, as both are based on using information and communication technologies. In contrast, Nakajima (2006) differentiates between e-teaching and e-learning, and believes that the “architecture of e-teaching needs to be centred on
teachers”. He argues that in order to promote an e-learning environment in HE, many teaching-related factors need to be achieved; these factors, however, are not directly relevant to e-learning which is focused on learners. Therefore, he defined ‘e-teaching’ as “a system designed to improve teachers' teaching performance, and their self-motivation and self-directedness. Its service designs are aimed at supporting teachers to teach effectively and happily in an e-Learning environment” (Nakajima, 2006, p. 1). In the same context, Bjekic et al. (2010, p. 203) state that “e-teaching is not just a prerequisite to e-learning, but it can be a great innovation in education”. What Nakajima’s argument suggests widely applies in more recent HE contexts in the form of academic development programmes (Gregory and Salmon, 2013; Salmon and Wright, 2014) (see section 3.3.2).

3.3 Teaching and Technology in Higher Education (HE)

The key to understanding the relationship between teachers and technology lies in understanding the virtual environment they work within and through. The previous chapter highlighted some of the limitations of LMS in general, whereas in this chapter there is greater focus on the teaching within LMS; after all, it is the main area of interest in this study.

In this section, three significant aspects of teaching and technology are discussed under three parts; the first reviews the relationship between academics and technology in HE; the second explains academics’ development for online and technology-enabled learning; and the last part relates to the teaching portal in LMS.

A number of questions are discussed in the first part; for instance, do academics really need technology? How do they use technology in their daily teaching? Is it vital or complementary to their work? Is it used as a tool or a new way of teaching? Additionally, are all academics in HE similar regarding the adoption of technology and LMS in their work? Are there any differences between older and younger, new academics in their engagement with technology? The second part explains and defines the development of HE academics in relation to new technologies adopted in their universities and the approaches taken towards this practice. The third and last part studies the teaching portal in LMS, which was chosen based on its strong relation to this research’s interest and its importance in any LMS as it is the frontline tool of HE teachers today, whether using it to support face-to-face learning, or for complete online teaching.
3.3.1 Academics and Technology in HE

The efficacy of a teacher is arguably the key reason for a student’s success in life (Darling-Hammond, 1997). Studies support the notion that adopting technology in education by teachers depends upon the perceived usefulness of the tool in question and is more likely to be used by teachers with learner-centred approaches rather than teacher-centred approaches (Linckels et al., 2009).

Conversely, an earlier study by the British Educational Communications and Technology Agency (BECTA) (in Smith et al., 2008) revealed that presentation remained the only avenue in which the technology has been used by the teachers, which today, a few years after the study was conducted, is not the full case. This shows how fast technology is integrating into education. To date, however, technology is still used conservatively. This can be seen in the limited utilisation by teachers who are mainly using it for data collection or data storing and managing tasks (Wozney et al., 2006); thus, it is necessary to recognise the concept behind the utilisation of a technology in an educational environment (Chen, 2010).

It is difficult to know what e-learning is directed towards and how it can be enforced adequately by management and teachers in HE as there are many question marks over the utilisation of technology in the education sector (Linckels et al., 2009). One of the key problems with using technology relates to the lack of knowledge in its utilisation in HE teaching (Conole and Culver, 2010). Teachers need to be trained properly so that they can use it in an effective manner, and they must also be practically prepared for it. Through recognising the potential that technology has in the educational environment, teachers can become further involved in online teaching (Dawley, 2007; Solvberg et al., 2009). However, teachers confronted with new technology in the online environment have reservations on two accounts: first, the means that can be utilised for integrating the technology, and second the characteristics a teacher should portray for developing students’ interest for online as well as offline learning (Lund and Smørdal, 2006).

In spite of the many reasons suggested over the years, which should encourage the use of technology in education, researchers have found that teachers are disconnected when it comes to using technology efficiently and effectively (Cuban, 2001; Harrison et al., 2002; Henning et al., 2006 in Chen, 2010) and only a limited number of teachers are using it (Sang et al., 2010). Similarly, studies have also revealed that all the efforts of trainee teachers who use technology in education have not yet borne fruit (Angeli and Valanides, 2005, 2008; Niess, 2005 in Kramarski and Michalsky, 2010). In the earlier years of technology adoption in universities, the
lack of guidance to help teachers implement technology was perceived as partially responsible for the lack of use of technology in education (Kramarski and Michalsky, 2010).

Even with the availability of relevant examples online, teachers find they are unable to apply them within their own context due to the absence of sufficient knowledge and awareness about the technology (Conole and Culver, 2010). Teachers find it hard to select the means through which they can effectively integrate technology in the education process (Linckels et al., 2009), and Web 2.0 tools have to be mastered before their application in the educational environment (ibid). For this reason, teachers require practical demonstrations of the way in which they can apply the modern technology in a manner that can help them in an efficient transmission of knowledge. Teachers are looking for illustrative and easy-to-understand examples so that they know what the new technology can do to enhance their teaching capabilities. Preparing and training academics in information technology is vital to provide the technology literacy required; therefore, training sessions must be conducted at the earliest possible opportunity (Wenbin et al., 2010).

Recently, in an attempt to solve this problem, Conole and Culver (2010) developed a site called ‘Cloudworks’: this site provides a social networking environment for teachers to share learning and teaching ideas and designs. However, they cite social, cultural and technical factors as barriers to achieving success with these innovations. Therefore, they plan to undertake more studies that may direct them in how to overcome these barriers.

Teachers’ interests and attitude are attached to their personal needs and job satisfaction, which could have an impact on the research and training process in every college and university (Xu and Zhao, 2009). This makes it reasonable to focus on this group as an approach for analysing and developing LMS.

The findings of Franklin and Harmelen (2007) about the use of Web 2.0 technologies in HE support the above suggested approach, as they found that in those universities which provide technology for academics first, the students consider these technology functions as a part of their learning process and are thus less likely to abuse them. Additionally, to solve the difficulty in online teaching in terms of restricting students from venturing out of the scope of the learning context, a learning course plan has to be formed. Nevertheless, teachers need to play a fundamental role in inspecting or checking students’ interaction with the system (Lund and Smørdal, 2006).
Another vital element in any educational activity is planning; it has a major role to play, whether it is in the usual approach or the new online way. Although teachers are well versed in planning, some may not have much experience of it with respect to the internet or online learning. Teachers however, have started indulging in the practices that encourage planning in the education field (Lund and Smørdal, 2006), and this should be encouraged alongside planning for e-learning. Wikis are an example of an area that needs management when used for education purposes; it needs to be organised and monitored, and teachers are the ones who are expected to accept or decline the related content (Lund and Smørdal, 2006).

On the other hand, despite the high demand for online teachers, only a few universities worldwide are offering graduate degrees in the field of online teaching. Unfortunately, although there are numerous online teachers, many are unable to teach properly as they have very limited experience or prior practical understanding of online teaching methods. To date, there are very limited standards against which to measure the knowledge and experience of such teachers (Dawley, 2007).

Some of the prime factors that impede teachers from adopting new technologies and LMS in particular are summarised in the following statements; the absence of, or limitation in, the required skills for online teaching, their attitudes and existing ideas of the systems, the lack of confidence in their capabilities, and their efficacy (Ertmer and Ottenbreit-Leftwich, 2010; Kalota and Hung, 2013; Schoonenboom, 2014). Furthermore, a teacher’s individual endeavour is sometimes repressed by their work environment (Roehrig et al., 2007; Somekh, 2008 in Ertmer and Ottenbreit-Leftwich, 2010). What is more, teachers do not seem to make any effective progress regarding their teaching capabilities even after completion of training courses (Wenbin et al., 2010). To achieve the desired results, it is essential to analyse the steps and realise the significance of learning skills so that teachers can apply them practically, and also to build the confidence of teachers in education technology (ibid).

In conclusion, the above review reflects the need to expand our ideas about teaching and the adoption of Web 2.0 tools and resources, which is necessary for teaching development. Ertmer and Ottenbreit-Leftwich (2010) point out that teachers believe that even without technology, their teaching is good enough; this belief, according to Ottenbreit-Leftwich, could have been true about 20 years ago, but in today’s technology-driven world, it cannot prevail. Nevertheless, many studies show a great interest in developing academics’ awareness and skills in terms of online and technology-enabled learning; these studies also reflect on academics’ interest in such interventions and show good outcomes. The next section explains this argument further.
supported by evidence from the literature. However, it must be noted that this does not reflect all universities’ approaches towards teaching and technology as demonstrated in different locations in this research.

3.3.2 Academics’ development for online and technology-enabled learning

Different terms refer to the profession of academic development, e.g. staff development, instructional development, faculty training, educational development, and pedagogical training, among others. Staff development refers to the work undertaken to advance the “capabilities and practice of educators” (Stefani, 2003 in De Rijdt et al., 2013, p. 49); however, De Rijdt et al. (2013) define staff development in HE as:

“The coherent sum of activities targeted to strengthen and extend the knowledge, skills and conceptions of the teachers in a way that will lead to changes in their way of thinking and their educational behaviour (Fenstermacher & Berliner, 1985), and to the maximisation of the learning process of students (Sparks & Loucks-Horsley, 1990)...Staff development is the sum of formal (e.g., workshops) and informal (e.g. exchange of ideas among teachers) learning experiences of the teacher (Fullan, 1990)” (De Rijdt et al., 2013, p. 49)

In this research, the term ‘academic development’ is used since it represents the precise profession under examination, i.e. academics. The outcome of academics’ development is often measured based on the model introduced by Kirkpatrick in 1998, which “distinguishes four levels of outcome: reaction, learning, behaviour and results” (Kirkpatrick, 1998 in De Rijdt et al., 2013, p.50). De Rijdt et al. (2013), however, have criticised the lack of details needed in such a model.

Online and technology-enabled learning in any HE format “is no longer considered a sideline focus of Higher Education” (Salmon and Wright, 2014, p. 53). According to Gregory and Salmon (2013) (members of the Learning Transformation Unit in Swinburne University of Technology in Melbourne, Australia),

“Any significant initiative aimed at changing teaching methods, or the introduction of technology into teaching and learning, should include effective support and training as well as the opportunity for academics to own the changes through the experience of alternate approaches” (ibid, p. 256).
Gregory and Salmon (2013) were tasked with developing all academics’ online teaching skills as part of the university’s 2020 strategy. They state that “online teaching is a move into the unfamiliar, entailing risk-taking and challenges to their [academics] beliefs” (ibid, p. 256). Therefore, in their article, they document their experience in developing a short, online, asynchronous professional development course based on a well-rehearsed and respected pedagogical model as a case study for others to adapt. A communication strategy, namely ‘e-moderation’, was used to form the e-moderating course by All Things in Moderation Ltd (ATIMOD), originally developed for the UK Open University Business school tutors (Salmon, 2011 in Gregory and Salmon, 2013). The course aims to promote the development of online teaching skills and has been active worldwide since 2001 (Gregory and Salmon, 2013). Figure 7 illustrates the framework that guided the adaption of the e-moderating course at Swinburne, which is explained with further details in the article. The authors concluded that adopting and adapting an existing well-established course achieved the university’s objective in obtaining professional development for online teaching skills in a rapid and cost-effective process resulting with practical outcomes. As a result, and based on the authors’ experience, four key principles for guiding professional development were presented.

![Figure 7 Intervention and feedback framework](source: Gregory and Salmon (2013, p. 258).)
The ATIMOD e-moderating course for academics’ development is known today as the Carpe Diem process, which is “a collaborative, team-based, online learning design process, created through research and prototyping” (Salmon and Wright, 2014, p. 54). The Carpe Diem workshop can help academics deliver output to their students’ desktops and mobile devices after two weeks with one or two months perceived as feasible; however, learning design remains a challenging task (ibid).

On the other hand, De Rijdt et al. (2013) reviewed the effects of academics’ development on the transfer of learning and accumulated the variables that influence these effects. They also discussed the moderators in the relationship between influencing variables and the transfer of learning. As a result, they suggest a conceptual framework consisting of the variables that can influence the transfer of learning in academics’ development (Figure 8).

![Transformed conceptual framework for variables potentially influencing transfer of learning in staff development interventions. Source: De Rijdt et al. (2013, p. 70).](image-url)
Nevertheless, academics’ attitude, willingness and readiness to adapt to, and adopt, new ways in
teaching are considered the core of development initiatives (Salmon and Wright, 2014).
Therefore, any academics’ development system should acknowledge these factors in its design
and process.

3.3.3 The Teaching Portal in LMS

The use of LMS in HE is to either completely replace traditional face-to-face teaching and
learning in a physical classroom with ‘fully online e-learning’, or to partially replace traditional
teaching and learning by ‘blended learning’ (BL) (Rovai and Jordan, 2004). The term ‘blended
learning’ is still being defined (McCue, 2014), and as Graham (2013, p. 333) states, “much of
the current research in BL has focused on attempting to describe and chart its boundaries”. He
categorises BL models in HE under five types: supplemental; replacement; emporium; buffet;
and fully online (ibid). On the other hand, it is worth mentioning that the term ‘hybrid learning’
has been used interchangeably with ‘blended learning’ (Zhao and Breslow, 2013).

Both types of learning - blended learning and fully online e-learning - are important, since
blended learning combines the strengths of face-to-face and online learning together (Garrison
and Vaughan, 2008, p x), and fully online e-learning is also very useful since it enables learners
from all over the world to enrol on any course anywhere; this includes those who cannot attend
because of affordability or disability.

Figure 9 below displays an example of the teaching portal interface from the LMS ‘Blackboard
9.1’ showing its main components including the functions that enable teachers to “build and
maintain courses” (Naveh et al., 2010, p. 127). These components are explained briefly in Table
3 below.
Figure 9 The teaching portal interface in Blackboard 9.1
Source: http://ondemand.blackboard.com/r9/index.htm

Table 3 Major components of the teaching portal in a LMS
Source: adapted from http://ondemand.blackboard.com/r9/index.htm

<table>
<thead>
<tr>
<th>Component as displayed in figure 4</th>
<th>Component name</th>
<th>Component function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course Menu</td>
<td>The Course Menu contains buttons or links to content areas, tools, and links. Teachers arrange it depending on the subject and students’ progress.</td>
</tr>
<tr>
<td>2</td>
<td>Instant history</td>
<td>In this example it is named ‘Breadcrumbs’; it provide links back to each previous page the user navigated through to get to the current page.</td>
</tr>
<tr>
<td>3</td>
<td>Banner</td>
<td>The Banner often used to display an identifying image for the course or institution.</td>
</tr>
<tr>
<td>4</td>
<td>Edit Mode</td>
<td>The Edit Mode button allows teachers to change the view of content on screen from the teachers’ view (Edit Mode: On), in order for students to view the changes (Edit Mode: Off).</td>
</tr>
<tr>
<td>5</td>
<td>Content Frame</td>
<td>The Content Frame is the main area of the browser window where content items and tools are displayed.</td>
</tr>
<tr>
<td>6</td>
<td>Control Panel</td>
<td>The Control Panel is the interface for managing the content, features, and appearance of a course. The Control Panel cannot be seen by students.</td>
</tr>
<tr>
<td>7</td>
<td>Drag and Drop</td>
<td>The Drag and Drop Arrows enable teachers to use the mouse to reposition items directly on a page by clicking on the item, dragging it to the desired location, and releasing the mouse button.</td>
</tr>
</tbody>
</table>

Academics need to have an understanding of the different components of the LMS, and how these work collaboratively to make the course effective and efficient (Lewis and MacEntee, 2005). Guasch and colleagues (2010) suggest that since virtual teaching and learning
requirements are not limited to a set of knowledge and experience, “the challenges teachers face are closely linked to the particularities of interacting and communicating online” (ibid, p. 200).

The teaching portal consists of a variety of functions and features that enable teachers to manage the whole process of teaching and learning. These functions and features can be made available or unavailable based on teachers’ consideration of the students’ needs and the module they teach. LMS are different in the number and types of the functions they offer; however, all of them contain the same common functions. Table 4 below illustrates some of the main functions in the teaching portal of Blackboard 9.1, which are quite common with other LMS.

Table 4 The main functions in LMS teaching portal: Blackboard 9.1 as an example

<table>
<thead>
<tr>
<th>Function name</th>
<th>Function description</th>
<th>Examples of uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Information</td>
<td>Teachers’ information and contact details</td>
<td>Teacher’s name, scientific ranking, email, phone, etc.</td>
</tr>
<tr>
<td>Course Information</td>
<td>General information of the Module</td>
<td>Module’s title, structure, and plan</td>
</tr>
<tr>
<td>Course Contents</td>
<td>Teachers can use a variety of documentation’ formats</td>
<td>Text, video and audio, etc.</td>
</tr>
<tr>
<td>Teaching functions</td>
<td>These tools allow teachers to use different methods in planning and presenting their lessons. Some LMS allow teachers to add items to their lessons from some popular storage sites</td>
<td>Lesson plan, Calendar, Blank page, virtual classrooms, slide share, YouTube, flickr.</td>
</tr>
<tr>
<td>Communication tools</td>
<td>Enable teachers to communicate with their students</td>
<td>Announcement, messages, email</td>
</tr>
<tr>
<td>Activities tools</td>
<td>Teachers can use activities tools to set up learning activities which allow students to create, transform and manipulate content, either as individuals or as a group</td>
<td>Discussion forums, wikis, blogs, glossaries, chat-rooms, and quizzes etc.</td>
</tr>
<tr>
<td>Assignments</td>
<td>Allows teachers to create assignments for students either as individuals or as groups</td>
<td>Assignments for individuals and groups students</td>
</tr>
<tr>
<td>External Links</td>
<td>Teachers can use these links to support subjects by resources derived from outside the LMS.</td>
<td>Links for journals, e-books, flash animations, etc.</td>
</tr>
</tbody>
</table>

The functions enable teachers who do not have experience in technology to use it in an appropriate way as most of the LMS provide sections to guide teachers on their use, and whether they are commercial or OS systems (see section 2.5.3), they have websites to support teachers in solving the problems they face. Moreover, the popularity of LMS means they have a huge number of supporters worldwide, who share ideas on how to engage as a teacher in these systems in their own websites, blogs, and wikis for free. LMS enable even those considered experienced teachers to improve their skills and knowledge. This however, is not how teachers perceive it on the wider spectrum, as discussed earlier in this chapter.
3.4 The HE Sector in Saudi Arabia (SA)

This section focuses on the context of HE in SA; it initially describes its structure and system. Following, an explanation of the most important aspects related to LMS in the Saudi universities is given, including the vital aspect related to academics’ adoption and usage of the systems, which is presented separately.

3.4.1 Saudi’s Higher Education (HE) System and structure

The common definition of Higher Education (HE) refers to education beyond the compulsory level, in particular, education at the college or university level. Some definitions try to be more specific by focusing on the subject rather than the place i.e. “education at a college or university where subjects are studied at an advanced level” (Cambridge Dictionary). In this research, HE refers to “the university and college study levels that lead to degrees of Associate, Bachelor, Master and Doctorate” (MHE, 2014) since this is the most appropriate definition to be used in the location under study - Saudi Arabia.

The Ministry of Higher Education (MHE) in SA was established in 1975. Like other ministries in the country the hierarchy of the MHE is headed by the King, the Higher Education Council (HEC) that is chaired by the King (Prime Minister) who is the supreme authority responsible for the affairs of education above the secondary level including supervising and coordinating HE institutions (with the exclusion of military education) (HEC, 2014). The main role for the Minister of HE is to implement the government policy for university education; he is the one in charge of all the duties of the MHE according to the system of HEC and general regulations in the country (MHE, 2014a) (Figure 10). Each Saudi public university including the three under study - Al Imam University (AIU), Princess Nora University (PNU) and University of Dammam (UOD) (3.5) - has a Board chaired by the Minister of Higher Education while the Rector serves as the Deputy Chairperson. The Board comprises the Secretary General of the HEC, the vice rectors, the deans, and three external members appointed by the Minister of HE (KFUPM, 2014). This Board is responsible for all university operations including scientific, administrative and financial affairs, as well as setting out policies and following up their implementation (AIU, 2014).
The MHE funds the universities and colleges in SA and this includes technical and administrative support (SACM, 2008). In the recent years, many universities have been established; currently, there are more than 40 public and private HE institutions in the Kingdom, providing programmes from diploma to PhD degrees (Al-Khalifa, 2010). This was a result of the government plan to develop the HE sector. For instance, the MHE budget in 2006 was US$80 million; this increased to $3.5 billion in 2009 (Al-watan, 2009), which consequently resulted in the MHE allocating about $187 million for e-learning projects within Saudi universities (Al-Ahmari, 2009).

In addition to the large budget for HE, the internet infrastructure was developed and the number of its users nationally increased. Internet services became formally available in the country in 1997, and since then the number of users has risen dramatically; while in December, 2000, the number of users was 200,000, by December, 2013, the number had increased to 16.4 million users (Internet.sa, 2014). This shift towards technology has occurred because of Saudi Arabia’s orientation towards becoming the largest ICT market in the Middle East (SAGIA, 2014). The above two factors, particularly the large amount of budget for e-learning, has encouraged the MHE to adopt and develop many WBIS projects including LMS (1.2; 2.7). As a result, during the last few years most public universities have adopted LMS (Alebaikan and Troudi, 2010). That is to say, the heavy investment in e-learning in Saudi HE and the rapid spread of LMS among Saudi universities in a relatively short period (since 2007) has made HE in Saudi a unique context in this regard.

On the academic level, this research offers academics working in the Saudi HE context an explanation into why utilising such technologies and systems are vital for enhancing education and its learning processes. It also provides - through its outcomes - e-learning directors and academics guidance and recommendations towards overcoming the identified fears and difficulties facing some of them during the utilisation of new technological systems, whether
through the developing, organising, or the adoption processes. Additionally, the early adoption stages of LMS was the focus of this research, which is an area lacking substantial data in publications, consequently, the capacity whether to analyse, understand and explain the phenomenon is minimal if any, which makes it difficult to manage. Therefore, this study offers scientifically based knowledge that allows a better understanding of the adoption process, which should help e-learning directors and academics enhance their strategies and consequently the adoption process of LMS in their universities. The outcomes of this research will similarly assist other Saudi universities that have not yet started employing LMS, they would be better able to plan and manage the adoption process following logical and scientifically explained aspects of the phenomenon, which eventually should help minimise the adoption time and any issues associated with it.

3.4.2 LMS in the SA HE Sector

In 2006, the MHE introduced the ‘National Centre for e-Learning and Distance Education’ (NCeDL) (www.elc.edu.sa), which was designed “to provide nationwide e-learning development in HE with assistance from the Open University of Malaysia and Multimedia Technology Enhancement Operations or METEOR” (Almegren et al., 2007 in Al-Khalifa, 2010, p. 762).

One of the projects run by the NCeDL is ‘Jusur’ (translated as bridges), a learning management system (LMS) designed to manage the e-learning process in HE institutes. The system allows teachers to schedule their courses, deliver course materials, track students’ progress, communicate with students and undertake assessments (NCeDL website). Although the NCeDL offers training courses and technical support for teachers in HE to encourage the use of ‘Jusur’ among them, according to Hussein (2011) however, most Saudi universities do not employ them sufficiently. Nevertheless, more recently, some universities in SA have obtained their own independent commercial LMS such as Blackboard.

The King AbdulAziz University (KAU) in the Western region of the country was the first university in SA to establish a LMS in 2007 (Alebaikan and Troudi, 2010; Al-Khalifa, 2010). The University set up a LMS called the E-Learning Management Electronic System (EMES) to manage the learning process through the internet, which enhanced the level of interaction between students and the academic staff (KAU website, 2010). Al-Imam Muhammad Ibn Saud Islamic University also provided a LMS called Tadarus, an Arabic LMS that has been developed by the Harf Company. Tadarus LMS supports other languages and aims to uptake the
huge amount of Saudi and non-Saudi students in the University’s distance programmes (Assand, 2008). Currently, both Universities offer a four-year bachelor’s degree through distance learning programmes (Alebaikan and Troudi, 2010).

The previous two examples were of Saudi Universities that employ commercial LMS; nonetheless, some HE institutions employ OS LMS (2.5.3), e.g. the Arab Open University (AOU), the Taibah University, and the University of Tabuk, that all use the LMS ‘Moodle’.

LMS have enabled Saudi universities and colleges to respond to the growing demand of students from all around the country (Al-Khalifa, 2010), particularly since 60 per cent of the population are youngsters (PSU, 2009) and most of the universities are in the large cities of the country, which covers an area of 2,217,949 km² “just over one-fifth of the size of the United States” (Al-Khalifa, 2010, p. 745).

3.4.3 Academics and the LMS in SA

This study investigates the academics’ adoption and usage of LMS in Saudi universities. In this study, ‘Academics’ refers to those who teach in HE institutions. According to a recent report issued by MHE (Doc.2, Appendix 10) as at 2014, the total number of academics in Saudi public universities was 64,689 with 37,756 Saudi academics and 26,933 non-Saudi academics (Table 5).

<table>
<thead>
<tr>
<th>Academics Categories</th>
<th>Numbers in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Academics</td>
<td>37,756</td>
</tr>
<tr>
<td>Non-Saudi Academics</td>
<td>26,933</td>
</tr>
<tr>
<td>Total of Academics</td>
<td>64,689</td>
</tr>
</tbody>
</table>

A recent study (Hussein, 2011) investigates the relationship between academics in six universities and the LMS (Jusur) that was established by the NCeDL. The research questions asked; “1. What are the attitudes of faculty members in Saudi universities towards using LMS - JUSUR? 2. What are the obstacles to using Jusur from the viewpoint of faculty members in Saudi universities,...the following scale axis have been identified: the personal view towards E-learning and Jusur; the need to use Jusur; and the need for training on using Jusur” (Hussein, 2011, p. 47). The sample was drawn from the NCeDL database, after sending the questionnaires through emails; 90 academics responded to the questionnaire and they represented three faculties, i.e. (Humanities, Science, and Medical) from six universities.
The results showed that there are positive attitudes from academics towards using ‘Jusur’ in general; however, there are some differences according to academics’ disciplines and scientific ranking. The results also showed that there are some obstacles facing academics, which were preventing them from using the system sufficiently. These obstacles included physical constraints, e.g. “the absence of direct technical support”; personal constraints, e.g. “some department heads and their refusal to activate it”; and administrative constraints, e.g. “strong resistance of some faculty members for any change or development in the academic” (Hussein, 2011, p. 51).

The study makes some recommendations to encourage academics to use Jusur; it recommends “training all faculty members and students in each semester and activating of incentives for faculty members for using E-learning”. Finally, the researcher suggested that the attitudes of faculty members in all the universities within the Kingdom as a whole should be examined further in future research, which is one of the aims of this study. Further discussion and findings extracted from this study are set out below.

Another study affirms that

“The number of faculty members utilising these systems is very limited. One reason could be that the universities and institutions do not provide enough training workshops for online learning systems. A few faculty members, who are interested in e-learning and have adequate skills, provide online materials as supplementary resources for their courses” (Alebaikan and Troudi, 2010, p. 52).

This shows how training is the most highlighted issue in the use of LMS; however, this also may suggest the need to find a different approach for solving the issue of academics’ very limited use of LMS functions.

### 3.5 The universities under study

In this section, a description of the universities under study is provided. Each university is described in terms of its general information, the e-learning status, and why it has been selected to participate in the study.

#### 3.5.1 Princess Nora University

In 2007, Princess Nora University (PNU) was established as the first public women’s university in the Kingdom of Saudi Arabia. It comprises six women’s colleges; The College of Education...
for the Literary Department, The College of Education for Scientific Department, The College of Education for Preparing Teachers, The College of Social Services, The College of Education for Home Economics and The College of Arts which were already in existence in the capital city, Riyadh, in addition to the establishment of several new colleges. The University essentially started in 2008 with the aggregate number of students on the Bachelor’s programme (50289), at the Masters stage (432), and at the Doctorate stage (371) (Facts and Statistics, 2013).

In relation to e-learning, PNU hosts the Administration of E-Learning and Distance Learning (AELDL), where its main role is to organise training programmes for academics on using technology in education. PNU coordinates these programmes and courses using the NCeDL (3.4) which also trains academics to use LMS i.e. Jusur. Currently however, PNU is undergoing a restructuring process, which will have an impact on the AELDL’s framework for its structure, which will surely reorganise the e-learning process within the University (Interviewee HA).

PNU is included in this research for two significant reasons. Firstly, it is the only public women’s university in the KSA, which may highlight gender as a variable that can provide a rich analytical opportunity. Second, PNU is one of the Saudi universities that has had experience in using the locally developed LMS, Jusur, but recently decided to replace it with the well-known American LMS, Blackboard. This movement from Jusur to Blackboard may offer the researcher an opportunity to compare and identify any cultural influences on responses resulting from the use of the locally created LMS compared to those created in the USA.

### 3.5.2 Al-Imam University

Al-Imam University (AIU) was official established in 1974; it comprises 11 colleges, five on the main University site in Riyadh city, and six in other regions in the KSA. It also includes two institutes: one for Jurisdiction and one for teaching Arabic language for non-Arabic native speakers. Imam University also comprises six institutes abroad for teaching Islamic and Arab knowledge in addition to 60 Sharia institutes kingdom-wide (University history, 2014)

With respect to e-learning, AIU offers four-year Bachelor degrees via distance learning where classrooms attendance is not required. Admission is available in all major disciplines. Using the ‘Tadarrus’ LMS, lectures are transmitted live daily and they are recorded and uploaded for students to watch. Instructors and students communicate via Tadarrus’s tools including emails, forums, and virtual classrooms (Al-Khalifa, 2010). While 15,000 students were enrolled as distance learners in 2008 (ibid) the number currently stands at over 40,000 (AM, interviewee).
AIU University is included in this research for more than one significant purpose. Firstly, it is one of the two Saudi universities to first use LMS (Alebaikan and Troudi, 2010; Al-Khalifa, 2010). This relatively longer period in using LMS allowed the university to experience more possible issues than other universities, which can offer the researcher more significant knowledge about the subject. Secondly, since it started, AIU has used a local LMS, Tadarrus, and has not yet replaced it with more well-known LMS, as other Saudi universities have done; which raises the question: Why? Thirdly, AIU implements LMS in a unique way compared to other Saudi universities. Rather than organise and arrange the implementation of LMS among the university’s faculties as other Saudi universities do, the Deanship of Electronic Learning and Distance Learning (DELDL) in AIU runs the entire electronic and distance learning process itself. Students who would like to study through the electronic and distance learning method are enrolled by the deanship itself regardless of their discipline. The DELDL is arranged with academics from different faculties who are willing to be trained by the DELDL in order to be able to teach through LMS. This unique way of implementing LMS compared to the case in other Saudi universities has attracted the researcher to highlight any differences within the Imam University experience.

3.5.3 University of Dammam

The University of Dammam (UOD) began as the Dammam Campus of King Faisal University (KFU), which was officially established in 1975. In 2009, the UOD became an independent University. Currently, the UOD includes 24 colleges in six cities of Saudi’s eastern region - Dammam, Jubail, Khafji, Khobar, Nu’Ariya and Qateef. Overall there are 123 departments, 1,414 faculty members and 24,950 students (Facts at a Glance, 2014).

In regards to e-learning, like AIU, the UOD has a Deanship for Electronic Learning and Distance Learning (DELDL). The DELDL in the UOD is in charge of all aspects of e-learning and distance learning at the University including adopting and managing LMS in addition to providing academic staff with the required training to use these systems, along with delivering full technical support that serves the e-learning purposes (Electronic and Distance Learning, 2014).

The UOD is included in this research since it is considered a new university that had experience of being a part of the KFU for 34 years then recently became an independent University. Some academics in the UOD had experience in using WebCT, which was the LMS adopted by KFU; WebCT now however is owned by Blackboard Inc. The UOD adopted Blackboard and at the
time of the investigation (in 2012), they were in the second year of their three-year LMS implementation plan, as is discussed in more detail later on. The DELDL in the UOD drew on the experience of other universities in order to learn from and overcome any problems encountered (SA, interviewee).

3.6 Discussion and Conclusion

This chapter reviewed the relationship between academics in HE and technology. It started by defining the phrases ‘teaching’ and ‘e-teaching’ then identifying the differences between ‘e-teaching’ and ‘e-learning’, which distinguished ‘e-teaching’ as a term centred on teachers. The review emphasised the importance of the academics’ role in the adoption of LMS functions to their full potential, which in return supports the approach of this research; i.e. focusing on the teaching through LMS.

The literature showed examples of teachers’ lack of use of, or very little use of technology in the teaching process. Even those who use technology in their teaching do so mainly for presentation purposes. The reasons behind this varied from those stated in the literature; for example, the lack of knowledge, time, training and interest. This suggests the need to find a different approach to overcome the poor utilisation of LMS functions, which has also been concluded within this chapter’s review. This means adopting an approach that does not rely on administrative or management staff, but maybe more on the users themselves, i.e. the academics in HE.

The gap between what technologies offer to education and the actual engagement between them, taking into account the role that academics can play in promoting the use of LMS and in adopting them to their full potential, has been realised through the review. However, the available data represent some of the scholars’ thoughts regarding the relationship between academics in the SA and technology. While considerable studies have been gathered from developed countries where LMS have been utilised at an earlier stage and users are more familiar with them, in a region such as SA, there is not enough, if any, evidence about this relationship between academics and technology, and LMS in particular. Therefore, an empirical research study is essential to investigate the situation in the Saudi region, which may also apply in other neighbouring and similar developing regions.

The methods used by HE institutes when applying LMS were discussed, i.e. blended learning’ and ‘fully online e-learning’, then the components of the teaching portal and its functions were illustrated. Afterwards, the HE sector in Saudi Arabia was discussed along with the role that the
NCeDL plays in supporting the utilisation of e-learning in universities with some examples of some of the universities’ applications of LMS.

The study conducted by Hussein (2011) was reviewed and analysed; although it is quite useful in terms of the applied methodology and the presented findings, it reflected the lack of adequate data, which means that evaluating and developing the use of LMS in HE in SA would not be as effective as if we had more detailed and focused information. Therefore, this research aims to fill a gap in this area by examining the most important element of LMS, i.e. the teaching portal. The method used in Hussein’s study helped in forming the method used for this current study’s data-gathering processes, which are elaborated on in the following chapter. Moreover, the evaluation of a LMS in particular did not result in the generation of useful practical recommendations in this study; this can be overcome by examining the functions themselves instead of the LMS. This will provide a broader view of academics’ uses of the different functions regardless of the type of LMS used, and as a result, we can achieve a better understanding of the current status of teachers and technology. In support of this notion, Gibbs and Gosper (2006, p. 46) believe that

“Giving educators an active and determining rather than a passive role in the development of learning systems is vital if e-learning is to realise its transformative potential in education in the 21st century. Many of the currently available learning technologies and systems, generally devised by technicians rather than educators, have offered limited room for creative or effective teaching”.

Finally, a description of the three universities was given, which included brief background information on each, their e-learning status, and reasons why these particular universities have been selected to participate in this study.
CHAPTER 4
Research Methodology
4.1 Introduction

At this stage of the investigation, it is useful to restate what has been covered in previous chapters and demonstrate how the developed information thus far reflected the research aim and objectives and how it will lead to the chosen research methods.

The literature review presented through Chapter 2 and 3 has set the base for this investigation, since the research problem, its aim and objectives (Chapter 1) were identified and stated through the support of its outcomes. Discussions in the literature explained the relation between education and technology and between academics and technology, where some of the reasons behind academics inadequate use of technology were identified (3.3.1). LMS as the main E-Learning Systems (ELS) used globally was also described (2.5), including its use as a WBIS (2.7). The review of literature showed how technology has transformed from being merely a tool in the teaching and learning process to a complete learning environment, i.e. an LMS.

Although some researchers investigated academics’ use of technology, and the main issues facing them during that use, the majority of these findings were based on studies carried out in Western countries. Where LMS has been utilised at an earlier stage and users are more familiar with them. Whereas, in an area such as Saudi Arabia (i.e. the area of interest in this study), the status of e-learning in the HE sector is briefly described in the literature, as there is not enough, if any, evidence demonstrating the relationship between academics and technology, LMS in particular. Therefore, the finding was that there is a dearth of sufficient information regarding the relationship between academics and LMS in Saudi’s HE sector. As a result, the question about academics use of LMS in Saudi universities arose, thus, forming the main research question.

Consequently, to answer the research question and fulfil its objectives, an empirical investigation in the form of a field study proves to be necessary. The investigation will aim to identify the concepts and processes surrounding the adoption of LMS in Saudi universities. Nevertheless, although the research will be applied in the Saudi context, it is anticipated that the findings may also apply to other neighbouring and similar developing regions.

Therefore, this chapter will explore some of the possible research methodologies, and identify the most suitable one that will achieve its objectives to the best level. Research paradigms, methods, sampling methods, data gathering and analysis techniques are all explained in this chapter. Nevertheless, a more elaborated explanation of the practical process of the adapted
methods will be explained further in the following chapters (Chapter 5 for the questionnaires and CHAPTER 6 for the interviews).

4.2 Adopted research terminology

When approaching this chapter, it is worth mentioning that differences in scholars’ worldviews have generated a great amount of debate on the use of terminology within research methods. Therefore, terms, including ‘paradigm’, ‘approach’, ‘methodology’, ‘method’, ‘technique’, and ‘strategy’ have been used and these in many cases overlap each other. For instance, Silverman (2010, p. 110) argued that “in social research, methodologies may be defined very broadly (e.g. quantitative or qualitative) or more narrowly (e.g. grounded theory or conversation analysis)”; whereas Walliman (2005) categorised ‘research strategy’ into five major types -experimental, survey, archival analysis, historical, and case study.

In order to overcome this inconsistency in use of terminology in research methods, Pickard (2007) developed a research hierarchy structure (Figure 11) that provides a framework for use when conducting a research study.

![Figure 11 The research hierarchy](source: copied from Pickard (2007, p. xv))

Pickard claims that the paradigm, which means ‘how we view the world’, affects our prior theoretical view of research. Researchers are influenced by their view of the world prior to commencing scientific research. When they start to build a theoretical perspective in relation to the research, e.g. how to solve a scientific problem, they choose a methodology, which may or may not include research methods and techniques. Further elaboration of each term illustrated above and as used in this research is given in the appropriate context in this chapter. The above structure is not subscribed to by all scientific communities but has worked well for many novice and experienced researchers from different disciplines (Pickard, 2007). This research adopts the research design and terminology proposed by the research hierarchy mentioned above.
4.3 Research Paradigm

Research in educational technology (2.2) has often centred on evolutions in the field through consideration of topics relating to the efficiency and effectiveness of computer software, and the recognition of the lowest possible conditions for the implementation of technology in educational institutions (Spector et al., 2008). Increasingly, however, educational technology research is became more complex as human interactions with technology tools evolve and become more predominant (ibid). Meanwhile, complexities are arising as the range and number of technologies utilised in education grow. LMS are more complicated, in that they offer a complete environment that manages all aspects of the teaching and learning process, that is, fully online e-learning.

In this research, the main interest is to investigate the academics’ adoption and usage of LMS in SA’s Higher Education context, so the choice of an appropriate research paradigm is paramount in order to achieve the desired results. This choice, however, will not be isolated from the researcher’s view of ‘epistemology’. Therefore, the remainder of this section discusses the main research paradigms followed by a justification for the one chosen.

‘Epistemology’ concentrates on issues such as the nature of human knowledge and how such knowledge can be obtained (Schuh and Barab, 2008), reflecting a variety of research paradigm perspectives to try to cover these aspects. In this research, the importance of these perspectives lies in how we make decisions about things, as our theory directs our research thoughts (Silverman, 2010). There are three major research paradigms addressed by researchers; these are the Positivist, Interpretive and Critical perspectives (Chua, 1986 in Klein and Myers, 1999; Myers, 1997). These three paradigms enjoy widespread use in IS research (Orlikowski and Baroudi, 1991). The following sections demonstrate the main characteristics of each.

4.3.1 Positivism

As a philosophical perspective, positivism was developed by Auguste Comte in the early nineteenth-century (Cohen et al., 2007). Positivists view social phenomena “in the light of physiological (or biological) laws and theories and they are investigated empirically, just like physical phenomena” (Oldroyd, 1986 in Cohen et al., 2007, p. 9). Likewise, Bryman (2004, p. 11) defines positivism as an “epistemological position that advocates the application of the methods of the natural sciences to the study of social reality and beyond”. Positivism has been described as “the default option” of quantitative research (Silverman, 2010, p. 104), since it
emphasises structured information, that is measurable or/and countable, obtained through scientific methods and argued to be more reliable than qualitative data. The following principles identified by Bryman (2004, p. 11) highlight the main characterises of positivism:

1. “Only phenomena and hence knowledge confirmed by the senses can genuinely be warranted as knowledge.
2. The purpose of theory is to generate hypotheses that can be tested and that will thereby allow explanations of laws to be assessed.
3. Knowledge is arrived at through the gathering of facts that provide the basis for laws.
4. Science must be conducted in a way that is value free.
5. There is a clear distinction between scientific statements and normative statements and a belief that the former are the true domain of the scientist”.

At the end of the second half of the nineteenth century, the anti-positivism revolution emerged (Cohen et al., 2007) with criticism focused on the limitations of positivism (Bryman, 2004) since it does not open allow many options when studying a phenomenon. Moreover, it does not consider the differences between the social phenomena, which include subject matter, and the physical sciences. Because of the claims of the failure of positivism, a new term developed within the same paradigm, post-positivism, which indicated a shift within this paradigm, although “the basic concepts of quantifications and generalization taken from original positivism remain predominant” (Pickard, 2007, p. 11).

4.3.2 Interpretivism

The emergence of interpretivism was initially a reaction to positivism. The first reaction to positivism came from Dilthey in 1883, who disputed that “human beings could be investigated in ‘cold’ cause and effect terms” (Pickard, 2007, p. 11). Interpretivism “is predicated upon the view that a strategy is required that respects the differences between people and the objects of the natural sciences and therefore requires the social scientist to grasp the subjective meaning of social action” (Bryman, 2004, p. 13). From the epistemology perspective, interpretivism claims that “our knowledge of reality is a social construction by human actors” (Walsham, 1995, p. 376); this contradicts positivism, which claims that researchers and the data they gather are independent of each other. Table 6 shows the main characterises of the interpretivism paradigm, according to ontology, epistemology, and methodology.
Table 6 Interpretive paradigm main characteristics
Source: withdrawn from Pickard (2007, p. 12)

<table>
<thead>
<tr>
<th><strong>Interpretivism paradigm</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontology</strong></td>
<td>Realities are multiple, constructed and holistic. There is no single, tangible reality; instead, there are only the complex multiple realities of the individuals.</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>All knowledge we acquire is a product of the interaction between the known and the knower; the researcher and the subject are both ‘changed’ by the experience, and knowledge is a result of this interaction and is time and context bound.</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>The data gathered from that research might themselves be, in part, a product of the research process. The time and context in which the data are gathered will also influence those data; “context is something you swim in like a fish. You are in it. It is you” (Dervin, 1997, p. 32). Interpretivism can offer understanding of the meaning behind the action of individuals.</td>
</tr>
</tbody>
</table>

Overall, the literature shows that the interpretive approach places emphasis on the role that participants take in understanding the reality of a situation. An in-depth understanding of any social phenomenon requires the researcher to meet the people involved, talk to them, and share with them their feelings, experiences, and attitudes towards the phenomenon under study.

### 4.3.3 Critical theory

The previous paradigms - positivism and interpretivism - are concerned with explaining or predicting status, whereas *critical* research “attempts to critically evaluate and transform the social reality under investigation” (Richardson and Robinson, 2007, p. 255). Critical researchers presume that social reality is historically determined and that it is structured and restructured by people (Myers, 1997). The goal of critical theory is to “expose through critique of the illusions and contradictions of social existence with a view to enabling and encouraging social change” (Richardson and Robinson, 2007, p. 254). Critical researchers assume that various forms of cultural, social, and political power constrain people’s ability to change their economic and social circumstances (Myers, 1997).

The role and functionality of the critical paradigm contributes significantly to its attributes; this goes beyond the theoretical perspective to include the practice aspects of the phenomena being studied. Critical researchers deny “the distinction between ‘is’ and ‘ought’, between science as theory and research, and practice as normative, ideologically based action” (Greene, 1990, p. 243).

“The main task of critical research is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research focuses on the oppositions, conflicts and contradictions in
contemporary society, and seeks to be emancipatory i.e. it should help to eliminate the causes of alienation and domination” (Myers, 1997, p. 241).

In short, Greene (1990) defines positivists and post-positivists as social engineers, interpretivists as storytellers, and critical philosophers as catalysts of social action.

In this research, where the aim is to study the adoption and usage of LMS in SA’s HE sector from the perspective of academics, an interpretive approach promises the potential for effective results. During the last few years, since 2007 when SA’s HE sector moved to adopt LMS, an enormous shift has occurred. This move towards LMS and the development of teaching functions, wherein the latest versions are more open to Web 2.0 functions (e.g. Blackboard 9.1) has changed the character of the learning and teaching process. As a researcher and in order to understand the reality of this shift, and what it means from the perspective of academics, the researcher needs to speak with academics to allow them to express their feeling, experiences, and attitudes towards this shift; i.e., what does this huge move mean to them? In order to gain a holistic understanding of this phenomenon; however, other stakeholders are engaged in the investigation, such as students, e-learning coordinators, and directors within HE institutions in SA.

4.4 Research Methodologies

Methodology offers a theoretical review of the research (Pickard, 2007). It “defines how one will go about studying any phenomenon” (Silverman, 2010, p. 110); including which data-gathering techniques will be used as well as the strategy proposed for data analysis. This does not imply that a particular research technique and method are likely to be adopted; rather it reflects the researcher’s perspective towards answering the questions being asked (Pickard, 2007). Research methodologies do not aim to obtain a true or false response; rather they seek to understand what is more or less beneficial (Silverman, 2010). Since each methodology is appropriate in its role, interest, and techniques, they are strongly recommended to follow these in order to facilitate a smooth process in which research problems can be overcome using the method/s adopted. In addition, research methodologies promise rewarding results since they can be used to organise an investigation when they are applied as they should be.

Research methodologies are fundamentally separated into two major types, quantitative and qualitative (Kalof et al., 2008; Pickard, 2007) and each has its own unique characteristics and techniques. These are the subject of discussion in the following section with more focus on the
qualitative approach, since this is the methodology chosen for this research as justified later on in this chapter.

4.4.1 Quantitative and qualitative methodologies

A large volume of literature discusses the differences between the quantitative and qualitative methodologies (Bryman, 2008; Kalof et al., 2008; Pickard, 2007; Silverman, 2010). The former understand the social phenomenon under study using numeric data, whereas the latter employs meanings and concepts rather than numbers (Bryman, 2008; Kalof et al., 2008). These, however, are the superficial differences, since the more fundamental differences are related to perspectives developed for the purpose of answering the epistemological question (Bryman, 2008). Therefore, positivism has been described as “the default option” for quantitative researchers (Silverman, 2010, p. 104); in contrast, interpretivism mostly employs qualitative methods (Mason, 2002; Pickard, 2007). This is to say that the researcher’s choice of paradigm implies a particular research methodology that is applicable to his or her view of the world.

From a broad perspective, quantitative research aims to “measure phenomena so that they can be transformed into numbers” (Denscombe, 2010, p. 325). It depends on statistics and on using a large-scale survey (Dawson, 2009), which produces information that is relevant and reliable (Davies, 2007). It seems to be interested in what people say rather than in what they do or mean.

Quantitative research can be characterised by the following:

1. Depends on variables
2. Looks for objective data
3. Focuses on facts rather than opinions
4. Deals with numbers rather than phenomena

In contrast to quantitative research, qualitative research is interested in meanings, feelings, and descriptions rather than quantification in gathering and analysing data, and it depends on an inductive approach, which seeks to generate theory, unlike a deductive approach, and emphasises views that consider social realities as a continually changing emergent property of individuals’ formation (Bryman, 2004). It tends to be applied using a comparatively small number of cases, where the aim is to produce a large number of details pertaining to the phenomenon under study (Silverman, 2010). Mason (2002, p. 3) identifies qualitative research as:
1. “Grounded in a philosophical position which is broadly ‘interpretivist’ in the sense that it is concerned with how the social world is interpreted, understood, experienced, produced or constituted?

2. Based on methods of data generation, which are both flexible and sensitive to the social context in which data are produced (rather than rigidly standardised or structured, or entirely abstracted from ‘real-life’ contexts).

3. Based on methods of analysis, explanation and argument building, which involve understandings of complexity, detail and context”.

In brief, from the discussion above, we can say that quantitative and qualitative methodologies vary on different points:

They reflect two separate paradigms, since a quantitative methodology is applicable to positivism paradigms in respect of its aim to obtain measurable or/and countable data. In contrast, a qualitative methodology is mostly appropriate with interpretivism paradigms, as it acknowledges richness and depth in the data in order to provide an understanding of the meaning behind the action of individuals.

In regards to deductive and inductive approaches, the quantitative methodology entails a deductive approach, wherein the aim is to test a theory or hypothesis that already exists; whereas in the qualitative methodology the emphasis is predominantly on an inductive approach, with theory as the outcome of the research.

Finally, the two methodologies are also different in relation to areas such as their methods, sampling and data gathering techniques, and as a consequence, their data analysis strategy. In this research, qualitative methodology is mainly employed, although some quantitative data are also obtained. Further elaboration regarding the selected methodology, its methods, and data-gathering techniques is given later on in this chapter.

4.4.2 Adopted methodology

The main interest of this research is to investigate the adoption and usage of LMS in Saudi’s HE sector, with a specific focus on teaching practice as manifest when using these systems. There are a variety of LMS that are currently in use at Saudi Universities; however, this research focuses on the usage of the systems’ functions by academics regardless of the LMS trademark/brand. Therefore, most of the data are collected using qualitative methods. Since this research aims to achieve an understanding of the in-depth relationship between academics and
their LMS adoption; this kind of information is best gathered using qualitative methods with individuals, in this case ideally academics, e-learning coordinators or undergraduate students. However, quantitative data are also obtained from questionnaires when asking about particular LMS teaching functions and their usage frequency. Therefore, the data-gathering techniques incorporated both open and closed-ended questionnaires followed by semi-structured interviews, further details of which are explained below.

Qualitative research faces a problem with generalisation, since one or two cases in small-scale sampling cannot be claimed to be representative of all cases (population) and consequently findings may not be generalisable. This is to say that the information collected from this research’s field-study is not meant to be representative of this research population, either through the questionnaires or the interviews. Instead, it can be arguably generalised to theory rather than to populations (Bryman, 2004).

4.5 Research methods

As mentioned in the research terminology section earlier in this chapter (4.2), research methods can be grounded theory, survey, case study, Delphi study, among others. In the literature, these may be referred to as research methodologies, research approaches, or strategies. Pickard (2007, p. 83) defines research methods as “the bounded system created by the researcher to engage in empirical investigation”. The choice of one or more of these methods is often influenced by factors such as the researcher’s paradigm preference, the research audience, the research purpose, and resource constraints, among others (Pickard, 2007). Choosing one method over another does not prevent the researcher from presenting a ‘good’ research study (Bryman, 2008) as long as it is employed as it should be.

4.5.1 Grounded Theory (GT): overview

Grounded theory (GT) is a popular approach that has been used widely during recent decades. It was first introduced by Glaser and Strauss in 1967 through their work, The Discovery of Grounded Theory. It was initially created as a reaction to the ‘logic-deductive’ approach, which does not engage with the real world (Denscombe, 2010). GT is described as “a strategy for handling data in research, providing modes of conceptualisations for describing and explaining” (Glaser and Strauss, 1967, p. 3). It follows an inductive approach that is used to generate theory rather than being based on a priori or self-evident suggestion. GT and inductive approaches in general are appropriate, using techniques that produce unstructured qualitative data. Therefore,
unstructured interviews and open-ended questions in a questionnaire setting are more appropriate with GT than structured interviews and closed-ended questions in a questionnaire (Denscombe, 2010).

In 1987 Strauss published detailed guidance for the GT process, which has been considered a new approach of the classic grounded theory (Halaweh et al., 2008; Heatha and Cowley, 2004; Pickard, 2007). Onions (2006) summarised the literature pertaining to the key differences between the two approaches as illustrated in Table 7 below.

Table 7 Key differences in grounded theory approaches
Source: adapted from Onions (2006, pp. 8-9)

<table>
<thead>
<tr>
<th>‘Glaserian’ approach</th>
<th>‘Straussian’ approach</th>
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<tbody>
<tr>
<td>Beginning with general wonderment (an empty mind)</td>
<td>Having a general idea of where to begin</td>
</tr>
<tr>
<td>Emerging theory, with neutral questions</td>
<td>Forcing the theory, with structured questions</td>
</tr>
<tr>
<td>Development of a conceptual theory</td>
<td>Conceptual description (description of situations)</td>
</tr>
<tr>
<td>Theoretical sensitivity (the ability to perceive variables and relationships) comes from immersion in the data</td>
<td>Theoretical sensitivity comes from methods and Tools</td>
</tr>
<tr>
<td>The theory is grounded in the data</td>
<td>The theory is interpreted by an observer</td>
</tr>
<tr>
<td>The credibility of the theory, or verification, is derived from its grounding in the data</td>
<td>The credibility of the theory comes from the rigour of the method.</td>
</tr>
<tr>
<td>A basic social process should be identified</td>
<td>Basic social processes need not be identified</td>
</tr>
<tr>
<td>The researcher is passive, exhibiting disciplined Restraint</td>
<td>The researcher is active</td>
</tr>
<tr>
<td>Data reveal the theory</td>
<td>Data are structured to reveal the theory</td>
</tr>
<tr>
<td>Coding is less rigorous, a constant comparison of incident to incident, with neutral questions and categories and properties evolving. Take care not to ‘over-conceptualise’, identify key points</td>
<td>Coding is more rigorous and defined by technique. The nature of making comparisons varies with the coding technique. Labels are carefully crafted at the time. Codes are derived from ‘micro-analysis which consists of analysis data word-by-word’</td>
</tr>
<tr>
<td>Two coding phases or types, simple (fracture the data then conceptually group them) and substantive (open or selective, to produce categories and properties)</td>
<td>Three types of coding, open (identifying, naming, categorising and describing phenomena), axial (the process of relating codes to each other) and selective (choosing a core category and relating other categories to that)</td>
</tr>
<tr>
<td>Regarded by some as the only ‘true’ GTM</td>
<td>Regarded by some as a form of qualitative data analysis (QDA)</td>
</tr>
</tbody>
</table>

The divergences between GT’s founders however, are mainly “methodological rather than ontological and epistemological aspects” (Heatha and Cowley, 2004, p. 142). In this research, an integrated approach obtained from multi major resources to GT research were adapted in
order to benefit from the variety of approaches that can support this research’s aim and objectives more strongly (e.g. Birks and Mills, 2011; Charmaz, 2006; Glaser and Strauss, 1967; Strauss and Corbin, 1990). The following section discusses GT in greater depth.

4.5.2 Why the grounded theory method?

GT promises a strong foundation when studying new socio-technical phenomena (Fernandez, 2004), and it is “usually used to generate theory in areas where little is already known..., the topic of interest has been relatively ignored in the literature, or has been given only superficial attention” (Goulding, 1999, pp. 6-8). Birks and Mills (2011, p. 17) point out that GT is “the preferred choice when the intent is to generate theory that explains a phenomenon of interest to the researcher”.

The previous quotations show that GT theory fits within the aim and objectives of this research, since the interest of this research is to study a technology; i.e. LMS, which has been adopted in the context of SA for less than 10 years (since 2007). The area under study is a socio-technical phenomenon since it is interested in academics’ adoption and usage of LMS in Saudi universities. Although earlier studies have discussed the relationship between academics and technology in general, to date, and to the best of the researcher’s knowledge, no detailed study has investigated academics’ adoption of LMS in particular at Saudi universities. Therefore, rather than beginning with a theory to test; this research adopts a GT approach, which starts with a broad view of the subject, then generates a theory based on the data, developed through a process of investigation and analysis. GT’s process and interactivity, as discussed later on, offers the researcher a rich diversity of data that enables him to fill in the gaps in the researched area; that is, inadequate information about the academics’ adoption and usage of LMS at Saudi universities.

Furthermore, research that is technology-education-related is principally engaged with qualitative methodologies that probe[s] for a deeper understanding of the phenomenon rather than merely examining the surface (Johnson, 1995). Middleton (2009) argued that, in order “for us to understand technology education we need to use research methods that are appropriate for technology education…and justify the research approaches” (Middleton, 2009, p.1). Middleton extensively discussed qualitative methods; highlighting the necessity to utilise methods that empower technology-education researchers to fully and inclusively absorb all the elements informing the exclusiveness of technology-education. The emergence of new technologies
within education has required the application of methods that are more appropriate for the analysis of technology-education.

Savenye and Robinson (2004) discussed two examples of technology-education studies that have implemented GT as a method, those of McNabb (1996) and Oliver (1992). The former “investigated the role of the computer-assisted learning environment on instructors and students in assessing and guiding the development of writing skills” and the latter “investigated and described the activities used in a university televised distance-education system, analyzing the use of camera techniques as they related to interaction in class”. Using grounded-theory techniques, McNabb “discovered that Vygotsky’s theory of the Zone of Proximal Development was a contributing theoretical construct through which to understand her findings” and Oliver “used the data she transcribed and the emerging categories of data to create a theory of televised instruction” (Savenye and Robinson, 2004, p. 1051).

As mentioned earlier, Strauss’s approach to grounded theory guided this study, as it acknowledges that researchers typically start with a general idea about their subject, which is, in this research, was obtained through the literature review process as well as the findings obtained from the questionnaires, since both of these provide broader views rather than in-depth understandings. This approach is followed by a semi-structured interview. Further elaboration of the implementation of grounded theory in this research is given below.

4.5.3 The adapted GT process for this research

Different illustrations of the processes involved in grounded theory have been presented in the literature (e.g. Bryman, 2008; Charmaz, 2006). They all show that the researcher is required to move constantly backwards and forwards between theoretical sampling, data collection and coding, and categorising, as initial coding proposes the need for new data, and so on until the researcher reaches theoretical saturation (4.8.3). The researcher has developed a research process diagram (Figure 12) that is a result of reviewing multiple resources discussing and presenting the processes applied in GT research. This process was precisely developed for this research, and was based on the contexts and objectives defined.

Step 1: The researcher begins with the basic information obtained from the literature review and then designs the academics’ questionnaire and undergraduate students’ questionnaire, which were distributed first to gather general information about the conditions surrounding the examined contexts especially in relation to academics in Saudi universities and LMS in general.
Although the literature review provides some information regarding this research topic, it either focused on western countries or discussed the relationship between teachers and technology in general. There has been little discussion regarding the relationship between academics at Saudi universities and technology, and no specialised study exists that investigates the academics’ adoption and usage of LMS in particular in the Saudi universities. In addition, even though there will be data obtained from the questionnaires, a questionnaire as a data gathering technique does not provide rich variety of data, in particular qualitative data; rather it provides an overview of the phenomena being studied. Starting with a literature review and questionnaires to obtain general data regarding the topic in question is harmonious with Strauss’s approach to GT and can become a useful source for managing data (Birks and Mills, 2011).

It is important to note that the questionnaires were not designed based on GT principles, as there is no evidence to suggest or imply that questionnaires used in GT research should be designed according to specific GT criteria. Nevertheless, the questionnaires employed in this study may rather be considered an initial step towards the actual GT procedures, not part of them. Further elaboration regarding the adoption of questionnaire in GT studies will be discussed in section (4.6.1.3).

**Step 2:** This step initiates the primary data gathering stage, it is undertaken prior to commencing the interviews (4.6.2); the researcher chose participants based on their theoretical relevance. This selection was supported by the questionnaires findings. The process was applied using theoretical sampling (4.8.3).

**Step 3:** Relevant data are collected through interviews using questions that were partially based on the questionnaire results.

**Step 4:** Initial data are coded (initial/open coding) to break them down (Corbin and Strauss, 2008) in order to generate a number of sub-categories (step 5) which together shape and explain the broader concept (Birks and Mills, 2011; Bryman, 2008).

**Step 5:** At this stage, sub-categories are generated through the comparative analysis of initial codes. Then, to reduce the number of categories and make them more abstract, sub-categories are compared with each other and similar or closely related categories are grouped together under a new name; i.e. a more general and abstract category.
Step 6: The categories are generated as a result of the comparative analysis (step 5), which require the researcher to constantly move backwards and forwards between theoretical sampling, data collection, initial coding, and intermediate coding and so on until theoretical saturation is achieved. Further elaboration of terms such as initial coding, intermediate coding and categories is given later on (4.7.2).

Step 7: Explore the relationships between categories in order to identify a ‘core’ category (8.2).

Steps 8 and 9: Theoretical integration is the final stage of the GT research, where the researcher presents the final *Substantive* GT (Birks and Mills, 2011).
4.5.4 Writing memos

Memos are written records of the researcher’s ideas, thoughts, feelings and insights about the phenomenon under study (Birks and Mills, 2011). Corbin and Strauss (2008) refer to these as working and living documents that describe possible relationships between concepts. They vary in content and length as they start simply when the analysis started then develop as the researcher’s experience of writing them develops (ibid). Writing memos is essential in developing a theory as they hold its building blocks (Birks and Mills, 2011), (see section 6.3).

The following points discuss data-gathering techniques, data analysis strategy and sampling methods, all in relation to GT.

4.6 Research techniques (Data-gathering techniques)

Data-gathering techniques are the specific research techniques used to obtain data (Denscombe, 2010; Silverman, 2010). Techniques such as questionnaires, interviews and observation can obtain either quantitative or qualitative data or both. In themselves, these techniques are not true or false; rather they are less or more beneficial depending on the reasons behind using them (Silverman, 2010).

This investigation requires data relating to academics who are using, or are required to use LMS, as well as data from e-learning coordinators and directors at universities, in addition to data gathered from undergraduate students. The data gathering techniques used in this research rely on both questionnaires and interviews, here the aim is to clarify these two techniques and give a reason regarding their selection. Mainly, questionnaires and interviews are different in their purposes; the former aim to carry out an initial or large-scale survey whereas the latter intend to reach an in-depth understanding of the research topic (Gillham, 2005). In GT, no matter what the data-generating technique used is, success depends on the relationship the researcher develops with the data, and how they collect, generate and manage them (Birks and Mills, 2011). Most grounded theory studies, however, use more than one data-generation technique, e.g. Eyles, Walker and Brien (2009) and Wales, Shalin and Bass (2007) (in Birks and Mills, 2011).

In this research, in which grounded theory is used as a research method, the aim is to start with the initial data, obtained from either the literature review or the questionnaire or both, then interviews are conducted to achieve a more in-depth understanding of the academics’ adoption and usage of LMS at Saudi universities. The initial data gained through the questionnaire
enables the researcher to identify who to interview, and what questions to put to them. Below are some procedures involved in carrying out the two stages of the data-gathering process - questionnaire and interview.

4.6.1 Questionnaires

Questionnaires are the most common data-gathering method since they are easy to manage, flexible, and less expensive than other techniques (Moore, 2006). However, the popularity of the questionnaire may mislead researchers into believing they are simple to design (Rugg and Petre, 2007). Besides, questionnaires can often generate a large amount of data with no in-depth information about the phenomenon under study. Questionnaires are therefore most convenient when an overview of the situation is needed rather than an in-depth analysis. Questionnaires traditionally were distributed by post, in which they often attract a response rate as low as 10% (Denscombe, 2010). More recently, however, the widespread reach of the internet has provided new methods for distributing questionnaires as discussed below.

4.6.1.1 Internet questionnaires

Using the internet to distribute a questionnaire can take three routes (Bryman, 2004; Denscombe, 2010):

1. An email questionnaire including attaching the questionnaire to the email itself;
2. An email questionnaire including the questionnaire as an attachment;
3. A web-based questionnaire, wherein the questionnaire is designed as a web page, and in this case a link to the web page can be distributed through the email.

Denscombe (2010) discussed the advantages and disadvantages of each type as shown below (Table 8). Bryman (2008) and Pickard (2007) argue that internet questionnaires result in sampling issues since not everyone has online access and therefore is not capable of handling internet questionnaires either as emails or as web-based formats. These issues however, are not the real problems associated with this research since according to regulations the two groups of participants - academics and undergraduate student in HE in Saudi Arabia - are required to have an email address and are expected to use it. As Yun and Trumbo (2000 in Bryman, 2008, p. 651) state, “The electronic-only survey is advisable when resources are limited and the target population suit an electronic survey”.

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Table 8 Internet questionnaires’ advantages and disadvantages
Source: Denscombe (2010, p. 159)

<table>
<thead>
<tr>
<th>Internet questionnaire types</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email questionnaire including the questionnaire on the email itself</td>
<td>Simple to construct and easy to answer</td>
<td>May not be completed properly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Its design is necessarily rather basic</td>
</tr>
<tr>
<td>Email questionnaire with questionnaire as an attachment</td>
<td>Simple to produce and can be made quite attractive</td>
<td>The reply is not as easily executed since it requires many steps, i.e. open, complete, save, reattach, and then reply</td>
</tr>
<tr>
<td>Web-based questionnaire</td>
<td>Attractive design (buttons, icons, frames…)</td>
<td>Requires technical skills and access to web-hosting resources which can be overcome by emailing participants telling them about the survey and including the hyperlink to the website</td>
</tr>
<tr>
<td></td>
<td>Easy to submit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The responses can be read automatically into a spreadsheet or database</td>
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</table>

### 4.6.1.2 Web-based questionnaires

Collecting data via a web-based questionnaire has been simplified and become increasingly practical in recent years. Agruma and Zollett (2007) argue that this type of questionnaire is one of the best techniques for performing survey research. They point out that current software allows researchers to collect data in an effective, safe and reliable manner. They add that the current software allows web-based data collection to be published by researchers who have little or no technical skills. This software saves researchers time, expense and effort, and decreases data entry error (Agruma and Zollett, 2007).

Web-based questionnaires are also more likely to be responded to by participants, since they can be accessed anytime and anywhere. They provide participants with an easy-to-use interface, which enables them to edit answers without hesitation. Until a few years ago the only online method available to invite participants to participate was by distributing a link via an email system; however the widespread growth of social networks has opened up new horizons, allowing researchers to reach more participants by using sites such as Twitter and Facebook to distribute these links. Moreover, web-based data collection software empowers researchers to control the data obtained from participants by providing different types of visual analysis, such as in charts or Microsoft Excel files.

Nevertheless, scholars have pointed out some issues regarding web-based data collection software. Bryman (2008) argues that some evidence shows that there are lower response rates to online surveys when compared with postal questionnaires; he suggested two strategies to overcome this issue - either by contacting respondents prior to sending them a questionnaire or by following up non-respondents at least once. In this research, where the context is Saudi
Arabia, and the respondents are either academics or undergraduate students, the opportunities to reach the participants through online surveys are more plausible than by postal methods since each academic and undergraduate student is required to have an email address and register it within their organisation, whereas registration of the postal addresses is not required. Moreover, in addition to the two strategies highlighted above, some techniques have been advised (Bryman, 2008) to increase response rates; for instance, giving an expected time in which the survey should be completed, e.g. 8-10 minutes or 12-15 minutes. Also, to avoid participants giving up after starting answering, it advisable to provide a progress indicator to show participants how far they have progressed through the survey in regards to any particular question. These recommendations and others have been followed in this research using web-based questionnaires.

One of the issues highlighted regarding a web-based survey (Bryman, 2008) is the risk of receiving multiple replies from the same participant, as some may fill the questionnaire out more than once either by mistake or deliberately. In this research, however, the software that was used, survey Gizmo, offers an option to accept only one participation from each computer; this however does not solve the problem completely but it is more likely to reduce the risk of duplicate replies.

4.6.1.3 Adopting questionnaires for this GT research

Although literature on GT research methodologies suggest that it can be based on either qualitative or quantitative data; the majority of studies are of a qualitative nature (Birks & Mills, 2011). Glaser and Strauss (1967) emphasise that their process of generating theory is independent of the type of data used whether quantitative or qualitative. Moreover, the methods and processes explained for GT research mainly focus on techniques used for collecting and analysing qualitative data; for example, although questionnaires are suggested as a data gathering-method in GT research (Birks and Mills, 2011; Charmaz, 2006), hardly any details on the application of this technique could be found. The researcher came across only four examples citing the use of questionnaires in what has been described as GT research. Nonetheless, these examples provided limited practical guidance for the adaption process of the questionnaires in these GT studies. For instance, three of these examples (i.e. Currie, 2009; Mishna, 2004 and Raj et al., 2005) have incorporated questionnaires to facilitate the identification of interview participants. This suggests that a GT research does not necessarily have to start with an interview, and although the objective was to identify participants; the data used towards achieving this objective would not be something the researcher can overlook and must have had
some influence on the following steps. The fourth study (Gunnarsdóttir and Björnsdóttir, 2003), however, has employed the actual findings from a survey, which demonstrates the use of questionnaires as a main data source for exploring a phenomenon in a properly developed grounded theory study.

In GT research, data can be gathered from many sources. As Glaser (2002, p. 11) stated, “all is data”. Therefore, the researcher “can use interviews, observations, videos, documents, drawings, diaries, memoirs, newspapers, biographies, historical documents, autobiographies, and other sources not listed here” (Corbin and Strauss, 2008, p. 27). In GT research, no matter what the data type or techniques used are, success depends on the researcher’s motivation and how they collect, generate and manage their research data (Birks and Mills, 2011; Glaser, 2008). Grounded theorists, however,

“Often begin their studies with certain research interests and a set of general concepts. These concepts give you [the researcher] ideas to pursue and sensitize you to ask particular kinds of questions about your topic…sensitising concepts and disciplinary perspectives provide a place to start, not to end”. (Charmaz, 2006, p. 16)

According to the above discussion, the decision to employ questionnaires in this research in addition to interviews was a deliberate one; this was deemed necessary to satisfy the research objectives (1.3). The following section further clarifies this action.

4.6.1.4 Questionnaires’ role, contribution, and relationship with interviews in this GT research

In GT research, researchers can use one or more data-gathering techniques depending on the aim and purpose of their study (Birks and Mills, 2011; Charmaz, 2006; Corbin and Strauss, 2008). Researchers who used more than one data-gathering technique in their GT research vary in the combination process. In their GT research, Hill et al. (2009) used focus groups to generate initial concepts followed by interviews, in order to accomplish their study’s aim; i.e. to re-examine choking in sport. They conducted a focus group with four experts of applied sport psychology then carried out interviews with the same participants individually. This demonstrates the true concept of data gathering in GT research; that is, to generate as many concepts as possible from the investigated phenomenon, which eventually leads to understanding the phenomenon and enables the development of a theory grounded in the gathered data.
When using two methods to gather data in a GT research, researchers may choose to use the same participants, different participants, or a combination of each, subject to the study aim and the accessibility of participants (Birks and Mills, 2011). Similarly, in this research, the data-gathering process commenced with questionnaires to allow a general understanding of the investigated context, which also helped in generating initial broad concepts that were then employed in interviews. In other words, the questionnaire findings were adapted for two objectives; 1) to identify, precisely, the type of participants to be interviewed particularly at the start of the interviewing process; and 2) to design the interviews questions.

Moreover, Warburton (2005, p. 6) supports this approach as he states that “it is common practice to use an initial questionnaire as a trawling device for identifying common themes, which can then be focussed upon during formal interviews”. Additionally, Pinsonneault and Kraemer (1993) classified survey research purposes into three types, exploration, description or explanation purposes. They point out that the aim of survey research in exploration is

“To become more familiar with a topic and to try out preliminary concepts about it...the use of survey research for exploration as an end in itself is almost never warranted. Exploratory surveys should be used as the basis for developing concepts and methods for more detailed, systematic descriptive or explanatory surveys”.

(Pinsonneault and Kraemer 1993, p. 82)

Accordingly, it was anticipated that the use of questionnaires in this research would be of great value to both the process and the outcomes. It should be highlighted that questionnaires were not employed to provide statistical data as end-results so that these data are generalised as the research findings, but rather (as explained above) to explore the phenomenon under study (i.e. the academics’ adoption of LMS), and offer the researcher broad concepts about it. These concepts were then employed to help the researcher to identify participants and design a set of interview guide-questions, which were used to start the main data-gathering process at selected universities. The data gathering stages and analysis process, and how they developed, including the relationship between the questionnaires and interviews, are demonstrated in Table 29.

The actual process included two questionnaires; one was to collect data from academics (Appendix 1) and the other from undergraduate students (Appendix 2). They were designed to give the researcher an opportunity to generate a set of broad concepts to start investigating the academics’ adoption of LMS. The main aim of the questionnaire presented to academics was to explore their awareness of LMS in terms of their existence, purposes, content, capabilities and teaching functions. On the other hand, the primary aim of the students’ questionnaire was to explore initial concepts that demonstrate the role of academics in relation to the usage of LMS.
functions by students. In addition to these two main aims, the findings were also useful in enhancing the process of comparing findings, as they provided a source to confirm or contradict/disprove interview results during the subsequent analysis of interview data.

Both questionnaires were designed to incorporate closed and open-ended questions; this helped to generate a general view regarding the phenomenon investigated by this study, which also in turn helped with the main data-gathering technique, the semi-structured interview. Although most of the data obtained from both questionnaires are qualitative, quantitative data were also obtained; particularly data exploring the use of particular LMS functions.

4.6.2 Interviews

Compared with the questionnaire, the interview is more flexible regardless of the level of structure. It offers in-depth data unlike the questionnaire that is more likely to be superficial (Gillham, 2005). The interview is different from a normal conversation since it “involves a set of assumptions and understandings about the situation which are not normally associated with a casual conversation” (Denscombe, 2010, p. 172). Two major advantages of the interview have been mentioned by scholars: the first is that the interview “permits the respondent to move back and forth in time – to reconstruct the past, interpret the present, and predict the future, all without leaving a comfortable armchair” (Lincoln and Guba, 1985 in Pickard, 2007, p. 172). The second advantage is that: “Face-to-face interviews, arranged by personal contact between the researcher and the interviewees, are the kind of approach at the other end of the spectrum where very high response rates can be expected – possibly even 100 per cent” (Denscombe, 2010, p. 22). These advantages are significant when choosing an interview technique for this research in addition to the questionnaires, since neither can be guaranteed when only questionnaires are employed.

Interviews however, incorporate some differences but share the following features in general (Gillham, 2005, pp. 3-4).

1. Interview questions and topics are open, with the interviewee shaping their own answers rather than being controlled by other questionnaire techniques formats; e.g. ‘very satisfied’ to ‘very unsatisfied’, or ranking preferences in order.
2. The interactivity in the relationship between the interviewer and the interviewee is promising in terms of an acceptable degree of ‘adjustment’ of exploration and clarification; e.g. ‘I do not think I quite understand’, or ‘Tell me more about that’.
3. “There is structure and purpose on the part of the interviewer even when the context, like informal questioning in real-life setting, is ‘natural’ or at least naturalistic in the sense of taking advantage of opportunities that arise”.

Denscombe (2010) names three types of data, suggesting that an interview is the most suitable data-gathering technique to obtain information about:

1. Opinions, feeling, emotions and experiences;
2. Sensitive issues;
3. Privileged information.

The first and third types are applicable to the three stakeholders that this research investigates i.e. academics, e-learning coordinators and directors as this research is interested in academics’ opinions, feelings, emotions and experiences concerning the use of LMS. In addition, it involves e-learning coordinators and directors who are a principle source of privileged information, which cannot be obtained from others.

In this research, interviews are employed because they have been described as the most appropriate data gathering technique when undertaking a GT research method (Charmaz, 2006; Glaser and Strauss, 1967) since the aim in GT is often to “understand the world of the individual from their particular perspective” (Birks and Mills, 2011, p. 66). There are three main interview types: structured, semi-structured, and unstructured interviews (Gillham, 2005), the semi-structured interview is used as it is most appropriate for collecting “both structured information and information about attitudes or beliefs” (Moore, 2006, p. 141).

To ensure the interviews were conducted effectively, the researcher had to fulfil three aspects: 1) his ability to conduct and manage an interview (Gillham, 2005; Pickard, 2007); 2) that the interview questions were clear and free from ambiguity; and 3) that they would generate the required data (Gillham, 2005). The first aspect is achieved through practice by conducting a purposeful conversation with two or three friends or colleagues, then asking for feedback, while observing how they respond and how the interviewers themselves manage the interview process (Gillham, 2005; Pickard, 2007). In regards to the second and third aspect, Rowley (2012) recommends several check points in order to ensure that interview questions are understandable and would generate the required data; therefore, the researcher should ensure that the interview questions:

1. Do not include “jargon” that might be not understandable;
2. Do not have leading or implicit assumptions;
3. Do not include two questions in one;
4. Do not invite “yes/no” answers;
5. Are not too vague or general; and
6. Are not, in any sense, invasive.

Rowley (2012) adds that the researcher should consider the order of the interview questions, as often, earlier questions set the context for the remaining questions that lead to the conclusion. After that, the researcher examines the questions with no more than two or three people, observing how the interview ran and what data were obtained then makes any required amendments (Gillham, 2005; Rowley, 2012). These recommendations have been applied during the interviews undertaken for this research, as discussed later in section (6.2).

### 4.6.2.1 Telephone interviews

Telephone interviews have become somewhat widespread as a data-gathering technique in market research since the 1970s (Gillham, 2005) and their usage has increased sharply over the last few decades (Ruane, 2005). Telephone interviews are the best alternative to face-to-face interviews and are relevant when the latter are not possible (Ruane, 2005). Gillham (2005) highlights the advantages of telephone interviewing over other distance methods:

1. Because the interviewer is talking ‘live’ to the participant, he/she can be reactive. This point however, can be linked to calling via the internet, e.g. Skype.
2. Telephone interviews are like a face-to-face interview in that the participants can communicate more readily than by other distance interviewing techniques. This point is also relevant with Skype.
3. Telephone interviews allow the interviewer to get more material, when compared to other distance interview methods.
4. Participants are usually willing to respond to telephone interviews than other forms of distance interview methods.
5. Telephone interviews can afford access to participants anywhere that there is a telephone service. This is the most important criteria favouring telephone interviews since Skype requires an internet connection which is not available everywhere.

Telephone interviews have some disadvantages, however; although the interview is ‘live’, the interviewer cannot see the respondent, which results in missing non-verbal cues. Telephone interviews also require more concentration than a face-to-face interview, since the contact is only by vocal communication, which is harder to maintain (Gillham, 2005). These
disadvantages however do not affect the fact that the telephone interview is the best alternative to the face-to-face interview.

In this research, most interviews are conducted face-to-face during the field-study period; however, more interviews may be conducted after the field study, which can involve telephone interviews.

### 4.6.2.2 Adopting interviews for this research

After acquiring broad knowledge of the academics’ adoption of LMS, as well as their role in student’s usage of these systems’ functions, it was then necessary to obtain a deeper and more detailed understanding of the academics’ relationship with LMS. The broad knowledge based on the analysis from the questionnaires, as well as the findings from the literature review provided a set of concepts to be used as guidance for designing the main data-gathering technique: i.e. semi-structured interviews.

As this research is interested in the adoption and usage of LMS within Saudi universities, the interview focused on how academics use these systems’ functions. The information should include data about the particular functions academics are using along with their beliefs and attitudes towards the LMS adoption process, the advantages of these and any possible issues. Therefore, a semi-structured interview is the most appropriate technique for gathering this information, since semi-structured interviews “are best used when you want to collect both structured information and information about attitudes or beliefs” (Moore, 2006, p. 141).

Semi-structured interviews were undertaken with academics and key persons responsible for managing and training academics to use LMS. Gathering this type of information requires an interview because of the kind of data needed, which are classified either as ‘privileged information’, where contact is made with key persons in the field who are capable of providing information that others cannot, i.e. e-learning coordinators, or academics, when looking for data that describe ‘feeling, opinions, and experiences’ when using LMS (Denscombe, 2010). (See chapter 6 for practical procedures of interviewing) Nonetheless, conducting interviews followed the GT method advised and discussed in section 4.5.3.

### 4.7 Data Analysis

The data for this research collected via questionnaires and interviews are analysed by using the GT process, in addition to the application of an analytical process adapted from Oppenheim
(2005) and Swift (2006). The following paragraphs describe the strategies for analysing the data gathered from the questionnaires and the interviews. The data obtained from institutional and published documents were analysed in a similar way to the interview data.

### 4.7.1 Questionnaire analysis strategy

The data obtained through the questionnaires are both qualitative and quantitative. Oppenheim (2005) proposes steps to process and analyse self-completed questionnaire data. These steps include exploring data process facilities, data entry, converting the data into numerical form (coding), supervision and checking, cleaning the dataset, missing data, and the plan of analysis. Swift (2006), however, suggests six steps; these are getting the data into shape for analysis, getting the pre-coding right, coding open-ended questions, correcting errors, coping with missing values, and recoding variables. The data obtained from the two questionnaires employed in this research were analysed using a collective strategy adapted from the works of both Oppenheim (2005) and Swift (2006) as described below (Table 9).

For step 1, two software programs were used, *Survey gizmo* and *SPSS*, as explained below. Step 2 was achieved through *Survey gizmo* that was used to distribute the two questionnaires and receive the responses, as it offers the following criteria:

- Counts the number of participants’ responses;
- Counts the responses to each question; this identifies the questions not answered by individual participants;
- Affords access to each participant’s responses;
- Compares one particular response with the rest, which is helpful for testing/tracking a particular response. (surveygizmo.com)

<table>
<thead>
<tr>
<th>Steps</th>
<th>Explanations</th>
</tr>
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<tbody>
<tr>
<td>1) Exploring data process</td>
<td>In this step the researcher used software -<em>Survey gizmo</em> - to distribute the two questionnaires and receive the responses, as it offers some analysis operations as explained below. In addition SPSS was used to conduct the reminder processes of the analysis</td>
</tr>
<tr>
<td>facilities (What computer</td>
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<td>programs and equipment will</td>
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<td>be used?)</td>
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<tr>
<td>2) Supervision and checking</td>
<td>Check for clerical mistakes and other problems</td>
</tr>
<tr>
<td>3) Data entry</td>
<td>Transfer data from software Gizmo where the responses are received to software ‘SPSS’ for analysis</td>
</tr>
<tr>
<td>4) Cleaning the data set</td>
<td>Error reduction, inconsistencies</td>
</tr>
<tr>
<td>5) Coding</td>
<td>Convert the data into numerical form</td>
</tr>
<tr>
<td>6) The plan of analysis</td>
<td>Interpret the results.</td>
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</tbody>
</table>
In the third step of the analysis, the questionnaires data were transferred from the Gizmo software that was used to distribute them and responses were recorded onto ‘SPSS’ software for further analysis. In the fourth step, the SPSS software was used to identify any errors or inconsistencies. After that, the data were grouped and coded (step 5). The researcher’s role is to identify the variables that emerge from the analysis differently in a way that reflects the research’s aims and objectives (step 6). Section (5.2.4) includes further practical details.

4.7.2 Interview analysis in GT

Prior to looking at the analysis strategy in GT research, it is important to discuss common terminologies related to the GT analysis. GT theorists use different words to describe the stages of analysis. Birks and Mills (2011) provided a more abstract description of the coding terms used by other authors. Table 10 below illustrates these terms and their equivalents in other references. In this research, Birks and Mills’ (2011) description/terminology of the process is adopted; i.e. initial, intermediate and advance coding. This selection is derived from the clarity and simplicity this description provides when presenting the stages. (See section 6.7 for practical procedures of interviews analysis).

Table 10 Coding phases
Source: Birks and Mills (2011, p. 116)

<table>
<thead>
<tr>
<th>Birks and Mills (2011)</th>
<th>Initial coding</th>
<th>Intermediate coding</th>
<th>Advance coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glaser and Strauss (1967)</td>
<td>Coding and comparing incidents</td>
<td>Integrating categories and properties</td>
<td>Delimiting the theory</td>
</tr>
<tr>
<td>Glaser (1978)</td>
<td>Open coding</td>
<td>Selective coding</td>
<td>Theoretical coding</td>
</tr>
<tr>
<td>Strauss and Corbin (1990; 1998)</td>
<td>Open coding</td>
<td>Axial coding</td>
<td>Selective coding</td>
</tr>
<tr>
<td>Charmaz (2006)</td>
<td>Initial coding</td>
<td>Focused coding</td>
<td>Theoretical coding</td>
</tr>
</tbody>
</table>

4.7.2.1 Initial coding

‘Initial’ coding is the term used by Birks and Mills (2011) and Charmaz (2006) to define the first step in GT data analysis. It is synonymous with ‘open’ coding, as used by Glaser (1978) and Strauss and Corbin (1990; 1998). Initial coding is used to break down the data (Glaser and Strauss, 1967). At this level, the data gathered from interviews and the qualitative data collected from the questionnaires are fractured; however, next, a comparison process between phenomena, incidents and patterns retrieved from the data starts. “With initial coding, the
researcher moves swiftly to open up the data by identifying conceptual possibilities” (Birks and Mills, 2011, p. 95). Precisely, data are analysed using a line-by-line method (Glaser, 1978).

Glaser (1978, p. 57) suggested three questions to be asked during the initial stages to assist the process.

1. “What is this data a study of?
2. What category does this incident indicate?
3. What is actually happening in the data?”
4. “From whose point of view?” [added by Charmaz (2006, p. 47)]

“Initial coding proceeds until categories begin to form. Line-by-line coding is a technique that is most useful in the very early stages of analysis, eventually becoming redundant as the researcher gains a sense of conceptual control over the data” (Birks and Mills, 2011, p. 96).

By the end of this initial coding stage, the analysis leads the researcher to the second stage, intermediate coding.

4.7.2.2 Intermediate coding

Glaser (1978) referred to this level as selective coding, pointing out that concentration at this stage should be turned toward generating codes around the main variables identified. Charmaz (2006) referred to this stage as ‘focused’ coding; stating that this stage “requires decisions about which initial codes make the most analytical sense to categorize your data incisively and completely” (Charmaz, 2006, pp. 57-8). Strauss and Corbin (1990; 1998) referred to this process as ‘axial’ coding “whereby data are put back together in new ways after open coding, by making connections between categories” (Strauss and Corbin, 1990, p. 96).

In this stage, the analysis of the initial data results in the generation of multi-dimensional codes “and may consist of a number of sub-categories that together explain the broader concept” (Birks and Mills, 2011, p. 98). Intermediate coding and sub-intermediate coding have properties which are defined by Strauss and Corbin (1998, p. 101) as “characteristic of a category, the delineation of which defines and gives it meaning”. These properties “need to be identified in the data and explained fully in order to develop conceptual depth and breadth” (Birks and Mills, 2011, p. 98). The main task at this level is to conduct the process of integration for intermediate codes (ibid).
During this process, new data need to be gathered through theoretical sampling techniques so that the researcher reaches “theoretical saturation; that is, no additional data are being found (Glaser and Strauss, 1967). In more detail, “no new codes identified in later rounds of data generation or collection that pertain to a particular category, and the category is conceptually well developed to the point where any sub-categories and their properties/dimensions are clearly articulated and integrated” (Birks and Mills, 2011, p. 99).

When the researcher reaches theoretical saturation, it is time to identify the core category defined by Strauss and Corbin (1990, p. 116) as “the central phenomenon around which all the other categories are integrated”. When the researcher makes a connection between “a frequently occurring variable and all of the other categories, sub-categories and their properties and dimensions”, the core category can then be identified (Birks and Mills, 2011, p. 100). Identifying the core category leads the researcher to the advanced analysis stage to develop the theoretical integration of GT (ibid), as discussed below.

4.7.2.3 Advanced coding

As illustrated in Table 10, advanced coding is described by Strauss and Corbin (1990; 1998) in their discussion of ‘selective’ coding, while Glaser (1978) and Charmaz (2006) describe advanced coding within their discussion of ‘theoretical’ coding. In the main, the movement between initial and intermediate analysis stages leads the researcher eventually to the stage of advanced coding (Birks and Mills, 2011). At this level, the identification of the ‘core’ category and its relationships to other codes are developed into a theory using a 'storyline' technique (Strauss and Corbin, 1990). GT however, is not a linear process therefore; overlapping between analytical stages will continue to occur. Figure 13 below presents the qualitative data analysis process of this research. This has been developed by the researcher based on Birks and Mills’ (2011) view of the GT analysis process.
4.8 Sampling

“Good sampling may be the most important step in any research project” (Salkind, 2006, p. 85). This is because making a choice without following any sampling strategy or using a misguided sampling strategy may affect the research outcome. In the survey context, it is important to identify two terms: populations and samples. ‘Population’ “refers to all the items in the category of things that are being researched. It means a research population” (Denscombe, 2010, p. 23) or “a group of potential participants to whom you want to generalize the results of a study” (Salkind, 2006, p. 85), while ‘sample’ “refers to the relatively small part of that (research) population who are actually chosen to participate in the study” (Denscombe, 2010, p. 23).

4.8.1 Representative samples and exploratory samples

A representative sample is “a sample that reflects the population accurately so that it is a microcosm of the population” (Bryman, 2004, p. 87). A representative sample should match the aims of the work within the overall research population; therefore, it tends to be associated with larger surveys and the use of quantitative data (Denscombe, 2010). On the other hand, exploratory samples provide the researcher with a more in-depth understanding of a situation; Denscombe (2010) states that they are often used in small-scale research, and with qualitative data.
4.8.2 Probability sampling and non-probability sampling

A probability sample, as described by Bryman (2004) is one that has been identified using random selection, so that each unit in the population has an equal chance of being selected. Salkind (2006) adds another factor to probability sampling; independent chance, which means that “the choice of one person does not bias the researcher for or against the choice of another” (ibid, p. 86). Probability sampling, however, is not suitable when linked to qualitative research as it depends on statistical rather than theoretical criteria (Bryman, 2004).

A non-probability sample, on the other hand, is not based on a random selection method (Bryman, 2004). Denscombe (2010, p. 25) points out the main reasons why researchers may use this kind of sampling:

1. “When the researcher feels that, it is not practical to have many examples in his/her research;
2. When the researcher lacks data about the research population;
3. When the researcher experiences difficulties contacting the probability sample. These difficulties include cost and time”.

Non-probability sampling is more appropriate when the aim is to acquire an exploratory sample rather than a representative cross-section of the population (Denscombe, 2010).

4.8.3 Sampling in this research: Theoretical sampling

As explained earlier, questionnaires were distributed as an initial step of the data-gathering process, followed by interviews. The questionnaire sampling is exploratory rather than representative as it aims to explore the phenomenon under study, and inform the researcher of the broader related concepts. These concepts are then used by the researcher to generate a set of interview questions, which are used to start the data-gathering process through interviews following the theoretical sampling technique. (Further details about the questionnaire distribution and sample is discussed later in (5.2.).)

With regards to the interview, the theoretical sampling strategy was adopted. Theoretical sampling is a sampling strategy recommended by Glaser and Strauss (1967) as an appropriate method that fits with a qualitative data analysis approach; i.e. grounded theory (Bryman, 2008). As stated by Glaser and Strauss (1967, p. 45):
“Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges. The process of data collection is controlled by the emerging theory, whether substantive or formal”.

Therefore, it is an ongoing process rather than a distinct and single stage, where researchers “carry on sampling theoretically until a category has been saturated with data” (Bryman, 2008, p. 416) (Figure 14). Achievement of saturation is reached when no new or significant data emerge from those collected, and when each category that the researcher is interested in is well developed in terms of its properties and dimensions (Corbin and Strauss, 2008).

Figure 14 The process of theoretical sampling
Source: Bryman (2008, p. 416)

Theoretical sampling and purposive sampling (where participants are purposely chosen because of their relevance to the phenomenon under consideration) (Bryman, 2008) are often considered to be similar. Silverman (2010, p. 143) declares that they are the same unless “the purpose behind the ‘purposive sampling’ is not theoretically defined”. Pickard (2007) differentiates between the two as she considers theoretical sampling to be a type of purposive sampling. She claims that in theoretical sampling “the size and structure of the sample cannot be known in advance; the only guideline is to sample a category until confident of its saturation” (Pickard, 2007, p. 159). Theoretical sampling, however, must initially involve purposive sampling; since at first the researcher must determine the confines of the study in terms of the person(s) (according to their relevance to the phenomenon under study) or events involved, etc. The data obtained from the first respondent can then guide the researcher to the next.
Theoretical sampling in GT recommends that the researcher address a single dataset, that is, one interview followed by an analysis, before undertaking the next. In reality, this may not always be possible as the researcher may face a variety of obstacles, which may limit their ability to undertake intermittent analysis based on each stage of data generation or collection. Some of these obstacles are, geographical constraints, availability of participants, and other access issues (Birks and Mills, 2011). For instance, in some cases, a researcher who is interested in interviewing individuals from one family, or from a group of staff who work in the same place, may be unable to analyse the data between interviews. In such a situation, theoretical sampling principles can still be employed. However, in this case the researcher is required to “allow enough time between each data generation or collection event to consider the meaning of that data. How does it relate to [his/her] developing analysis? Does it confirm, contradict, clarify or expand his/her evolving theory? What direction does it now suggest?” (Birks and Mills, 2011, pp.71-2).

Theoretical sampling is used in the second stage of this research, with the interviews, as it is the most appropriate sampling approach that fits the GT method (Charmaz, 2006) and consequently the aim and objectives of this study.

### 4.9 Applied methodology: summary

<table>
<thead>
<tr>
<th>Research paradigm</th>
<th>Research methodology</th>
<th>Research method</th>
<th>Research techniques</th>
<th>Participants</th>
<th>Sampling method</th>
<th>Data analysis strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretivism</td>
<td>Grounded theory</td>
<td>Open and closed questionnaires</td>
<td>Undergraduate students</td>
<td>Exploratory samples</td>
<td>Two software packages (survey Gizmo and SPSS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open and closed questionnaires</td>
<td>Academics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Semi-structured interviews</td>
<td>Academics, e-learning coordinators, and directors</td>
<td>Theoretical sampling</td>
<td>Grounded theory</td>
<td></td>
</tr>
</tbody>
</table>

### 4.10 Questionnaires’ questions, research questions, and piloting study

This section describes the relation between the questions in the questionnaires and the research questions to assure that they all have been covered in the questionnaires. Then a detailed
discussion of the questionnaire piloting including its purpose, design, participants, procedure and findings is produced.

4.10.1 Questionnaires’ questions in relation to research questions

Research questions (1.3) have been addressed by the questionnaires’ questions (Appendices 1 and 2). Table 12 presents the relation between the two set of questions. Research questions also have been addressed by the interview’s questions (Appendix 3).

Table 12 Research questions in relation to questionnaires’ questions

<table>
<thead>
<tr>
<th>Main research question</th>
<th>Supporting-questions</th>
<th>Questionnaires’ questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are LMS adopted by academics in Saudi universities?</td>
<td>What is the relationship between education and technology?</td>
<td>The first two questions have been addressed in the literature review (chapters 2 and 3)</td>
</tr>
<tr>
<td></td>
<td>What is the status of e-learning in Saudi Arabia’s HE sector?</td>
<td>AQ10, AQ12, AQ15, SQ10 AQ8, AQ13, AQ15 AQ9, AQ14, AQ11 AQ16, AQ17, AQ19, AQ20, AQ21, SQ10, SQ11 AQ18, AQ22, SQ9, SQ12</td>
</tr>
<tr>
<td></td>
<td>What is the relationship between Saudi academics and technology, and with LMS in particular?</td>
<td></td>
</tr>
</tbody>
</table>

NB: AQ = Academics’ Questionnaire; SQ = Students’ Questionnaire

4.10.2 The instrument translation

The original text of the questionnaires was in English (see Appendix 1 & Appendix 2). The questionnaires were translated to Arabic, as this is the language of the majority of academics in Saudi universities. A ‘back-translation’ method (Pena, 2007) was employed to confirm the validity of the translation. ‘Back-translation’ refers to translation from the original to the target language, and then back to the original by a second individual (ibid). In order to achieve this, the researcher followed the process below:

1. The questionnaires for both academics and students were translated from English (i.e. the original language) to Arabic (i.e. the target language).
2. A second individual subsequently translated the target version back to the original language.
3. Comparisons were then made between the original and back-translated versions, in order to identify any anomalies between them, which were then corrected.
The primary aim of the above procedure is to ensure that the words and linguistic meanings within the questionnaires are identical in both versions.

4.10.3 Piloting purpose

Piloting a questionnaire or an interview is not only necessary to guarantee that questions fulfil their purposes but also plays a major role in guaranteeing that the research instrument as a whole will function well (Bryman, 2008). Prior to applying the data-gathering activity, a pilot study for the two questionnaires - academics’ questionnaire and undergraduate students’ questionnaire - was carried out to test the validity of the two tools. This step provides the researcher with significant information about the questionnaires’ structure, content, clarity and format, as is discussed later.

In this research, piloting aims to test all the main aspects of the two questionnaires, including the design, the type of data obtained, and access to the participating sample (Aldridge and Levine, 2001). In addition, as the two questionnaires were distributed in the form of web-based links, further considerations were necessary. These were; ensuring that the links work and could be accessed during the piloting and the main survey period, and to ensure that the software is capable of generating clear and regular online reports in relation to the results.

4.10.4 Piloting design

Bryman (2008) gave a set of recommendations for conducting a pilot study in a survey-based research:

1. When designing closed questions, asking open questions in the pilot is recommended to determine upon a fixed choice answer.
2. Piloting an interview plan, which includes time/agenda, can offer interviewers some confidence and experiences.
3. If all the participants who answer the question answer in the same mode, the data obtained is questionable since it does not form a variable. This can be identified through piloting.
4. Piloting an interview survey can lead the researcher to identify questions that make interviewees uncomfortable and consequently cause them to lose interest.
5. Piloting identifies questions, which give the impression that they are not understood, e.g. questions, which are often not answered, can be identified.
6. Through piloting the researcher is able to fix the suitability of the survey instruction.

7. Piloting allows the researcher to reorganise the questions in order if necessary, to improve their flow.

Aldridge and Levine (2001) provide what they call ‘warning signs in pilot self-completion questionnaires and interviews’ (Table 13).

Table 13 warning signs in pilot self-completion questionnaires and interviews
Source: Aldridge and Levine (2001, pp. 91-2)

<table>
<thead>
<tr>
<th>Warning signs in pilot self-completion questionnaires</th>
<th>Warning signs in pilot interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given several answers to a question where only one was required or the other way around</td>
<td>When the interview asked for rewording or explanation</td>
</tr>
<tr>
<td>Failure to answer the question</td>
<td>Interviewee appeared embarrassed as some questions may be more sensitive than we realised</td>
</tr>
<tr>
<td>Open questions are left blank</td>
<td>The interviews are significantly longer than expected</td>
</tr>
<tr>
<td>Respondents write comments in the margins</td>
<td>The interviews are significantly shorter than expected</td>
</tr>
<tr>
<td>The questionnaire takes a long time to complete</td>
<td>There are questions where the interviewee wanted to say more than we expected</td>
</tr>
<tr>
<td>Almost everyone gives the same answer</td>
<td>When the interviewer finds it hard to manage the interviews</td>
</tr>
</tbody>
</table>

Pickard (2007) stresses that the pilot study should be conducted so as to be as similar as possible to the real study. Some literature suggests that the criteria of the participants in a pilot study should be the most experienced available in the context under study in order to be able to determine errors and issues in the questions. Others suggest that a combination of more and less experienced participants is more appropriate, since it reflects the real status in the main study (Brace, 2010). This supports Pickard’s recommendation to use a similar sample in the pilot study to the one in the real study (Pickard, 2007).

Several piloting types are available; these include the informal pilot, cognitive pilot, large-scale pilot and dynamic pilot (Brace, 2010). They differ according to their purposes, duration, and techniques. In this research, the cognitive piloting method was adopted to test the two questionnaires. Because of its techniques, this method promises positive results; Brace (2010) discusses its main characteristics, which are summarised by the following points:

1. Cognitive testing can be conducted using a focus group but it is more commonly done using one-to-one interviews;
2. It can be conducted by researchers themselves, who have a good understanding of the subject under study, cognitive psychologists who are aware of the process of cognition, or specially trained interviewers who have good skills in this area;

3. In cognitive testing, the interviewer speaks to the interviewees to find out what they understand by particular questions or why they have responded in a particular way;

4. Throughout the interview, the interviewers take notes on points that they think they need to return to;

5. In cognitive testing interviewers can ask the interviewees to ‘think out loud’ as they answer the questions and give a running commentary on their thought processes.

In cognitive testing, the interviewers need to make sure that respondents:

1. Are able to answer the questions;
2. Understand the questions;
3. Can access and retrieve the relevant information from their memory;
4. Can judge the relevance of the question and of the information that they retrieve;
5. Can deliver answers that fulfil the question’s criteria and determine whether they are providing a real answer or a socially acceptable answer (Tourangeau, 1984 and Eisenhower et al., 1991 in Brace, 2010).

In this research an ‘interview’ is employed to conduct the ‘cognitive test’ as it is the most common method (Brace, 2010), and is more flexible, offering profound data when compared with other techniques (Gillham, 2005). The interview was conducted with the participants after they had submitted the questionnaire. While the interviewer (the researcher) spoke with the participants asking them about what they understood by particular questions, and why they had responded as they did, he took notes of the points mentioned to refer to when reviewing the questions. Before going into further detail about the actual piloting procedures, some data regarding the pilot-study participants is included below.

4.10.5 Participants in the pilot study

Table 14 and Table 15 below describe the main characteristics of the participants in the pilot study of the questionnaires.
Table 14 Characteristics of participants in the academics’ questionnaire piloting

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Age group</th>
<th>Scientific rank</th>
<th>Discipline</th>
<th>University/institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>31-40</td>
<td>Lecturer</td>
<td>Engineering</td>
<td>University of Dammam</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>31-40</td>
<td>Lecturer</td>
<td>Science Studies</td>
<td>Al-Taif University</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>31-40</td>
<td>Teacher assistant</td>
<td>Computer Science and Technology</td>
<td>King Saud University</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>26-30</td>
<td>Teacher assistant</td>
<td>Engineering</td>
<td>Prince Mohammed University</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>31-40</td>
<td>Professor assistant</td>
<td>Education Studies</td>
<td>Princess Nora University</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>31-40</td>
<td>Lecturer</td>
<td>Computer Science and Technology</td>
<td>College of Technology</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>26-30</td>
<td>Teacher</td>
<td>Computer Science and Technology</td>
<td>College of Technology</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>31-40</td>
<td>Lecturer</td>
<td>Engineering</td>
<td>University of Dammam</td>
</tr>
</tbody>
</table>

Table 15 Characteristics of participants in the undergraduate students’ questionnaire piloting

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Age group</th>
<th>Discipline</th>
<th>Year/level</th>
<th>University/institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>24-30</td>
<td>Science Studies</td>
<td>Year 3</td>
<td>University of Dammam</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>24-30</td>
<td>Computer Science and Technology</td>
<td>year 4+</td>
<td>College of Technology</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>20-23</td>
<td>Business and Law</td>
<td>year 4+</td>
<td>Prince Sultan University</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>20-23</td>
<td>Business and Law</td>
<td>Year 4+</td>
<td>Prince Sultan University</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>20-23</td>
<td>Engineering</td>
<td>Year 1</td>
<td>King Fahd University of Petroleum &amp; Minerals</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>20-23</td>
<td>Education Studies</td>
<td>Year 3</td>
<td>Princess Nora University</td>
</tr>
<tr>
<td>7</td>
<td>F</td>
<td>20-23</td>
<td>Engineering</td>
<td>year 4+</td>
<td>University of Dammam</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>20-23</td>
<td>Engineering</td>
<td>Year 3</td>
<td>University of Dammam</td>
</tr>
</tbody>
</table>

4.10.6 Piloting procedures

In this research, the first drafts of the two questionnaires were designed five months before the final draft that was used in the piloting. During the five months, there were several amendments as a result of discussing and reviewing the questionnaires with the research supervision team. Several factors have been considered during the reviewing process, such as the relation between the questionnaires and the research question, the questionnaires’ structure and content, and the questionnaires’ clarity and feasibility.

As the researcher and supervision team agreed that the two questionnaires were ready for piloting, the ‘cognitive test’ techniques, mentioned previously, were applied with eight academics, and eight undergraduate students. The participants’ main characteristics are described above in section 4.10.5.
The actual piloting procedure steps for academics and undergraduate students’ questionnaires (eight academics and eight students) are described in the following points:

1. Each participant was asked to go online through the questionnaire link provided by the researcher;
2. Then, when they submitted the questionnaire, a hard copy of the feedback was printed out;
3. Afterward, a face-to-face interview was carried out with academics who had been allocated as 1, 2 and 3 and with two undergraduate students, allocated the numbers 2 and 5. Telephone interviews (section 4.6.2) were held with the remaining participants;
4. The interview started with general questions regarding the questionnaire (look, structure, length, answers’ spaces, answering time, etc.);
5. While the participant was answering the questions, the interviewer took notes and written comments so that he could go into further detail about the issues raised afterwards when discussing specific questions;
6. In some cases, discussing the overall/general issues extended to the questions themselves; therefore notes were taken for the questions discussed (e.g. do not/or difficult to understand, unclear, etc.) in order to be considered later on;
7. Issues raised by previous participants were also discussed with the following participants, so that the comments made are either supported or rejected showing different views and justifications;
8. Carrying out the interview with one participant then another at different times allowed the researcher to accumulate a stronger set of justified findings, which helped in the modification process.

After the completion of 16 interviews, several recommendations for amendments emerged as discussed below.

4.10.7 Piloting findings

In this section, the questionnaires’ piloting findings are discussed, first the academics’ questionnaire then the undergraduate students’ questionnaire. Tables were used to present the findings as they make them clearer and easier to read.
4.10.7.1 The academics’ questionnaire:

As described above in Table 14, eight academics from different Saudi universities were asked to participate in the academics’ questionnaire pilot-study. Their participation generated positive comments that acknowledged the design, the structure and clarity of the questionnaire, nonetheless, it also provided a variety of recommendations for modification, some in the form of minor corrections such as grammatical and wording mistakes, which were modified accordingly, and other recommendations that related more to the content and format of the questionnaire. The two following tables (Table 16 and Table 17) illustrate the piloting feedback and the related action taken along with a justification explaining why the recommendation has or has not been considered by the researcher.
Table 16 Piloting results from the academics’ questionnaire (part 1)

<table>
<thead>
<tr>
<th>Questions that had comments by participants</th>
<th>Participants’ comments/recommendations</th>
<th>Consideration</th>
<th>Justification and implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction page</td>
<td>Participant 5 suggested to add a detailed definition of LMS.</td>
<td>×</td>
<td>The introduction included a brief/simple definition of LMS supported by names of some examples to make it clearer, whereas an extended definition would create a long paragraph, which will make the introduction difficult to follow by participants from different fields of interest. Plus no similar comments were made by other participants; therefore the researcher decided not to implement the suggestion.</td>
</tr>
<tr>
<td>Q6: Your discipline? The answer was to be entered an open-text box</td>
<td>Participant 2 suggested to offer 8 or 10 major disciplines and provide an open-text box for any other ones not included.</td>
<td>✓</td>
<td>This recommendation helped keep the answers manageable and containable, since having an open-text box would provide different sub-disciplines e.g. networks and ISM which both can be placed under Computer science. As this survey will not benefit from such detailed information; the suggestion was implemented. Modification: 11 major disciplines have been listed to choose from, and one open-text box for unlisted ones.</td>
</tr>
<tr>
<td>Q7: was divided into two parts: 1) What technological tools other than Learning Management Systems (LMS) do you use in teaching? Please select all that apply. The answer included 6 check boxes, the first check box (none), then 4 technological tools, and the last check box (Other tools) Part 2) If other tools, please list them below.</td>
<td>Participants 1, 6 and 7 suggested adding two tools, i.e. projector and data show as they are the most popular tools among academic staff (they said). Participant 2 suggested combining the two parts in one question if the software allows so, and reducing the 5 list boxes in one large box. He also suggested moving the option (none) to the end.</td>
<td>✓</td>
<td>Adding more tools in the options will reduce answers provided in the open-text box, particularly if the tools added are popular. Combining the two parts into one question makes it easier, and encourages further participation, and merging the 5 boxes into one large box would also encourage participation. Modification: both suggestions have been adopted as shown in Appendix 1, Q7.</td>
</tr>
<tr>
<td>Q11: In your opinion, what is your university’s/institution’s attitude towards using LMS? There were 4 parts in the answer with 3 choices under each part, i.e. yes, no, I do not know.</td>
<td>Participant 2: selected (yes) under part one (my university promotes LMS use) and also selected (yes) under part three (my university does not show any interest in using LMS).</td>
<td>✓</td>
<td>Initial analysis showed conflict in the participant’s answer; therefore, the question was redesigned completely, so that the options are sorted into levels and the participants cannot choose more than one answer. One other option was added at the end of the list (I do not know) (Appendix 1, Q11).</td>
</tr>
</tbody>
</table>
Table 17 Piloting results from the academics’ questionnaire (part 2)

<table>
<thead>
<tr>
<th>Questions that had comments by participants</th>
<th>Participants’ comments/recommendations</th>
<th>Consideration</th>
<th>Justification and implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q12: What LMS is provided by your university/intuition? Please tick all that apply.</td>
<td>Participant 1: suggested adding one more option(s), i.e. I do not know if we have LMS or not.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participant 2: suggested ingadd an open-text space to the options, i.e. if other LMS, please specify.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participant 1: suggested that if a participant chooses the answers: (I do not know if we have LMS or not) or (None) there is no sense to take them through questions 14-16 which ask about details of the LMS, so those who choose these two options should skip to question 17</td>
<td>✔️</td>
<td>All were considered, as some academic staff in Saudi universities may not know if they have a LMS or not. The open-text box was merged with the existing list to encourage further answers. The design was amended to skip Qs 14-16 for those that choose the answers: I do not know if we have LMS or not or None (Appendix 1, Q12).</td>
</tr>
<tr>
<td>Q14: Is there any ongoing support for the use of LMS when needed within your university/institution? Tick all that apply.</td>
<td>Participant 2: suggested moving the first option, i.e. None, to the end.</td>
<td>✔️</td>
<td>Providing the None option at begging may encourage participant to choose it without thinking of other possible answers or just to skip the question, therefore, this suggestion was applied (Appendix 1, Q14).</td>
</tr>
<tr>
<td>Q15: What are the tools provided within your LMS that you use in the teaching process? The question was designed with 10 empty boxes to be filled by participants.</td>
<td>Participants 2,3,5 and8 found it difficult to fill it in, and suggested that the researcher add examples of the LMS tools, then one open-text box for other. Also to add an option at the end that says (None) if the participant does not use any tools.</td>
<td>✔️</td>
<td>This recommendation was an option that has been considered prior to piloting; however, the piloting results have confirmed that adding examples of LMS tools can also help explain more clearly what is meant by LMS tools. Modification: Seven main/common LMS tools were added in addition to two options, i.e. the option Other LMS tools, with an open-text box, and the option None (Appendix 1, Q15).</td>
</tr>
<tr>
<td>Q19: Do you believe that LMS is more useful for some disciplines than others? The options for the answer were, yes or no with an open-text box to explain why.</td>
<td>Participant 7: suggested having one more option, i.e. I do not know</td>
<td>✔️</td>
<td>Some participants may not have an answer for this question so the suggestion was applied. (Appendix 1, Q19)</td>
</tr>
</tbody>
</table>
4.10.7.2 The undergraduate students’ questionnaire:

Similar to the procedure followed with the academics’ questionnaire, eight undergraduate students from different Saudi universities were asked to participate in the pilot-study (Table 15). Their participation generated praise for the design and clarity of the questionnaire and only some minor recommendations for modification were made. Table 18 illustrates the parts that have been criticised and the researcher’s justification for applying the suggested changes or not. However, since some of the questions were similar to those modified in the academics’ questionnaire, the researcher applied the same modifications to the students’ one (Q. 5, 8 and 11) as they both had the same reasons requiring modification.

Overall, the findings through the piloting process as illustrated in Tables 14, 15, and 16 showed that most recommendations suggested by participants related to the questionnaires’ structure and format more than the content itself. As the results came through, and amendments took place, the researcher reached a level of confidence about the first instrument designed for data gathering, which without doubt would support the main data-gathering instrument - i.e. interviews. Based on this, the two questionnaires were distributed following the methodological processes described in earlier sections of this chapter.
Table 18 Piloting results from the students’ questionnaire

<table>
<thead>
<tr>
<th>Questions that had comments by participants</th>
<th>Participants’ comments/recommendations</th>
<th>Consideration</th>
<th>Justification and implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5: Your discipline? The answer was an open-text box.</td>
<td>Based on participant 2’s recommendation from academic participants (see row 2 on table 14)</td>
<td>✓</td>
<td>Modified accordingly (Appendix 2, Q5)</td>
</tr>
<tr>
<td>Q8: What LMS is provided by your university/institution? Please tick all that apply.</td>
<td>Based on participants 1 and 2 recommendations from academic staff participants (see row 1 on table 15)</td>
<td>✓</td>
<td>Modified accordingly (Appendix 2, Q8)</td>
</tr>
<tr>
<td>Q11: In your opinion, what is your teachers’ attitude towards using LMS?</td>
<td>Based on participant 2’s recommendation from academic staff participants (see row 4 on table 14)</td>
<td>✓</td>
<td>Modified accordingly (Appendix 2, Q11)</td>
</tr>
<tr>
<td>Q8: What LMS is provided by your university/institution? Please tick all that apply.</td>
<td>Participant 7: Suggested that if the participant chose the following answers: I do not know if we have LMS or not or None there is no sense in taking them through the rest of the questionnaire i.e. questions 9-13, which are concerned with details of LMS. She suggested that those who choose these two options should skip to the submission page.</td>
<td>✓</td>
<td>Modification: The software is amended to skip those who choose these two options to skip to the submission page (Appendix 2, Q8).</td>
</tr>
<tr>
<td>General comment</td>
<td>Participant 8: Suggested if possible to add more questions about the students’ opinions in the LMS itself and how it can be developed from their perspectives and what issues they face when use LMS.</td>
<td>×</td>
<td>This recommendation was not considered as the focus on this research is on academics’ perspectives more than students’ perspectives. On the other hand, Q 12 (i.e. Please add any farther information/comments about your experience in LMS that you think it might be of interest to this research) provides students a large space to express their feelings, views, and opinion towards using LMS.</td>
</tr>
</tbody>
</table>
4.11 Research methodology summary

This chapter has discussed the methodology used in this research and the processes and instruments employed for gathering and analysing the data. It has also demonstrated the evaluation and development process for the instrument and its results. This ensures the reliability of the methods and processes applied, and provide a clear plan for the actual fieldwork, which is described in depth in the following chapter. Figure 15 summarises the research methodology and the processes involved.

![Figure 15 Research methodology summary](image-url)
CHAPTER 5
Initial Data Gathering Stage:
Questionnaires
5.1 Introduction

The previous chapter described the research paradigms, methodologies, methods, data-gathering techniques and analysis strategies adopted for this research, along with the pilot study procedures, analysis and findings. This chapter describes the initial step of the data-gathering technique; the questionnaires, which are employed to gather initial data to allow the researcher to gain wider perspectives about the research context, and to generate a set of broad concepts to develop questions for the interviews conducted afterwards as the main data-gathering technique.

This chapter is divided into four sections: 1) questionnaires’ distribution process, responses and initial analysis, 2) questionnaires’ findings, 3) analysis of academics’ questionnaires and concepts obtained, and 4) analysis of students’ questionnaires and concepts obtained (Figure 16).

5.2 Questionnaires

Although the two sets of questionnaires (academics and students) were distributed to all Saudi universities, only three, Princess Nora University (PNU), Al-Imam University (AIU) and University of Dammam (UOD), were re-contacted to ensure that they had distributed the questionnaires. As mentioned previously, this is the first step of the field study, which involves investigation of the academics’ adoption and usage of LMS in the Higher Education sector in Saudi Arabia. The next action was the conducting of interviews in these three universities.

The objective of the questionnaire is to explore the phenomenon under study, i.e. the academics’ adoption and usage of LMS, from which broad and basic concepts are identified. These concepts are then used by the researcher to generate a set of interview questions, which are used to start the chief data-gathering process applied through interviews conducted at selected universities. Another objective of the questionnaire is to enhance the process of comparing findings, as it provided a source to confirm or contradict/disprove the results generated from the interviews during the analysis process (Figure 17).
It is pertinent to mention here, as explained previously (4.6.1.4), that in this GT research, the questionnaires were not intended to generate a final finding but rather represented an initial step towards the generation of questions, which were then raised in the interviews. Questionnaires were used to gather initial data from academics and undergraduate students in Saudi universities, which allowed the researcher to gain wider perspectives about the research context. The questionnaire findings provided the researcher with broad concepts about the relationship between the academics and LMS. These concepts were used to develop questions for interviews conducted with academic staff and e-learning coordinators within selected universities.

Two questionnaires were developed; one was to collect data from academics (Appendix 1) and the other to collect data from undergraduate students (Appendix 2). The rest of this section describes their distribution process, responses and analysis process.

5.2.1 Distributing the Questionnaires

The process for gathering the data was arranged so that all Saudi Universities (36 private and public universities) received the links to both questionnaires and distribute them to their students and academics. This was accomplished by sending email requests to those who have the authority to distribute the questionnaires within their university.
The researcher then made contact with three universities for permission to conduct the interviews, in order to gather more comprehensive data. As stated above, the three Universities contacted were the Princess Nora University (PNU), Al Imam University (AIU) and University of Dammam (UOD). Initially, individuals from each of the three universities were contacted by the researcher to ascertain that they had received the questionnaires and distributed them among their students and academics through their email system. Having feedback from these universities in particular was necessary; it provided the researcher with wider perspectives about the LMS context in the universities involved in more depth during the interviews. This also helped in developing some of the interview questions, particularly at the beginning of the research process about the current LMS used in those universities and their environment and working structure.

The following paragraphs describe the mechanisms the researcher put in place in order to attain the highest response rate possible to the questionnaires.

1. The two questionnaire links were emailed to the Deanships of Scientific Research in 36 public and private Saudi Universities and Colleges. The links were also distributed using the social media site, ‘twitter’, by forwarding a request to some academics with a high number of students following them. This included the highly recognised academic, Dr Abdullah Al-Ghathami, who had 196,386 followers (@ghathami, twitter, 23 Jan. 2012).

2. All three specified universities that were contacted by the researcher in person required official application letters in order for them to cooperate with the researcher. This was in addition to the letters already presented by the researcher from his supervisor and the Saudi institute supervising the field study (as part of SA research regulations for students studying abroad).

3. Two of the three universities, the PNU and the AIU, confirmed that they have received the links and assured the researcher that they would distribute them among their academics and undergraduate students.

4. The third university, however, asked for an official letter directed to them (i.e. with their name) from the researcher’s sponsor, in this case, the Cultural Bureau of Saudi Arabia in the United Kingdom, in order for them to process the application and distribute the questionnaires formally. This also was to approve the application for conducting interviews. In order to obtain the requested letter, the researcher contacted the Cultural Bureau, but it had closed for a national holiday break, so progress was delayed for a while.
During this, feedback from the questionnaires started to come in from the PNU’s academics and students.

The researcher then started the initial analysis process with the first group of respondents in order to generate questions for the interviews.

The researcher contacted the AIU to confirm that they distributed the questionnaires, as he noticed that there was no questionnaire feedback from this University. The AIU replied to the researcher saying that they would distribute the questionnaires on 15 February 2012, as part of their Technical Support Department’s work schedule.

The results started to come back from the AIU, as the researcher had been informed, on 15 February 2012; consequently, the researcher decided to allow two weeks for feedback. The link was updated to advise the participants of the extended time, after which the two questionnaires were closed for any further responses by the end of February 2012.

A couple of weeks from the start of the field study, the UOD received the official letter they requested. As a result, they distributed both sets of questionnaires to their academics and students.

By the end of February 2012, all three versions of the questionnaires - the academics’ questionnaire (Arabic version), the academics’ questionnaire (English version), and the undergraduate students’ questionnaire - were closed.

The overall period the questionnaires were available online to participants was approximately two and a half months (from 17 December 2011 until 29 February 2012), which allowed sufficient time for dependable feedback.

5.2.2 The treatment of ‘submitted’ or ‘not submitted’ questionnaires

Prior to presenting the questionnaire results, the meanings of two of the terminologies used in the data processing need clarification; these terms are ‘submitted questionnaire’ and ‘not submitted questionnaire’. The former refers to the questionnaires that were submitted by participants even if they included unanswered questions, done by selecting the ‘submit’ button at the end of the questionnaire, whereas ‘not submitted questionnaire’ refers to the questionnaires that were accessed online but were not submitted, even in the case where all questions have been answered.

For this research, only submitted questionnaires were considered, as not submitting at the end of the questionnaire indicates that the participant did not give the researcher consent to use the data
they provided. This was clearly stated in the ‘Your Rights’ section in the introduction page of the questionnaire; “by submitting the completed questionnaire, you permit the researcher to use it for his study” (Appendices 1 and 2). Some submitted questionnaires however, included some questions which had not been answered; this is discussed in further detail in the following part of this chapter.

5.2.3 The sum of responses to the questionnaires

Because not all academics in Saudi universities are Arabian, there were two versions of the questionnaire, Arabic and English. This required an additional and necessary step in the analysis process in comparison with the students’ questionnaire; to integrate the two completed Arabic and English versions of the questionnaire. This was essential so that the final results are representative of the whole sample and no duplication or errors result because of that. For this, the researcher printed out the 40 English versions of the questionnaires –as they were fewer in quantity- and input their data manually into the Arabic version of the software.

In total, 332 submitted academics’ questionnaires were returned, 292 in Arabic and 40 in English. A further 2017 not submitted’ questionnaires (1987 in Arabic and 30 in English) were collected, giving a feedback total of 2349. However, as discussed above, only the submitted questionnaires’ (332) data were included in the analysis phase (Table 19).

Table 19 The sum of responses to the Academics’ questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Arabic version</th>
<th>English version</th>
<th>Total</th>
<th>Inclusion in the research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted questionnaires</td>
<td>292</td>
<td>40</td>
<td>332</td>
<td>✓</td>
</tr>
<tr>
<td>Not submitted questionnaires</td>
<td>1987</td>
<td>30</td>
<td>2017</td>
<td>✓</td>
</tr>
</tbody>
</table>

A closer look at the (2017) non-submitted academics’ questionnaires was taken to identify possible reasons why such a huge amount of people accessed the questionnaire online and then decided to not participate. With regard to 30 non-submitted English versions, only one participant answered the first three questions, i.e. gender, age range and scientific rank. The remaining 29 participants did not answer any of the questions. In the 1987 non-submitted Arabic versions, 133 or 6.6 per cent of the participants answered one or more questions but no one answered all of them. The largest group of participants, i.e. 54 or 40.6 per cent only answered questions 1 to 9, which were the questions displayed on the first webpage of the questionnaire. The reason for this could be that they expected a single-page questionnaire and when they found out that the questionnaire was more than one page long they decided to not
complete it. If this the reason prevented them from completing and submitting the questionnaire it could be overcome by designing the questionnaire on one screen page. This however, would require the participants to scroll to the bottom of the screen, which is another issue that should be considered when designing a web-based questionnaire. The second largest group of participants answered some questions but did not submit their feedback (16 or 12 per cent). This group only answered the first three questions, i.e. gender, age range and scientific rank. In response to their ‘scientific rank’, they all chose other scientific rank with four participants indicating they were students while the remaining 12 participants declined to answer. The most likely reason that prevented them from completing the questionnaire and submitting it is that they discovered they were not members of the questionnaire’s target population, i.e. not academics. The remaining participants of this group (those who answered some questions and did not submit their feedbacks, some 63 or 47.4 per cent) varied in the number of questions they answered.

About the undergraduate students’ questionnaires, in total, 1887 undergraduate students’ questionnaires were returned. An extra 2905 ‘not submitted’ questionnaires were also returned, making the total feedback 4792. Similar to the academics’ questionnaire, only the 1887 ‘submitted questionnaires’ are used in this study (Table 20).

Table 20 The sum of responses to the undergraduate students’ questionnaire

<table>
<thead>
<tr>
<th>Total</th>
<th>Inclusion in the research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted questionnaires</td>
<td>1887</td>
</tr>
<tr>
<td>Not submitted questionnaires</td>
<td>2905</td>
</tr>
</tbody>
</table>

A closer examination of the (2,905) non-submitted student questionnaires was made to identify possible reasons why such a huge amount of people accessed the questionnaire online and then decided to not participate. The majority of them (2,270 or 78.1 per cent) did not answer any questions. The rest (635 or 21.9 per cent) answered some questions and only one participant answered all of them. The majority of the students who accessed the questionnaire and answered some questions (519 or 81.7 per cent) did not submit their feedback. These students tended to answer questions 1 to 8, which were displayed on the first webpage of the questionnaire. This is similar to the case with the academics’ questionnaire, which emphasises the need to consider designing the web-based questionnaire on one screen as discussed previously.
5.2.4 Questionnaires: initial analysis

The analysis strategy discussed above (4.7.1) will be followed in analysing the two questionnaires results.

The researcher undertook the second step of the analysis process by checking the returns for errors. The software used for the questionnaires, Survey Gizmo not only counts the completed questionnaires but also counts the responses to each question; this helped in identifying the questions that were not answered by individual participants (4.7.1). The researcher reviewed all 332 submitted academics’ questionnaires and 1887 submitted students’ questionnaires, and as a result of the first analysis step, he found the following.

1. An initial check showed that 28 responses out of the overall 332 academics’ questionnaires were submitted without any questions being answered. These subsequently were omitted and therefore reduced the total number of academics’ questionnaires to 304. Similarly, with the students’ questionnaires, 39 responses out of the overall 1887 were submitted without answering any questions. Therefore, the number of total students’ questionnaires reduced to 1848.

2. Checking the answers shows that 45 out of the overall 304 academics indicated in the scientific rank field that they were either students or administrative workers, and when they checked the field of the number of subjects they teach, they left it either empty or indicated 0. Therefore, they were considered outside the questionnaire range and consequently their answers are removed, which reduced the total number of academics’ responses to 259.

3. None of the 259 academics and 1848 undergraduate students participants answered all questions. However, some of the questions had a prerequisite follow-up question; for example, if the participant answered ‘No’ to having a LMS in their university, then they were expected not to answer the questions asking about details of the LMS they have. That is to say, not having fully completed questionnaires does not affect the results; on the contrary, this shows that there were no questions that required random answers, where a participant may fill in all questions just to complete it without considering the content.

4. Next, the researcher translated the data from Arabic to English. This second step was essential to prepare the data to be analysed using the SPSS software. The data were then analysed using this software once they had been transferred from the Gizmo software, which had been used to distribute and receive the responses to the questionnaires. More
particularly the Gizmo software allowed the data to be opened in a Microsoft Excel file format. The data were then copied column by column and pasted into SPSS.

5. After that, SPSS was used to conduct further steps, which included the third step in the questionnaire analysis strategy, i.e. cleaning the dataset. Swift (2006) noted that some analysts consider blank fields as missing data. He added, “sometimes these ‘blanks fields’ can be filled if the answer exists somewhere else in a questionnaire” (ibid, p. 174). In accordance with this recommendation, SPSS’s ‘frequency descriptive statistic was used to check for errors, oversights, clarity and consistency of the data. SPSS’s descriptive statistic was also used to looking for any inconsistencies; to address this, tests for maximum and minimum, percentage and frequency were conducted, and any errors identified required the researcher to refer back to the original answer in order to compare the two answers, then edit the data if required.

6. The fifth step in the questionnaires analysis strategy was to code the responses to the open questions. The number of open questions in the students’ questionnaires was much higher than expected - 1848 responses; therefore, the researcher decided to analyse them by grouping them and then coding each group.

The following section (5.3), presents the findings of the two questionnaires; this is then followed by sections 5.4 and 5.5 where the researcher identifies and explains the concepts obtained through the questionnaires’ findings.

5.3 Questionnaires’ findings

The aim of the two questionnaires was to provide the researcher with a set of broad and basic concepts regarding academics use of LMS in Saudi HE rather than in-depth details. These broad concepts were generated from the findings of the two questionnaires and are analysed in chapter seven to investigate the academics’ adoption and usage of LMS in depth through the next main data-gathering process, i.e. the interviews. The main aim of the questionnaire completed by the academics was to provide an overview regarding their awareness of LMS in terms of their purposes, content, capabilities and teaching functions, whereas the primary aim of the students’ questionnaire was to obtain data that would identify the role of academics in relation to the adoption of LMS functions by students. Both questionnaires provided considerable data. The pure data (i.e. before coding them to identify concepts) are presented in Appendix 12; the concepts identified from the data are discussed in the following two sections (5.4 and 5.5).
5.4 Analysis of academics’ questionnaires and concepts obtained

Generally, the results show that the percentage of females who participated in the academics’ questionnaire (63.1 per cent) is higher than males (36.9 per cent) (Table 21). This is because one of the three main universities involved in the under study (PNU) is female-only and thus most of its academics are females. Secondly, the results show that the participants were from various disciplines, which may be considered one of the strengths of this questionnaire. Finally, with regard to participants and technological tools other than LMS ones, the chart in Figure 25 shows that academics who responded to this questionnaire are, to some extent, using technological tools (e.g. smart boards and projectors) other than LMS when teaching. Furthermore, in this section, the concepts identified from the academics’ questionnaire (13 concepts) explain the results in more detail. Each concept is presented under a separate heading, below.

Concept 1. Age vs. level of use (of LMS functions)

The results show that 11.6 per cent of the participants are 25 years old or less and they are considered more familiar with technology than the older participants as explained next. Table 21 below shows that none of the respondents aged 25 or less indicated that they did not use any technological tools in teaching, while only four 13 per cent indicated that they did not use any LMS functions. In contrast, 16.6 per cent of those who were 51 years old or more specified that they did not use any technological tools in teaching while a similar percentage (16.6 per cent) specified that they did not use LMS functions.

Table 21 Academics’ age differences in use of technological and LMS functions

<table>
<thead>
<tr>
<th>Age range</th>
<th>I do not use any technological tools in teaching</th>
<th>%</th>
<th>I do not use any LMS functions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25 or less</td>
<td>0</td>
<td>0%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>29 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26-30</td>
<td>4</td>
<td>7.1%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>56 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31-40</td>
<td>8</td>
<td>10%</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>38 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>41-50</td>
<td>4</td>
<td>6.4%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>42 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51 or more</td>
<td>4</td>
<td>16.6%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>24 100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overall, the results show that academic participants aged 25 or less use technological tools in their teaching more often than any other age group. With regard to LMS functions, the results in the table above show that those in the age range of 31 to 40 use these tools in their teaching more often than other age-range groups. Finally, participants aged 51 or more use technological tools in general least (and LMS functions in particular) when teaching.

**Concept 2. Length of teaching vs. LMS use**

In relation to participants’ length of time in teaching, the results show that only two/four per cent of those who have taught for one year or less do not use any technological tools when teaching (Table 22). In contrast, the highest percentages of those who do not use technological tools when teaching are by those who have taught for 15 years or more (seven/10.1 per cent). Similarly, the highest percentage of those who do not use LMS functions when teaching is in those who have taught for 15 years or more (eight/11.5 per cent). These percentages indicate that participants who have taught for one year or less are more experienced with technological tools compared to those who have taught for longer a period of time (Table 22).

<table>
<thead>
<tr>
<th>Length of time teaching</th>
<th>I do not use any technological tools in teaching</th>
<th>%</th>
<th>I do not use any LMS functions</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year or less</td>
<td>2</td>
<td>4%</td>
<td>7</td>
<td>15.9%</td>
</tr>
<tr>
<td>Total 44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-5 years</td>
<td>6</td>
<td>8%</td>
<td>5</td>
<td>6.6%</td>
</tr>
<tr>
<td>Total 75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-14 years</td>
<td>5</td>
<td>7.8%</td>
<td>5</td>
<td>7.8%</td>
</tr>
<tr>
<td>Total 64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 years or more</td>
<td>7</td>
<td>10.1%</td>
<td>8</td>
<td>11.5%</td>
</tr>
<tr>
<td>Total 69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Concept 3. Claims and reality about the use of LMS**

The findings show that the majority of participants (51.2 per cent) have never used LMS (Figure 24). This, however, does not mean that they have never engaged with it; for instance, they may have undertaken related training courses. Nonetheless, the research demonstrates that although LMS was adopted by Saudi universities five years ago, a significant percentage of its participants have never used LMS, which begs the question: Why? This question is particularly pertinent when taking into account the fact that a large percentage (59.5) of the participants indicated that their universities either encourages the use of LMS or set policies to enforce its use (Figure 27). This question and other related ones will be asked during interviews with academics and Deans of the Deanship of E-Learning and Distance Learning in the three
universities involved in the understudies. These results are discussed during the analysis of the interviews in the next chapter.

**Concept 4. Training in LMS**

The findings show that the number of participants who did not attend any LMS training courses during the five years from 2007 to 2011, when LMS were in use in Saudi universities, is relatively high. In 2007, 138 of the participants indicated that they did not attend any LMS training courses. In 2008, there were 140; in 2009 and 2010, 141 participants did not attend any LMS training courses, and in 2011, unexpectedly, the number of participants who did not attend any LMS training courses rose to 147. These results show the kind of conflict that exists with the overall view that universities encourage the use of LMS or set policies to enforce its use. This view is supported by 59.5 per cent of the participants (Figure 27) and by the Deans of E-Learning and Distance Learning who claim to encourage the use of LMS. These conflicts have been subject to interview questions delivered to academics and Deans, and their responses are analysed later.

**Concept 5. Knowledge about LMS**

The results in Figure 28 show that 89 participants (39.2 per cent) were in one way or another unaware of the LMS provided by their universities. More precisely they indicated either that they did not know if they had LMS (57); or that they do not have one (18); or that they had a different LMS from the ones provided by the list (14). The answers provided by the latter two groups do not correspond to the existing context, since the first group was from either the PNU or the UOD, which both have LMS. Moreover, more in-depth analysis of those who chose ‘other LMS’ and identified what type they had, reported software not considered a LMS, e.g. ‘Dropbox’. This confirms that nearly 40 per cent of the participants lacked knowledge about the LMS in their university and maybe about the existence of such systems in general (Alshammari et al., 2012). The results (Figure 28) also show that only two participants indicated that their universities provided ‘Moodle’ LMS. This, however, may be because the OS-LMS requires operators who have advanced skills and technical support (2.5.3), which in general is not available in the context of Saudi Arabia. These points and other related ones are discussed further during the analysis of the interviews.

**Concept 6. Utilising LMS functions**

With regard to the LMS functions, the results in Figure 29 show that ‘PowerPoint’ is the most commonly used LMS function by participants; 60.1 per cent of the participants confirmed the
findings from literature (Section 2.6.1) - namely, that LMS are used mainly as a delivery/presentation tool for course material. Although some particular LMS tools are essential in teaching and learning online, being limited to them does not reflect the rich range of LMS tools available. Teaching and learning using LMS to its full potential by utilising the majority of its tools can reflect a rich variety of teaching and learning style and methods (7.4.2).

**Concept 7. Awareness of LMS**

With regard to academics’ awareness of whether their universities provide full online courses or not, Table 23 below illustrates the real situation of their provision at the three universities where most of the participants work.

Table 23 Academic participants’ awareness of whether their universities provide fully online courses or not

<table>
<thead>
<tr>
<th>University name</th>
<th>Does your university/institution provide fully online courses where no requirement to attend classes exists?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Princess Nora University</td>
<td>3</td>
</tr>
<tr>
<td>Al-Imam University</td>
<td>20</td>
</tr>
<tr>
<td>University of Dammam</td>
<td>43</td>
</tr>
</tbody>
</table>

It is important to mention that at the time of writing, the PNU has never provided any full online courses (The Head of E-Learning and Distance Learning Administration in PNU, interview transcript), which made the responses of these three who indicated ‘Yes’ quite acceptable. In contrast, the AIU started full online courses in 2008 and currently has more than 40,000 students who study fully online (Interview transcript), which made the one who indicated ‘No’ a somewhat acceptable response. In respect to the UOD, according to the Dean of E-Learning and Distance Learning, currently the university has some faculties that provide full online courses using LMS, whereas other faculties only use LMS to support classroom teaching. Some faculties, however, do not use LMS at all. The different levels of usage of LMS within UOD’s faculties may explain the disparity between those who indicated ‘Yes’ (43) and those indicated ‘No’ (58).

**Concept 8. University’s attitude to using LMS**

With regard to the participants’ opinions concerning their university’s attitude to using LMS, the chart in Figure 27 shows that 59.5 per cent of the participants believe that their university either encourages the use of LMS or has introduced policies to enforce its use. In contrast, only one of the participants indicated that their university is against the use of LMS. Overall, the
results show that the majority of the participants are aware of some aspects that made them think that their university either encourages the use of LMS or has introduced policies to enforce its use. The findings present these aspects: 20.9 per cent of participants believe that their universities encourage the use of LMS by providing all software and equipment required for this purpose while 32.5 of the participants believe their universities encourage the use of LMS through providing training courses and/or providing financial bonuses for academics who use LMS.

On the other hand, the findings show that some participants (18.6 per cent) believe that their universities do not encourage the use of LMS as they have failed in adopting it as it should be for several reasons, i.e. lack of LMS training courses, LMS interface has two languages (Arabic & English) which make it difficult to use, LMS administrations do not run it as it should be run, faculties’ policies do not encourage academics to use LMS, LMS are mainly used for financial purposes, no response from technical support when needed, and the university mainly use LMS for its reputation. Both positive and negative academics’ views towards the role of the management are discussed later on chapter seven.

Concept 9. Awareness of ongoing support for LMS use

In relation to ongoing support that the participants’ universities provide for the use of LMS, the results (Figure 30) show that email and phone are the most common methods provided by universities by which participants can ask for support to use LMS (60.7 per cent). A third and less common method is online support. The phone, however, is not the most practical way of asking for support, since lines may be busy, or there may be no response. Requests for support through email and online are more effective methods since they do not require the person asking for support to do so more than once. A follow-up online system, however, is better as it shows the person who is asking for support the progress of their request and updates them on the progress of their request. Academics, however, should be encouraged to use the ‘user guide’ section in LMS, which provides systematic instructions for using the provided functions in addition to a Frequently Asked Questions (FAQs) section. This section, however, does allow academics to educate themselves in how to use LMS functions and on the other to reduce the demands for support. The chart in Figure 30 also shows that 31.1 per cent of the participants either do not know if their universities provide any support for the use of LMS, or believe that their universities do not provide any ongoing support for LMS, which highlights the need for an increase in academics’ awareness of the extent to which support is provided by universities.
Concept 10. Preferences in LMS support

Table 24 shows academics participants’ preferences for the different methods that offer ongoing support for the use of LMS that they would like to see in their universities. Despite the fact that some of these methods are already provided by most Saudi universities that offer LMS, academics’ awareness of the availability of these support methods is another task that should be considered by LMS support providers. Further details can be seen in section 7.2.3.3.

Table 24 Participants’ suggestions for LMS ongoing support methods other than those their universities already provided

<table>
<thead>
<tr>
<th>Method</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a unit in each faculty that involve full-time specialists in LMS technical issues</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>Online support through the internet including live chat</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>Support through Short Messaging Service (SMS)</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Support through email system</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Face-to-face support through lectures and workshops</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Develop a Frequently Asked Questions (FAQ) about issues that might be faced when using LMS</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Distribute a brochure containing some information about how to use LMS and who to talk to (and how) when facing problems.</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>24/7 direct phone line</td>
<td>1</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Concept 11. Beliefs regarding LMS

In regards to whether academics ask their students to use LMS or not, the results (Figure 31) show that the largest group of participants indicated ‘Yes’. Those who indicated ‘Yes’ or ‘No’ to this question, however, explained their reasons in another question as illustrated in the findings. Overall, there are three reasons provided by academics for why they ask/do not ask their students to use LMS; these are academics’ use (7.4), academics’ lack of knowledge (7.5.2), and academics’ attitude towards LMS (7.3.2).

Using LMS in the teaching process include several benefits from academic participants’ perspectives (Table 25). These benefits should be promoted and highlighted by e-learning management among other academics. These benefits, however, should be seen in association with what has been identified by academic participants as barriers to the use of LMS (Table 26). Farther details of these benefits and barriers are discussed under the ‘Academics’ attitude towards LMS’ heading (7.3.2).
Table 25 Academics' opinions on the most important benefits from using LMS in the teaching process

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS is a valuable method for teaching and learning</td>
<td>47</td>
<td>33.3</td>
</tr>
<tr>
<td>LMS is a valuable method to improve the teaching and learning experience</td>
<td>27</td>
<td>19.1</td>
</tr>
<tr>
<td>LMS makes teaching and learning easier</td>
<td>50</td>
<td>35.4</td>
</tr>
<tr>
<td>LMS makes teaching and learning faster</td>
<td>11</td>
<td>7.8</td>
</tr>
<tr>
<td>Improves communication between either teachers and students or students themselves or both</td>
<td>48</td>
<td>34.0</td>
</tr>
<tr>
<td>LMS encourages and motivates students to study</td>
<td>32</td>
<td>22.6</td>
</tr>
<tr>
<td>Improve students’ self-study skills</td>
<td>7</td>
<td>4.9</td>
</tr>
<tr>
<td>Helps users keep up to date with technology</td>
<td>15</td>
<td>10.6</td>
</tr>
<tr>
<td>LMS offers chances to those who cannot attend classrooms physically</td>
<td>49</td>
<td>34.7</td>
</tr>
<tr>
<td>Decreases the teaching and learning costs</td>
<td>10</td>
<td>7.0</td>
</tr>
<tr>
<td>Saves time</td>
<td>33</td>
<td>23.4</td>
</tr>
<tr>
<td>I do not know</td>
<td>8</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Table 26 Academics’ opinions of the most significant barriers against the use of LMS in teaching

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of or poor LMS training courses for academics</td>
<td>28</td>
<td>21.7</td>
</tr>
<tr>
<td>Academics’ resistance or lack of or poor interest</td>
<td>16</td>
<td>12.4</td>
</tr>
<tr>
<td>Academics’ lack of or poor knowledge/experience of using LMS</td>
<td>36</td>
<td>27.9</td>
</tr>
<tr>
<td>LMS’s technical problems</td>
<td>37</td>
<td>28.6</td>
</tr>
<tr>
<td>Lack/poor of LMS technical support when needed</td>
<td>29</td>
<td>22.4</td>
</tr>
<tr>
<td>Students’ lack/poor of knowledge/intrest in using LMS</td>
<td>29</td>
<td>22.4</td>
</tr>
<tr>
<td>Universities are one of the barriers to the use of LMS as they do not provide the infrastructure required, or fail to implement LMS as it should be, or do not provide financial/moral support for academics who use LMS</td>
<td>27</td>
<td>20.9</td>
</tr>
<tr>
<td>Lack of trainers who are qualified to provide training for academics</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Academics’ lack of time</td>
<td>9</td>
<td>6.9</td>
</tr>
<tr>
<td>LMS itself for more than one reason, i.e. LMS relies on the internet which is not always available for students either because of its cost or its poor infrastructure, LMS does not suit all subjects, LMS is difficult to use</td>
<td>24</td>
<td>18.6</td>
</tr>
<tr>
<td>I do not know</td>
<td>8</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Concept 12. LMS and variation in disciplines

With respect to variations in field studies and LMS, the chart in Figure 32 shows that the largest group of the participants (56.5 per cent) believe that LMS is more useful for some disciplines than for others. This confirms what is discussed in the literature (section 2.6.1); namely, that LMS are often used as ‘one size fits all’ that does not take into account the variations in a discipline’s needs as well as the learners’ level of knowledge and skills. Academic participants’ responses further as the findings show that 36.3 per cent of participants believe that LMS is not
useful with practical disciplines and 33.3 per cent believe that LMS is more useful with some disciplines than others. Further details are discussed later on (7.3.1).

**Concept 13. Positive views towards LMS (Academics)**

The findings show that 90.6 per cent of academic participants believe that LMS has a promising future in Saudi HE institutions and 88.2 per cent of them believe that LMS should be spread in Saudi HE institutions. These results show positive academics’ views towards the future of LMS and how it should be. Further details are discussed in section 7.3.2.

### 5.5 Analysis of undergraduate students’ questionnaires and concepts obtained

The concepts identified from the students’ questionnaire (three concepts) are presented under this section; however, first, it is worth mentioning some general notes related to the students’ questionnaire’ results. For instance, one significant fact must be considered when considering the results, i.e. 85.1 per cent of the participants come from the AIU. This affected most of the results from the analysis of the students’ questionnaire. A number of reasons may account for the high participation rate of AIU students. One of them could be that this university was one of the first two to adopt LMS, which had the effect of familiarising its students with LMS, taking into account that more than 40,000 AIU undergraduate students are distance learners and rely on LMS.

With regard to participants’ gender, the results show that males and females are almost equal, which implies that the results for both genders can be generalised. With regard to a participant’s age range and level of study, the results show that although 42.8 per cent of them are in the first year, only 31.3 per cent of them are less than 23 years old. This can be related to the fact that 85.1 per cent of the participants are from the AIU, which has more than 40,000 distance-learning students. These mostly mature students cannot enrol as face-to-face students either due to university regulations or to their personal circumstances, e.g. their job or business.

With respect to the participants’ disciplines, the results show that 55 per cent are from Business and Law. Ninety-eight per cent of the participants from this discipline were from the AIU. This skewing is exacerbated by the fact that 85.1 per cent of all participants are from the AIU. The second largest group was Islamic Studies (24.3 per cent) with 98.6 per cent studying at the AIU. This result is reasonable, as the AIU is one of the Saudi universities that specialises in Islamic Studies.
Of the participants, 75.6 per cent indicated that the LMS provided by their university is ‘Tadarus’. Tadarus is an Arabic-based LMS developed by Harf Information Technology, which has been adopted by the AIU; and that is why a high percentage of the participants specified its use. Only 0.7 per cent (13) of the participants indicated that they have LMS other than those indicated but not all the software mentioned by them was considered LMS. The results show that around 16.5 per cent of the participants are unaware of LMSs, since 13.7 per cent indicated that they do not know if they have a LMS. Two per cent indicated they do not have any LMS and all of them from universities actually adopted LMS. In addition, 0.7 per cent of participants mentioned other software as LMSs (Figure 33).

The above results described the general characteristics of the student participants. Nevertheless, the concepts identified from the students’ questionnaire (three concepts) explain the results in more detail and are presented under separate headings in the following sections.

**Concept 14. Positive views towards LMS (Students)**

Only 2.5 per cent of the participants indicated that LMS are either useless or very useless for supporting their study (Figure 34). The reasons for this are varied, as discussed below.

**Concept 15. Perspectives regarding academics’ interaction through LMS**

There are two main reasons why students believe that LMS is either useless or very useless for supporting their study. The first is that LMS is not useful because of the instructor’s lack of interaction. Ninety per cent of those who cited this reason were from the AIU. Instructor-learner interaction was considered one of the critical success factors for distance learning in general and for learner perceptions towards online learning in particular (Bhuasiri et al., 2012; Fresen, 2007; Kim, Liu and Bonk, 2005). That is to say that in distance learning where instructors and learners are physically separated, using LMS communication tools is vital for the overall success if the instructors; instructors are required not only to utilise the main functions that LMS offers but also to employ other LMS functions in order to overcome distance-learning weaknesses. The use of LMS communication tools is significant in bridging physical separation and in some cases the asynchronous environment of distance learning.

The second reason indicated by participants who believe that LMS is useless/very useless for supporting their study is due to a number of reported defects, which means it is not considered a suitable alternative for face-to-face learning. Like any other medium, teaching and learning through LMS is not free from criticism. In the literature review, two main areas of weakness were discussed; firstly, those weaknesses that relate to the LMS themselves, and secondly, those
that relate to the instructors’ ability to use these systems to their full potential. Nonetheless, despite the fact that there are quite a number of limitations in LMS and some lack in instructors’ ability to utilise them, these systems have made learning possible for those who cannot physically attend a classroom for a variety of reasons. These systems, so far, are the most appropriate e-learning management methods in modern HE institutions and the need for them will increase as long as the demand for HE continues, particularly in view of today’s contemporary lifestyles and the increase in the number of HE institutions and the programmes they offer.

Other explanations expressed by students as the reasons why they believe that LMS is useless/very useless for supporting their studies relate to LMS technical problems (2.2 per cent), including ‘LMS is difficult to deal with’ and ‘I do not understand how to use it’ (1.0 per cent). In addition, some express that distance education through LMS is not useful because its degree is less valued than degrees obtained through traditional learning (0.5 per cent).

**Concept 16. Perspectives towards academics’ attitudes in relation to LMS**

The results in Figure 35 show that the instructor’s recommendation to use LMS is the reason least likely to motivate students to use LMS (9.0 per cent). This result raises questions about instructors’ belief in LMS as an alternative environment for the teaching process. There could be various reasons for this result, however. On the other hand, the largest group of the participants (42.7 per cent) indicated that their instructors encourage the use of LMS but that students are not obligated to use them (Figure 36). The previous two results may show some clashes in instructors’ attitudes towards using LMS from the participants’ perspective. Nevertheless, instructors’ positive attitudes towards using LMS is essential to encourage the usage of these tools among students; for example, one distance-learning student from the AIU said,

“Teachers are not convinced about teaching through LMS; they said that we just followed the university regulations.”

Further elaboration of the instructors’ attitudes towards the use of LMS is given later when analysing the interviews.

Finally, it should be noted that the above concepts (16 concepts) were used to build the first set of the interview questions, since following a theoretical sampling procedure for conducting interviews requires the researcher to redevelop the interview questions as the categories develop and the theory emerges.
5.6 Conclusion

The questionnaire results offered two main advantages. Firstly, they helped the researcher to generate a set of concepts about the phenomenon under study, i.e. academics’ adoption and usage of LMS in the SA HE sector. These concepts were used to develop the first set of interview questions (Appendix 3). Secondly, the questionnaires’ results enhanced the process of comparing findings, as they provided a source to confirm or contradict/disprove the results generated from the interviews during the analysis process in chapter seven (Figure 17).
CHAPTER 6
Main Data Gathering Stage:
Interviews
6.1 Introduction

The previous chapter set out a detailed description of the distribution process for the questionnaires, and the responses, along with the findings and analysis. It concluded by providing a set of broad concepts obtained from the findings of the questionnaires (i.e. 5.4 and 5.5). These concepts were then integrated with the information gained from the literature review, in order to develop a set of interview questions (Appendix 3). This chapter discusses all aspects of the data gathering and analysis process related to the conducted interviews. This includes selecting the interviewed sample, designing the interview questions, the process followed during the interviews and the analysis method and process.

6.2 Preparation for the interviews

In accordance with the recommendations from Gillham (2005), Pickard (2007), and Rowley (2012), as discussed in (section 4.6.2), the researcher tested the initial interview questions with two groups; the first group comprised two of his PhD colleagues to practice his ability to conduct and manage an interview, following which he asked for comments and feedback. Some comments were received and taken into account. The researcher also recorded himself reading the interview questions several times, then listened to them in order to familiarise himself with the questions. The second group was the supervision team; here the aim was to ensure that the interview questions are understandable and lead to the required data. Several meetings with the supervision team were held to ensure that the interview questions are clear and related to the research questions. During these meetings, some amendments were made to the initial interview questions, which were still subject to development as the interviews took place and new data/concepts started to emerge.

6.3 Conducting the interviews

The researcher developed guidelines to follow based on Gillham’s (2005) and Pickard’s (2007) recommendations, in addition to some requirements for research ethic purposes:

Entry phase:

1. Help the interviewee feel comfortable and relaxed
2. Briefly explain the aim of the interview
3. Explain how the interview is organised
4. Ask the interviewee to read and sign the consent form (Appendix 4)
5. Ask the interviewee if they have any questions
6. Ensure agreement has been reached to record the interview, then set up the recorder

**Fundamental phase:**

1. The questions should be read from the pre-set list so that their meanings do not change
2. Leave enough time for the interviewee to answer
3. Do not interrupt with additional questions or propose answers.
4. Occasionally, check that the recorder is still working
5. Show interest in what the interviewee is saying
6. Ensure that all the necessary questions have been answered
7. Make sure that each answer is clear
8. Do not ask more than one question at a time
9. Write brief notes.

**Closing phase:**

1. Advise the interviewee when the interview is completed
2. Ask the interviewee if he/she has anything to add
3. Show that you appreciate the interviewee’s participation and the added value he/she has brought to the research.
4. Remind the interviewee how he/she may get in touch with the researcher for any reason.

On completion of each interview, the researcher listened to the recording, making a number of memos (4.5.4) consisting of thoughts, ideas and insights (Figure 18) arising from the content of the interview. These memos (Appendix 9) were then employed to compare between raw data, concepts, and categories (Charmaz, 2006) as illustrated below.

![Figure 18 An example of memos demonstrating the initial relationships between categories](image1)

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6.4 Sample size and saturation

In GT research, reaching saturation point forms the boundaries for the data gathering process (4.8.3). However, the size of interview sample is highly debatable when it comes to qualitative research. Guest, Bunce and Johnson (2006), identified a number of guidelines in relation to the sample sizes of qualitative interviews offered by different authors, and which varied between five and fifty interviews. By contrast, in GT research, the suggested numbers vary between thirty to fifty interviews (Morse, 1994), and twenty to thirty interviews (Creswell, 1998). Mason (2010) examined the sample size of five hundred and sixty PhD studies employing qualitative interviews, and found the mean sample size to be thirty-one. The smallest sample was a single interviewee, and the largest sample was ninety-five. He highlighted the fact that the most significant finding related to the discovery that the majority of studies utilised sample sizes in multiples of ten. He consequently criticised these studies as failing to adhere to saturation (4.8.3). Romney et al. (1986 in Guest et al., 2006), found that:

“Small samples can be quite sufficient in providing complete and accurate information within a particular cultural context, as long as the participants possess a certain degree of expertise about the domain of inquiry (‘cultural competence’)… (they) calculated that samples as small as four individuals can render extremely accurate information with a high confidence level (.999) if they possess a high degree of competence for the domain of inquiry in question” (Romney et al., 1986 in Guest et al., 2006).

The sample size in this current research is based on saturation and follows a theoretical sampling procedure (4.8.3), and thus all major categories are well developed. In general, Saudi universities possess homogeneous systems and structures, and work within a highly centralised HE system (3.4.1). This context limits the differences between practices, leading to a concise sample representing the wider population. At the same time, a full explanation has been made of all categories and sources, providing the reader with a clear background in relation to the context in which the data was gathered, thus permitting him/her to decide the validity of the outcomes in relation to further contexts.

6.5 Interviewed sample

The participants in the interview (Table 27) were classified into three groups: 1) academics; 2) e-learning coordinators; 3) e-learning directors. However, a number of these held two positions, e.g. DB was interviewed both as an e-learning coordinator and as an academic.
Table 27 Interviewees' profile

<table>
<thead>
<tr>
<th>ID</th>
<th>Gender</th>
<th>Position</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>F</td>
<td>Academic</td>
<td>PNU</td>
</tr>
<tr>
<td>AAA</td>
<td>M</td>
<td>e-Learning (Management level)</td>
<td>AIU</td>
</tr>
<tr>
<td>AF</td>
<td>M</td>
<td>Academic</td>
<td>AIU</td>
</tr>
<tr>
<td>AH</td>
<td>M</td>
<td>Academic</td>
<td>AIU</td>
</tr>
<tr>
<td>AM</td>
<td>M</td>
<td>Academic</td>
<td>AIU</td>
</tr>
<tr>
<td>AS</td>
<td>M</td>
<td>Academic</td>
<td>AIU</td>
</tr>
<tr>
<td>DB</td>
<td>F</td>
<td>e-Learning coordinator/Academic</td>
<td>UOD</td>
</tr>
<tr>
<td>EA</td>
<td>M</td>
<td>e-Learning coordinator</td>
<td>PNU</td>
</tr>
<tr>
<td>EF</td>
<td>M</td>
<td>e-Learning coordinator</td>
<td>AIU</td>
</tr>
<tr>
<td>FA</td>
<td>F</td>
<td>e-Learning (Management level)</td>
<td>PNU</td>
</tr>
<tr>
<td>HA</td>
<td>F</td>
<td>e-Learning (Management level)</td>
<td>PNU</td>
</tr>
<tr>
<td>JR</td>
<td>F</td>
<td>Academic</td>
<td>PNU</td>
</tr>
<tr>
<td>SA</td>
<td>M</td>
<td>e-Learning (Management level)</td>
<td>UOD</td>
</tr>
</tbody>
</table>

In this research, the term ‘Academic’ refers to those teaching in HE institutions, as discussed previously (3.4.3). ‘E-learning coordinators’ refers to selected academics with a relevant background and interest in e-learning, and who are in possession of the skills to develop training courses for academics within their faculties (7.7.1). ‘E-learning directors’ refer to the individuals leading the e-learning management teams, and whose role is to develop e-learning strategies and policies within their universities, including the process of adoption of LMS. Table 27 also shows that the interview samples include both male and female participants. The eight male participants were interviewed face-to-face, whereas, owed to the socio-cultural and segregation norms in the Saudi context; telephone interviews (4.6.2.1) were conducted with the five female participants, telephone interviews with females are more convenient in terms of both; time and accessibility.

E-learning coordinators and directors were included in the interviews because of their significant role in the adoption process of LMS. Although investigating academics’ adoption of LMS is the main interest for this study; it cannot be achieved in isolation from the overall environment surrounding them, taking into account the highly structured and centralised environment in Saudi Arabia’s HE system.

6.6 The process of forming the interview questions

It is important to mention here that the data obtained through sources other than the interviews are to be integrated with the primary interview data during interview analysis and the theoretical
integration process (8.3). These data resources include the literature review, academics (AQ) and students’ (SQ) questionnaires, documents obtained from the field-study (Doc) (Appendix 10), and the researcher’s memos (Mm) (Appendix 9), see Table 28.

Table 28 Data sources

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Other resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA Academic</td>
<td>AQ Academics’ questionnaire</td>
</tr>
<tr>
<td>AAA Management</td>
<td>SQ Students’ questionnaire</td>
</tr>
<tr>
<td>AF Academic</td>
<td>Doc Documents from the field study</td>
</tr>
<tr>
<td>SA Management</td>
<td>Mm Memos: Researcher’s thoughts &amp; notes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Other resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH Academic</td>
<td>DB e-learning coordinator/Academic</td>
</tr>
<tr>
<td>AM Academic</td>
<td>EA e-learning coordinator</td>
</tr>
<tr>
<td>AS Academic</td>
<td>EF e-learning coordinator</td>
</tr>
<tr>
<td>HA Management</td>
<td>FA Management</td>
</tr>
</tbody>
</table>

The data gathering process was guided by GT principles, it started after addressing the research problem by means of the literature review (chapter 2 and 3), then the formation of the research aim and questions (1.3). Whereas, the empirical research process took place through the following steps (see Table 29):

Step 1: Design and distribute two questionnaires for academics and students in Saudi universities. The two questionnaires were designed with the aim of understanding the general context and identifying key concepts.

Step 2: Analyse the questionnaires following the process discussed in section (4.7.1). As a result, sixteen concepts were identified from the two questionnaires. The concepts numbered 1 to 13 were developed from the academics’ questionnaire results, whereas; the last three concepts (concepts 14 to 16) emerged from the students’ questionnaire results.

Step 3: In this step, the sixteen concepts resulting from the questionnaires analysis are employed in the formation of the interview questions (Appendix 3). Table 29 demonstrates the link between each concept and the formed question.

The findings from both the questionnaires and the interviews along with the documents obtained from the field study (Appendix 10) resulted in the development of major categories constituting academics’ adoption of LMS in Saudi universities. These categories are presented in the diagram in Figure 20; and are examined in more detail in chapter 7.
Table 29 Interview questions formation

<table>
<thead>
<tr>
<th>Defining the research aim &amp; questions</th>
<th>STEP 1 Questionnaires (see App. 1 and 2)</th>
<th>STEP 2 Questionnaire analysis and the generation of concepts</th>
<th>STEP 3 Forming the initial set of interview questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>How are LMS adopted by academics in Saudi universities?</td>
<td>Academic questionnaire</td>
<td>Concepts emerging from the academics’ questionnaire analysis</td>
<td>1. Age vs. level of use (of LMS functions) (ALU) AC1, DELD5, ELC2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Length of teaching vs. LMS use (LTU) AC2, AC3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Claims and reality about the use of LMS (CRU) AC3, AC7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Training in LMS (TL) AC6, DELD4, ELC3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. Knowledge about LMS (KL) AC4, AC5, AC15, DELD2, ELC4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6. Utilising LMS functions (ULF) AC8, AC12, ELC2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7. Awareness of LMS (AL) AC4, AC5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8. University’s attitude to using LMS (UAU) AC13, DELD1, DELD5, ELC1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9. Awareness of ongoing support for LMS use (ASL) AC9, ELC5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10. Preferences in LMS support (PLS) AC9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11. Beliefs regarding LMS (BRL) AC11, AC12, AC14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12. LMS and variation in disciplines (LVD) AC7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13. Positive views towards LMS (Academics) (PVA) AC16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14. Positive views towards LMS (Students) (PVS) AC14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15. Perspectives regarding academics’ interaction through LMS (PAI) AC8, DELD5, ELC2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16. Perspectives towards academics’ attitudes in relation to LMS (PAA) DELD5, ELC2</td>
</tr>
</tbody>
</table>

**KEY:** AC = Academics’ interview, DELD = Deans of E-Learning Deanships’ interview, ELC = E-Learning Coordinators’ interview
6.7 Interview analysis process

Analysis of the interviews and the integration with data from further sources followed the GT analysis procedure explained earlier in section 4.7.2. The process started by ‘initial coding’ (4.7.2.1) where manuscripts are broken down line-by-line to identify initial concepts/phenomena. In this step, the main categories were formed such as ‘academics’ use of LMS’ and ‘Management role in academics’ adoption of LMS’ (these categories are explained in the following chapter). Some categories were renamed during the process as their meaning were established. In the second stage, i.e. ‘intermediate coding’ (4.7.2.2), the researcher started making connections between initial concepts to categorise them in smaller groups, in the result was a number of sub-categories. During this analysis stage, new data were gathered following the theoretical sampling technique; this was necessary to assure that categories were conceptually well developed and to reach ‘theoretical saturation’ where no new codes emerge.

When the researcher reached ‘theoretical saturation’ in the major categories, he began making connections between all the developed categories, sub-categories and their properties/concepts in order to identify the ‘core category’ (8.2). After identifying the core category the researcher reached the ‘advance coding’ (4.7.2.3) level where he started to develop the relationship between the core category and other codes into a theory (8.3).

The above analysis process, as it shows; is not a linear one, continuous overlapping between the analytic stages is evidence (Figure 12). Figure 19 below shows an example of the analysis process, which begins with the pure data from the transcript, up to the stage where the categories are well developed. The left side of the figure shows a section from the interview conducted with (SA). As part of his answer to one of the questions, he stated that

“The perception we received from the questionnaire is that there is a general belief that it is difficult to learn programming, so there is a misunderstanding and misconception on the part of the faculty members”. (Interviewee SA)

The initial concept identified from this sentence is ‘misunderstanding/misconception of LMS’. This initial concept in addition to further relevant/similar concepts has been grouped and categorised in order to develop the sub-category ‘knowledge of LMS’. This sub-category in addition to other sub-categories has then been formed and developed into a further abstract major category, i.e. ‘factors influencing academics’ use of LMS’. (Examples of interviews manuscripts can be found in (Appendix 6; Appendix 7; and Appendix 8), also, the coding analysis can be found in (Appendix 11)).
Interviewer: I sincerely cannot answer this, but I expect we should. But the question is which systems to use? There are universities that use open source LMS, others use JUSAR LMS (that being the National Centre of E-Learning and Distance Learning: NCEFL), others use Blackboard. Which one would be used? Or would we diversify? Or would people use what they deem fit? All possible. But I see that we focus on a national matter since all Universities are using Blackboard, is it possible that there is a national project to adopt Blackboard as a national LMS? With a national license? We have already discussed this at NCEFL because the majority of Universities are using Blackboard. So yes, I do expect that it is necessary for the future of education. The Knowledge Master (the instructor) who stands before the students now has been replaced by Google, which is the new knowledge master. But would E-Learning substitute for the faculty member? No! It is a tool that is supposed to increase the chances of education, its quality, when used properly. But it will never substitute for the instructor. The human factor is quite critical because it plays a big part in the education process, which is the human part, but I expect it to facilitate and provide a better and more developed educational organisation through resources, which are provided through different resources or even in the ease of communication, the ease of acquiring information, and more importantly, the knowledge sharing that I think is the biggest advantage of those existing systems.

Researcher: Okay sir, we have covered the aspects I have, but you being a specialist, do you see that there is information we can add that I missed? Especially when it comes to the faculty members and the challenges, they face.

Interviewer: Probably the barriers they face are not really barriers. There is misunderstanding we face which is that faculty members think that E-Learning is related to technology, it is too advanced for them. The perception we received from the questionnaire is that there is a general belief that it is difficult to learn programming, so there is a misunderstanding and misconception on the part of the faculty members, but with awareness sessions we conducted last year the vision has changed, but everyone now knows that E-Learning is just a system and you train for it, and it requires no programming, nor a deep computer knowledge, so tension has subsided. But no, you have covered pretty much everything impressively.

Researcher: Thank you sir.

---

**Figure 19 Transferring concepts and phenomena from manuscripts to analysis table**

<table>
<thead>
<tr>
<th>Data source</th>
<th>Phenomena/concepts (i.e. data) obtained from: Academics &amp; students questionnaires, interview transcripts, documents obtained from the field study, and mimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>(dimensions of elements)</td>
<td>(elements of categories)</td>
</tr>
<tr>
<td>AA</td>
<td>Academic differences in using technology</td>
</tr>
<tr>
<td>AcQ</td>
<td>Age and the level of use of (LMS) tools</td>
</tr>
<tr>
<td>DB</td>
<td>Academics age and teaching methods preference</td>
</tr>
<tr>
<td>Mn10</td>
<td>Misconceiving and misunderstanding of LMS</td>
</tr>
<tr>
<td>AcQ</td>
<td>Academics' length of teaching vs. LMS use</td>
</tr>
<tr>
<td>AcQ</td>
<td>Academics' awareness of the use of LMS within their universities</td>
</tr>
<tr>
<td>EF</td>
<td>Poor use of LMS functions</td>
</tr>
<tr>
<td>AcQ</td>
<td>Academics' lack of knowledge of LMS</td>
</tr>
<tr>
<td>HA</td>
<td>Academics lack of knowledge as a barrier of using LMS</td>
</tr>
<tr>
<td>AA</td>
<td>Academics lack of background in using technology</td>
</tr>
<tr>
<td>DB</td>
<td>Misunderstanding misconceptions of LMS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub-categories</th>
<th>Categories (abstract)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching experience</td>
<td>Factors influencing academic's use of LMS</td>
</tr>
<tr>
<td>Knowledge of LMS</td>
<td>Interest in LMS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grounded theory</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Interview manuscripts → Data analysis table
6.8 Validity in Qualitative research

The concept of validity in qualitative research has been discussed under a variety of terms, e.g. goodness, trustworthiness and credibility, among others (Creswell and Miller, 2000; Golafshani, 2003), and constructed under multiple typologies of validity, e.g. Maxwell’s five types (Maxwell, 1992) and Schwandt’s four positions (Schwandt, 2007). So, validity in qualitative research “is not a single, fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects” (Winter, 2000, p. 1). In this research, validity refers to “how accurately the account represents participants’ realities of the social phenomena and is credible to them” (Creswell and Miller, 2000; see also Schwandt, 2007). In order to establish validity, qualitative researchers employ different strategies including member checking, peer reviews, triangulation, external audits, thick description, prolonged engagement, disconfirming evidence, and researcher reflexivity (Creswell, 2009; Creswell and Miller, 2000). Creswell (2009) suggested that qualitative researchers employ one or more strategies to check the validity of the findings.

6.8.1 Evaluation criteria in GT research

In GT research, different criteria have been developed to judge the quality of research. In more than one publication Strauss and Corbin (1990; 1998; and 2008) proposed seven criteria to evaluate the adequacy of the research process:

1. Criterion 1: How was the original sample selected? On what grounds?
2. Criterion 2: What major categories emerged?
3. Criterion 3: What were some of the events, incidents, or actions that pointed to some of these major categories?
4. Criterion 4: Based on what categories did theoretical sampling proceed? That is, how did theoretical formulations guide the data collection? After the theoretical sampling was done, how representative did the categories prove to be of the data?
5. Criterion 5: What were some of the statements of relationship made during the analysis? And on what grounds were they formulated and validated?
6. Criterion 6: Were there instances when statements of relationships did not explain what was happening in the data? How were the discrepancies accounted for? Were statements of relationships modified?
7. Criterion 7: How and why was the core category selected? On what grounds were the final analytic decisions made?
They also recommended seven questions that should be asked in order to evaluate the empirical grounding of a study (Strauss and Corbin, 1990; 1998; Corbin and Strauss, 2008):

1. Criterion 1: Are concepts generated?
2. Criterion 2: Are the concepts systematically related?
3. Criterion 3: Are there many conceptual linkages, and are the categories well developed? Do categories have conceptual density?
4. Criterion 4: Is variation built into the theory?
5. Criterion 5: Are the broader conditions that affect the phenomenon under study built into its explanation?
6. Criterion 6: Has process been taken into account?
7. Criterion 7: Do the theoretical findings seem significant, and to what extent?

The above criteria were adhered to by the researcher throughout the data-gathering and analysis process.

6.8.2 Strategies to establish validity

Following the recommendations above (Creswell, 2009), the researcher utilised two strategies to enhance validity in this study. These strategies were peer debriefing and member checking.

6.8.2.1 The use of peer debriefing

This technique involves a ‘peer debriefer’ to review findings and interpret the data beyond the researcher and raise questions about them. This process establishes more validity for the study (Creswell, 2009). In this study, a peer reviewer – who is familiar and experienced with qualitative research - was allocated in all the three analysis stages (0), when developing the theory, and when documenting the final findings. In detail, the initial concepts obtained in the first analysis stage were revised by the peer reviewer to find representative quotations for them from the data transcript. In this stage, the peer reviewer asked questions about the relationships between some concepts and the pure interview transcripts. In the second analysis stage, she challenged the categorising process of the concepts and the relationships between categories including the matter of arrival at the ‘theoretical saturation’ point. In the third analysis stage, she reviewed the theory to ensure it represents the pure data transcript.
6.8.2.2 The use of member checking

Member checking is a common practice in qualitative studies to enhance validity. It involves participants reviewing and confirming the findings (Bryman, 2008; Creswell, 2009). This can be achieved by showing sections of the ‘polished product’ such as categories or grounded theory to interviewees and determining whether they feel that they are accurate (ibid). In this study, two participants, DB and FA were contacted to undertake member checking and were presented with the categories and their subs (Figure 20) and the grounded theory (8.3.2). They were asked to review them and provide comments on them. Both confirmed that their input is presented well in the categories and consequently in the developed GT.

6.9 Summary

This chapter has described how the interviews were conducted. It started by demonstrating how the interview questions were developed, followed by how they covered the research questions. The reminder of the chapter presented information about the actual practice of the interview in the field study including the analysis procedure. The next chapter is informed by the findings here, where all data resources, i.e. questionnaires’ findings, interview findings, documents (Appendix 10), and memos are integrated to produce the final well-developed categories and their sub-categories along with related discussion. This discussion helped the researcher to build relationships between them, which are described in chapter seven, and to consequently identify the core category and develop a theory, which are achieved in chapter eight.
CHAPTER 7

Research Findings:
Academics Adoption of LMS in Saudi Universities
7.1 Introduction

The data from all resources (i.e. academics and students’ questionnaires, interviews, and the documents obtained during the field-study) have been analysed and resulted in the generation of the categories constituting academics’ adoption of LMS in Saudi universities. In this chapter, the findings are presented by explaining the generated categories and the concepts within them.

Figure 20 below illustrates the categories and the sub-categories that have generated from the data analysis process. The majority of the categories signify aspects linked directly to academics; however, an important part in the phenomenon involves e-learning directors who introduce LMS in universities and have a major influence on the adoption process, therefore, the first category represents them and their role.

Following the research findings representation in this chapter, the main research outcome, i.e. a substantive grounded theory explaining the phenomenon of LMS adoption in Saudi universities is developed in the following chapter.
Figure 20 The Adoption of LMS in Saudi Universities by Academics (Categories and their sub-categories)
7.2 Management and LMS

This section examines the adoption of LMS within the three universities investigated from the perspectives of the e-learning leaders such as the Deans of e-learning. It discusses the strategies they adopted to implement LMS within their universities. It also discusses what actions they took to achieve their strategies with a focus on the academics’ adoption and usage of LMS.

7.2.1 Demonstrating interest in adopting LMS

This section demonstrates the management interest (the term ‘interest’ as a concept is explained in section 7.5.3.) in adopting LMS; however, it is worth noting here that distance learning in Saudi universities relies fully on LMS platforms - i.e. the internet environment in which teaching and learning is managed and delivered.

The UOD and the AIU developed Deanships for E-Learning and Distance Learning (DELDL):
“...In this deanship, we run and manage a completely virtual teaching and learning environment that we aim to spread over all the university’s faculties and branches with the next three years” (AAA), and “this deanship was develop to spread using LMS all over university’s faculties” (SA). These two deanships are directly connected with the universities’ boards (7.2.3.1), which demonstrates the level of interest in adopting and disseminating LMS in the two universities. Moreover, PNU previously used a local LMS called ‘Jusur’, but have recently replaced it with the well-known LMS Blackboard. This also demonstrates the University’s intention to adopt a more advanced LMS, as the local LMS, Jusur, does not receive adequate support from its providers; its users also experience some challenges and limitations, as discussed below (7.9).
Nonetheless, this does not mean that Blackboard and other international famous LMS are free of issues (7.9.2).

Given the above findings, interest in LMS in Saudi public universities is not purely a university choice, as all public universities have to comply with the Ministry of Higher Education (MHE) legislation which is enforcing the take-up of this method of learning through a plan called ‘Afaq’ literacy translated as ‘Horizons’. This is a comprehensive development plan for the higher education system in the Kingdom (Doc.1, Appendix 10). One of the ‘Afaq’ programmes is ‘The development of e-learning and distance education’. This programme aims to “make e-learning an integral prime component of the higher education system in the Kingdom” (ibid). Following this, the Ministry of HE introduced the ‘National Centre for e-Learning and Distance Education’ (NCeDL) (see section 3.4).
These plans and strategies, however, cannot be isolated from what e-learning software companies and vendors all over the world are targeting through their marketing; the value of the LMS global market was anticipated to reach US$1.9 billion in 2013, this is a 10% growth from 2012 (Bersin, 2012). Teaching and learning online extends the traditional education concept to involve new stakeholders such as business interest, thus creating a huge market in the education field (Stahl, 2004) which should increase the educators’ responsibility to keep online teaching within the education field. Currently, technology plays an essential role in transforming academics’ lives into a commodity by either controlling staff/work or treating students as consumers of its products (Hall, 2011). In the Saudi context at the present time, it is not surprising to observe senior academics in public universities marketing commercial online courses that led to degrees through the official Saudi television networks (YouTube. 2013).

Education, like nearly all domains in human life, is extensively influenced by technology. A wide variety of learning technology forms such as online tools, resources and mobile device apps has been produced; however, not all are pedagogically effective. Therefore, those who set educational technology policies in universities and educators in general must be selective when applying technology in education.

7.2.2 Strategies for implementing LMS

In this section, the strategies adopted by the three universities in regards to LMS adoption are analysed. This analysis includes the plan and policy designed by the e-learning management in the universities under study to achieve their aim, i.e. LMS adoption. In this section, however, the focus is on the elements of the strategies related to academics and LMS adoption.

The role of the DELDL in the AIU is to organise and supervise the e-learning and distance learning in the university. They have a strategy in place to extend the use of LMS throughout the University’s faculties and branches (AAA). They used a specialist company that helped them to develop a strategy to adopt LMS; the aim of this strategy is to extend the LMS in all branches of the university (AAA).

In regards to the PNU, the administration of ELDL as mentioned (3.5.1) is responsible for e-learning and distance learning in the university. The administration was established in 2009 and their main role was to identify the administration needs of the establishment and to collaborate with the National Centre for E-learning and Distance Learning to train academics in how to use technology in education, including how to use LMS (HA).
The role of the DELDL in the UOD in general is to develop a strategy for e-learning and distance learning in the university, to implement LMS and other technologies, to train users in how to use these technologies, and to support them (SA). The university has “a three year strategy within an objective that all faculties use the LMS by the end of year three” (DB). Currently, they aim to disseminate LMS among all foundation year academics and students (DB). They started by using the questionnaire as a needs assessment tool; they distributed two questionnaires to each of the university’s academics and students. The responses were 25 per cent from academics and 20 per cent from students. Then they used an expertise consultant to develop the strategy of e-learning and distance learning for the university (SA).

As mentioned previously (7.2.1) all the strategies presented are set in accordance with the Ministry of HE legislation; however, there are some differences in practice. The administration of ELDL in the PNU is the weakest link of the three universities’ e-learning management aspects, not only because of the lack of comprehensive strategy but also due to the results of practice as only few academics in the PNU access and activate the LMS (EA). There are several reasons for this; there was not a clear comprehensive strategy since the head of the administration was only assigned on a temporary basis to oversee the administration (HA). Three LMS were installed in the university (7.2.3.3) which suggests confusion over which to rely on, taking into account that only a few academics access these systems and activate them (EA). Unlike the two DELDLs in the AIU and the UOD, the administration of ELDL takes place under the Vice President for Studies and Development and relies on the National Centre for E-learning and Distance Learning (NCeDL) (3.4.2) to run LMS and train/support its users (7.2.3), which limited the administration powers and financial funds from the university.

In contrast, DELDL in the UOD seems to be much better managed than in the AIU and the PNU in regards to the e-learning strategy. They have a clear strategy that is based on analysed survey results and which has been developed in collaboration with expert consultants. Unlike the others two e-learning management groups in the AIU and the PNU that adopted local LMS, the UOD chose to adopt the well-known LMS, Blackboard, to overcome local LMS limitations. After the e-learning and distance learning strategy was developed, the DELDL in the UOD distributed it to the all university’s faculties to involve them in the decision-making process and offer them enough time to prepare themselves for the LMS implementation process (SA).

“Our strategy is to develop an e-learning unit in each faculty that consists of trained staff from the same faculty to become by time an independent unit, so we as a deanship get more free time for strategic planning and developing systems and new ideas. We want excellence to develop from inside each faculty as they have their
own e-learning coordinators, technicians, and trained academics in e-learning”.
(SA)

The following section shows how the above strategies have been put into practice.

7.2.3 Implementing LMS: the process

Here, the structure of e-learning organisations within the three universities is discussed. The decisions taken by the e-learning management in the three universities to disseminate LMS use among academics are also addressed.

7.2.3.1 Basic structuring of organisation

Both the AIU and the UOD have an independent deanship for E-Learning and Distance Learning (DELDL). These deanships consist of a dean who sits on the university board (3.4.1) and two vice-deans in addition to some support departments. On the other hand, PNU has an E-learning and Distance Learning Administration (ELDLA), which is one of the administrations that the office of the Vice-Chancellor for studies and development introduced. This administration is responsible for managing and handling the LMS throughout the University (HA). The structure of the administrative bodies in Saudi universities means that they are limited in power, financial autonomy and independence, compared with deanships (FA), which explains why AIU and UOD have more interest in adopting LMS than PNU as mentioned previously (7.2.1). The PNU currently has a proposal to expand e-learning administration to become a Deanship (HA), which shows interest in raising the status of LMS and extending its use.

It is worth mentioning here that the DELDL in the AIU has a unique way of implementing LMS compared to the other two universities. Rather than organising and arranging the implementation of LMS among the university’s faculties as is the case with the other two universities, the DELDL in the AIU runs the entire electronic and distance learning process itself. Students who would like to study through the electronic and distance learning method are enrolled by the deanship itself regardless of their discipline. The DELDL is arranged with academics from different faculties who are willing to be trained by the DELDL in order to be able to teach through LMS. This unique approach was necessary in the early stages of LMS adoption in the university; however, they have a project called the ‘Electronic learning project’ where LMS will eventually be introduced to all faculties of the university (AAA).
7.2.3.2 Disseminating the use of LMS among academics

A variety of methods have been followed by e-learning managements in the three universities to introduce the use of LMS among the academics. There are differences, however, in the number and type of these approaches between the three universities.

The investigation reveals a number of approaches such as developing an independent e-learning unit in each faculty. These units consist of e-learning coordinator ‘super users’ and the main role for these units is to train faculties’ members in how to use LMS and other related technologies (DB; SA). They also provide each faculty member a desktop or laptop computer to allow them access to LMS anywhere and at any time (DB). They provide financial bonuses for academics who use technology including LMS in their teaching (AAA; HA; SA), and reduce the teaching load for academics who undertake e-learning coordinate (SA).

7.2.3.3 Technical support

The investigation reveals a number of technical support methods provided by the e-learning management bodies in the three universities such as email, phone, or online (5.4: Concept 9 & Concept 10). Some universities provide an academic’s ‘user guide’ including steps on how to access and use LMS (HA). The investigation also reveals two types of LMS technical issues, i.e. issues related to the technical component of LMS, such as login issues and others relating to the functional component, such as adding/deleting a course or using a particular tool (HA; SA).

Ideally, academics who encounter any issue related to the use of LMS start to solve it by using the FAQ section in LMS (AH; DB). If they are unable to solve it or if they are not aware of the FAQ section they need, then they contact the technical support unit within the faculty. If this does not solve the technical query, they then contact the e-learning management. This process, however, is not the case in all three universities. For example, in the PNU where the LMS, Jusur, is run by an external organisation - NCeDL, academics who face technical issues and are unable to solve them through the FAQ section need to contact the NCeDL to solve the issue, which takes some time (AA; HA). Some academics, however, are not aware of this process and methods (AF; AH; AS); hence, availability of particular technical support methods is not enough; e-learning management also needs to ensure academics are aware of them.

According to Al-Senaidi et al. (2009), lack of institutional support including technical support is one of the two major issues that academics complained about in regards to adopting technology in their teaching practices. Another study conducted in the context of Saudi Arabia ascribed the
weakness of activating LMS adequately to a number of reasons including the lack of direct technical support to both academics and students before and during using LMS (Hussein, 2011). Similarly, a review of the research literature on barriers to the uptake of ICT by teachers conducted by BECTA (2004, p. 3) reported that, “technical faults with ICT equipment are likely to lead to lower levels of ICT use by teachers”. These citations show that lack of technical support can prevent, or reduce, academics’ use of technology in their teaching practices.

Overall, in this section (7.2) all aspects revealed through the interviews about e-learning management and LMS are analysed with a focus on academics’ adoption of LMS. The analysis included management interest in adopting LMS and the strategies they adopted in order to implement LMS in their universities.

Although interest in LMS in Saudi public universities is not purely a university-driven attitude, as they rather act in accordance with the legislations set by the Ministry of Higher Education (7.2), the interview analysis revealed differences in the adoption quality and/or level of LMS among the three universities.

E-learning management (DELDL) in the UOD demonstrated advanced steps and professionalism in adopting LMS in comparison with the other two universities; taking into account the fact that the UOD was the last of the three universities to adopt a LMS. This recent adoption of LMS by the UOD helped them learn from the mistakes of other universities. For example, the AIU, which is one of the first two Saudi universities to adopt LMS, chose to adopt Tadars, which is a local LMS that they continue to use to date. Tadars and other local LMS have issues and limitations (7.9) in comparison with well-known internationally used LMS; more than one academic in the investigation complained about them (7.9.2). In the case of the PNU, there was confusion over the adoption of LMS, as two local LMS were adopted in addition to Moodle (2.5.3), but there was no clear idea by users over which one to rely on (EA). In contrast, the UOD, which adopted LMS recently, has chosen to adopt Blackboard. Very recently, the PNU decided to replace the three LMS with Blackboard, likewise most Saudi universities recently have transferred to Blackboard (Alebaikan & Troudi, 2010; SA). E-learning management in the AIU also mentioned that they might replace the local LMS, Tadarus, with a more ‘advanced’ one (AAA).

Another phenomenon that should be taken into consideration is that, in developing countries, individuals with leading positions have the upper hand in shaping the policies and/or the way they are implemented, bearing in mind that some may not have relevant qualifications in the area they are managing. For example, the Dean of DELDL in the AIU, who is responsible for all
aspects of LMS within the university, has no background in e-learning or computer sciences. In regards to the PNU, although the head of the administration of ELDL has a background in computer sciences, she worked under the Vice President of Studies and Development, and relies on an external partner for adopting LMS - The National Centre for E-learning and Distance Learning (NCeDL) (3.4) - who are responsible for all aspects of the local LMS, Jusur, that has been adopted by the PNU. The Centre provides the system, trains academics on how to use it, and provides access to the system to academics and their students (AA; HA), which subsequently limited the options available to the administrator of ELDL in the PNU. Nonetheless, as mentioned earlier, the PNU recently decided to adopt Blackboard, which will make them more independent; i.e. not rely on the NCeDL in adopting LMS. They also have a plan to upgrade the administration of ELDL to become a deanship, which will also support further independence. On the other hand, the Dean of DELDL in the UOD is experienced in LMS; he has recently been awarded his PhD degree from the United Kingdom where he used LMS as a student and as a teacher (AS). His position as the Dean of DELDL in the UOD together with his experience in using LMS allowed him to develop a clear strategy for adopting LMS; however, as the adoption process is in its early stages, it is too soon to assess the outcomes of LMS adoption in the UOD.

7.3 Academics’ beliefs and attitudes towards LMS

During the investigation, academics expressed a range of responses in relation to their beliefs and attitudes towards the adoption and usage of LMS. In this section, explanations of these beliefs and attitudes are given and discussed along with causes and effects of these beliefs and attitudes.

7.3.1 Academics’ beliefs about LMS

Beliefs refer to “the information [someone] has about the object” (Fishbein and Ajzen, 1975, p. 12). In this case, it refers to the information (whether true or false) and opinions that academics have about LMS.

The results from the questionnaires showed some clashes in academics’ beliefs in LMS (5.4: Concept 11 and 5.5: Concept 16); however, their beliefs cannot be demonstrated properly through questionnaires alone. Therefore, the interview investigated this issue in greater depth. Through direct and indirect interview questions, academics were asked to explain what their beliefs in relation to LMS are. Analysis shows that some academics are hesitant about using
LMS for several reasons. AS stated, “Some academics have a technology phobia which is an issue”. AA stated, “some reject the use of LMS because it increases the effort required from them, since [using LMS] requires academics to change their teaching style and strategy”. These statements may appear anecdotal in nature, however, they reflect some academics’ observations of the field they work in and the daily issues they experience.

There is evidence in the literature that academics’ educational beliefs influence their practice (Kim et al, 2013; Kuzborska, 2011; Sanger and Osguthorpe, 2013). Typically, academics reflect their experience and beliefs in their teaching practice. One of the prime factors that holds back teachers from adopting new technologies is their attitudes and existing ideas of the systems (Ertmer and Ottenbreit-Leftwich, 2010). Moreover, it has been argued that a teacher’s beliefs act as a filter for their educational decisions (Ertmer and Ottenbreit-Leftwich, 2010; Hutchins and Friedrichsen, 2012; Mak, 2011).

The above citations as well as the previous discussion about academics and technology (3.3.1) show that ignoring academics’ beliefs towards using LMS can affect the adoption process of LMS in HE institutions. E-learning deanship leaders who implement strategies to adopt LMS need to understand academics’ beliefs towards using LMS; since understanding beliefs relating to LMS gives those who plan to change those beliefs a starting point (Dweck, 2008). Changing beliefs, however, is not necessarily easy (ibid); academics need to understand aspects such as the concept of LMS, and its advantages for the learning process and for themselves, as is illustrated later in the discussion. Rather than starting the relationship between academics and LMS by providing training courses, a higher priority should be given to considering starting this relationship by awareness sessions that explain to academics why LMS is adopted in the first place.

The initial results obtained through the academics’ questionnaire (5.4: Concept 5) showed that nearly 40 per cent of the participants lacked knowledge about the LMS in their university, and maybe about the existence of such systems in general (Alshammari et al., 2012). This is to say that involving academics in the decision-making process including the LMS adoption decision is another point that should be considered; since this action is essential in preparing academics for the new teaching approach.

### 7.3.2 Academics’ attitudes towards LMS

Attitude is a “readiness of the psyche to act or react in a certain way” (Jung, 1971, p. 414). It can be described as a “predisposition to respond in a consistently or unfavourable manner with
respect to given object” (Fishbein and Ajzen, 1975, p. 6). Attitude can be positive, negative or neutral views of an “attitude object: i.e. a person, behavior or event” (Garg, 2012, p. 535). Attitude matters because – as discussed in this section - it influences individuals’ actions.

The interviews reveal significant positive attitudes from academics towards using LMS; AF stated that “LMS makes academics tasks easier…and offers interactive environment either between academics and students or students themselves”. Other academics express their satisfaction as well as their students’ satisfaction towards using LMS; e.g. AA stated, “many of my students thanks me that they do not need to search for the missing subject materials as everything is available online…by using LMS I am not required to do office hours anymore”. These interviewees’ thoughts are consistent with what was revealed in the questionnaire (5.4: Concept 13); that 90.6 per cent of academic participants believe that LMS has a promising future in Saudi HE institutions and 88.2 per cent believe that LMS should be used in Saudi HE institutions.

These positive attitudes, however, cannot be generalised to all participants (as discussed below in this section), nor do they mean that those who have these positive attitudes implement them in their teaching practice. It has been noted that although academics in particular Saudi universities have a positive attitude toward LMS, only a few of them access the system and activate it (Hussein, 2011), which is also confirmed by EA (7.4). Positive attitude in itself does not mean that academics can successfully apply the technology in their practice unless they also have the knowledge and skills to do so (Baylor and Ritchie, 2002).

Nonetheless, academics who have a positive view towards technology are more comfortable in using it in their practice and are able to overcome barriers that may arise in the process (Albirini, 2006). Hence, there is a need for academics with positive attitudes toward LMS to transform these attitudes to their practice by overcoming their lack of, or very limited, knowledge and skills in using LMS.

In contrast, the interview analysis process also reveals that academic interviewees complain that LMS is increasing their workload. AH stated that

“LMS is useful for students but burdensome for faculty members, because faculty member teaches in the traditional face-to-face way and additionally through the system. He teaches through the system more because teaching in the traditional way is two or three hours in addition to specific office hours, but through the system inquiries and assignments submission are received every time, so faculty member can involve with the system 24 hours”.

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Similarly, DB stated that

“As comfortable as LMS is for students it is burdensome for faculty members. Some may say [faculty members] only use LMS to provide learning materials but this is not true because after providing a lecture, inquiries through the system start to flow from students. Face-to-face teaching is much easier; LMS requires more effort”.

The above two citations can be seen as an advantage of LMS, since they show that LMS is providing more alternative communication channels between students and academics; but how academic interviewees describe this development in their relationship with their students is not necessarily compatible with this opinion. Academics in Saudi universities are using LMS for both blended and fully online learning (3.3.3); however, as LMS has been recently introduced to the context of Saudi HE (3.4.2) most academics are not familiar with it and LMS is still being seen by some academics as something extra that they have to deal with. As found in the questionnaire results (Concept 35.4: Concept 3) around 52 per cent of academic participants have never used a LMS, which may explain why LMS is not yet a well-established part of HE in Saudi Arabia; hence the low levels of enthusiasm expressed.

Increasingly, e-learning is becoming ‘learning’, and LMS currently is the most common e-learning system used in HE internationally (Lameras et al., 2012; Persico et al, 2014; Song, 2011). However, in Saudi universities, academic job descriptions still do not include aspects of teaching related to online skills (FA), which involves dealing with LMS.

### 7.4 Academics’ use of LMS

The analysis of academics’ use of LMS involves a number of variables such as level of usage, their interaction with students through LMS, and what type of LMS functions they use. These and other variables identified through the interview analysis regarding the academics’ use of LMS are explained and discussed below.

Academics’ use of LMS in the three universities vary: whereas in the AIU and the UOD they use LMS for both blended and fully online learning (3.3.3), academics in the PNU only use it for blended learning. This point shows the academics’ use of LMS overall, regardless of their LMS type of use, i.e. fully or blended learning. Nonetheless, some academics mentioned –as discussed later on in this section - that their type of use, i.e. blended or fully online learning, affects their level of interaction through LMS.
7.4.1 Academics’ level of use of LMS

Interviews revealed that only a few academics are using LMS; for example, EA stated that “Although LMS is installed in the university, only few academics access and use it”, which is consistent with the questionnaire results (Figure 24) that 51.2 per cent of participants have never used a LMS. These results confirmed what was noted in two studies conducted in the context of Saudi Arabia - that the number of academics who access and use LMS is very limited (Alebaikan and Troudi, 2010; Hussein, 2011) which highlights the consideration that LMS is not yet a well-established part of HE in Saudi Arabia.

Nonetheless, some differences in LMS level of use among academics are noted. These differences are analysed in 7.5 by examining the factors that influence academics’ use of LMS.

7.4.2 The use of LMS functions

LMS comprises several functions and tools. Here, the functions/tools that academics use for either teaching or communication purposes are discussed.

The interview analysis revealed poor outcome in the number of LMS functions utilised by academics as they mainly used one or two functions that are essential to deliver the courses they teach. For example, EF stated:

“Academics mostly contact us if they need help with virtual classroom, I do not remember anyone contact us asking about another function...despite the fact that LMS has many functions and features, only one or two functions are used by academics”.

Similarly, EA pointed out that academics only use a few particular LMS functions. Previously, the questionnaire results (5.4 Concept 6) show that PowerPoint is the most commonly used LMS tool by participants, which confirmed the findings from the literature that LMS are used mainly as a delivery/presentation tool for course material (Dobozy and Reynolds, 2010; Vovides et al., 2007).

Although these particular tools are useful in teaching, they do not really reflect the true value of the rich variety of LMS functions available. Teaching and learning can be more productive, interactive and more interesting if LMS is used to its full potential, which is very important particularly for universities that offer full online courses (Alshammari et al., 2012). In this regard, however, some factors that affect an academic’s use of LMS and their functions were
highlighted through the discussion presented in section 7.5 later on, such as skills/knowledge and needs.

Some functions require more skill and experience than others; for instance, Blogs require more experience for their effective use than Messages, which could explain why Blogs are the least popular LMS tool among questionnaire participants (Figure 29). Another factor that affects academics’ use of LMS is related to ‘needs’ and ‘significance’. Some universities provide full online courses, e.g. AIU and UOD; both oblige their academics who teach these courses to use LMS and particular functions such as virtual classrooms. These universities, therefore, are expected to provide a context that aims to maximise the use of LMS to their full potential. Using virtual classrooms, however, does not mean that the academics are using them as they should be. Bear in mind that the analysis presented above (5.4: Concept 4) reveals that training is limited to a small number of users, which may be a reason behind the limited use of LMS along with the under-utilisation of the tools provided within them.

7.4.3 Academics’ interaction with students through LMS

Interaction is vital to the learning process particularly in distance education where it plays a significant role in overcoming “physical separation that leads to a psychological and communications gap” (Moore, 1991, p. 3). According to Lee and Rha, 2009 and Wang et al, 2014 interaction has been described as the most common research topic in web-based distance education “because of its pedagogic genesis” (Lee and Rha, 2009, p. 374). Many studies reveal that interaction in web-based education shows positive pedagogical effects in the learning process that is taking place (Conrad, 2014; Wang, 2013; Wang et al, 2014). Bernard et al. (2009) supported the significance of three types of interaction, which are represented in: student-student interaction, student-instructor interaction, and student-course content interaction. In this research, the focus is on the second type, i.e. the instructor-student interaction.

Initially, the questionnaire results showed that academics’ poor/lack of interaction with students is one of the main reasons why students believe that LMS is either useless or very useless for supporting their study (5.5: Concept 15). The literature also showed that interaction between academics and students is considered one of the critical success factors for distance learning in general and for learner perceptions towards online learning in particular (Bhuasiri et al., 2012; Fresen, 2007; Kim, Liu and Bonk, 2005). Instructors’ very limited or overall lack of knowledge in technology is one of the main reasons “why they do not know how to promote online
interactions in practice” (Su et al., 2005, p. 2). Although the previous citation might be considered quite old in its context; it corresponds with recent literature relating to the context of Saudi Arabia (e.g. Alebaikan and Troudi, 2010; Asiri et al., 2012) where LMS was introduced a few years previously.

The interview findings however reveal more dimensions about academics’ interaction through LMS. An academic interviewee differentiated between interaction in full online learning and in blended learning - where LMS is used to support classroom teaching - since the former requires a high level of interaction. Another academic interviewee based interaction level on students’ needs, as some students require more interaction than others. For instance, AH stated that “LMS offers you a test to assess the student familiarity with the curriculum…then you determine the degree of interaction [required].”

This in turn raises a number of questions. Does interaction in web-based learning (through LMS) depend on the type of LMS use, i.e. full or blended learning, or the student’s level and whether they need it or not: or is it that the teachers have very little/lack of knowledge in using technology, as mentioned earlier, that is the main barrier to them promoting online interactions in practice? In other words, should academics be blamed for poor/lack of interaction between them and their students? Clearly, academics who teach fully online courses are required to interact with their students more than those who use LMS to support classroom teaching. Typically, academics who teach online provide video lectures and/or slides of their presentations, but do students learn much from these types of learning materials and tools provided by academics? Students in the online learning environment expect and need more than these learning material and tools to be encouraged to interact. Level of interaction mainly depends on the type of online material and tools provided. Understanding students’ expectations is required to develop an interaction environment. Academics should consider - if students have a chance to redesign their learning environment - what methods and tools they would choose. If there is poor/lack of interaction through LMS, the question is not ‘who to blame’, but rather ‘how can this environment be made more attractive for students? Educators need to be aware of what LMS can offer for them. These systems need to be explored and used to their full potential to make them more attractive to students. For instance, the latest release of LMS became more integrated with social media; for example, the Blackboard 9.1 Service Pack 10 has new features that allow academics and students to share their Face-book and twitter accounts with other Blackboard users. LMS has been widely adopted across the higher education institutions, which makes it essential that today’s academics are knowledgeable about what the technology can offer.
A further point mentioned by the interviewees is that interaction depends on the student’s level of knowledge and skills; clearly, students are different in their levels of motivation and skills. Although self-motivated students who show advanced progress may not appreciate a post from their teacher asking them to find some information or to check a particular blog, nonetheless, some students who are less advanced in their ability to manage and handle their study may appreciate this. Positive posts in general - not only those related to the curriculum objectives - however, are appreciated by both groups.

### 7.5 Factors influencing academics’ use of LMS

There are three domains influencing technology utilisation in teaching and learning; these are the innovator, the innovation, and the context (Ling Koh et al. 2014). The innovator refers to the instructor or academic, the innovation refers to the nature of the technology itself, and the context refers to the teaching and learning environment. At this point, only the factors that influenced the academic/innovator use of LMS that were mentioned by interviewees are analysed.

#### 7.5.1 Teaching experience

Respondent AA claimed that “there are differences in using technology in general, and LMS in particular, in the teaching styles of young and older academics; while the former use tools such as blogs and wikis, the latter consider using PowerPoint as an advanced step in using technology”. Similarly, DB stated, “I am elderly, teaching through papers is definitely easier than by internet”. These citations confirmed what was revealed through the academics’ questionnaire previously (5.4: Concept 1), that academic participants aged 25 or less use technological tools in their teaching more often than any other age group, and that participants aged 51 or more in general use technological tools the least (and LMS functions in particular) when teaching.

These results suggest that academics’ age influenced their preferred teaching methods, taking into account that LMS has only recently been introduced (2007) to the context of Saudi HE (Alebaikan and Troudi, 2010; Al-Khalifa, 2010) which means that most current academics in Saudi universities have spent most of their teaching careers without LMS. Hence, age cannot be isolated from the context of the discussion.

Similar to academics’ age, their years of teaching experience influence their familiarity with LMS functions, as confirmed by the academics’ questionnaire results (5.4: Concept 2) when
comparing participants’ length of teaching versus LMS use. The results (5.4: Concept 2) indicated that participants who have taught for one year or less are more experienced with technological tools, and LMS functions in particular, compared to those that have taught for a longer period.

The above comparison provides an indication about some of the changes that technology can bring to education: i.e. acquire knowledge and experience in a shorter time than it used to take. For instance, academics who are active in social network websites may be better able to realise new developments in education and technology, share knowledge and collaborate with other educators, and find solutions to their teaching issues regardless of their experience that they gained through years of teaching.

7.5.2 Knowledge of LMS

Academics’ knowledge in using LMS was the most common factor highlighted by interviewees that influences their use of LMS. For example, HA stated “Let's be realistic and talk in full transparency, a large group of academics has no background in computers…they do not know what LMS means”. Likewise, SA stated, “One of the obstacles that we faced in adopting LMS is that some academics believe that using LMS requires knowledge and skills in programming and it's a complex thing”. The previous two citations were from two interviewees in e-learning management in two different universities, which on the one hand shows that academics in both universities have a lack of, or very little, knowledge in using LMS, and on the other hand, demonstrates differences in the reasons for this lack of, or poor knowledge among the academics in the two universities. This point of view - i.e. academics’ lack of, or very little, knowledge in using LMS - was also expressed by two e-learning coordinator interviewees in two different universities, EF and DB. For example, EF stated, “LMS contains many features but they are not used by academics due to their very little knowledge in how to do so”. This citation summarises the difficulties that e-learning management face in dissemination of LMS among academics. Some academic interviewees also held this view; for instance, AA stated, “Academics’ lack of knowledge in using LMS is the first obstacle of the barriers that prevent them from using LMS”. Likewise, AF stated, “knowledge in how to use LMS is the first step academics need to take in order to utilise it. People are usually afraid of approaching something they do not know.”

The above citations confirmed the findings of the academics’ questionnaire previously (5.4: Concept 5); that nearly 40 per cent of the academic participants lacked knowledge about the
LMS in their university and maybe about the existence of such systems in general (Alshammari et al., 2012). These results, however, do not depart from those mentioned in literature (3.3.1); that academics’ lack of knowledge in using technology is one of the key problems with using technology in teaching (Conole and Culver, 2010; Linckels et al., 2009).

According to the investigation results, there can be a number of reasons for academics’ limited - or lack of - knowledge in using LMS; for instance, negative beliefs about LMS and a lack of interest in using it. However, the very limited number (or complete lack) of LMS training courses is considered one of the main causes of this issue (Alebaikan and Troudi, 2010; Alshammari et al., 2012; Hussein, 2011). It is essential to train academics properly in using LMS in order for them to use it effectively. Further elaboration on LMS training follows in section 7.7.

7.5.3 Interest in LMS

According to Hidi and Renninger (2006, p. 112) Interest as a motivational variable refers to “the psychological state of engaging or the predisposition to reengage with particular classes of objects, events, or ideas over time”. Traditionally, Interest as a concept held a fundamental position in teaching and learning (Hidi et al., 2004). At the turn of the twentieth century, Interest was highlighted in a number of psychologists’ studies as the most important motivational factor in learning and development (e.g. Arnold, 1906, Claparede, 1905, Dewey, 1913, James, 1890, and Thorndike, 1935) (ibid). Moreover, when a person is interested in something, he/she becomes more attentive and alert (Krapp, Hidi and Renninger, 1992).

In this study, more than one interviewee pointed out that academics’ lack of interest in using LMS is one the factors influencing their use of LMS (AA; AF; AS; EF; SA). Although the following statements expressed by interviewees can be considered as assertions about other academics, they are used here to reflect the opinions of some of those who work in the field and experience its daily challenges. For instance, SA stated, “Some academics do not have an interest in using technology because using technology is not part of their social life yet; they do not use technology, e.g. social media in their daily life!” In other words, academics who are using technology such as social media or smart-phones for daily tasks are much more likely to be interested in using technology in their teaching.

AA expressed another dimension about academics’ lack of interest in using LMS: she said “some academics who teach curricula that are not technologically-oriented such as Arabic language curricula are not interested in using LMS because they do not see that any learning
objective can come from using it”. - This statement links to the academics’ beliefs (7.3.1) about the value and role of LMS in the pedagogical objectives of the curricula, it also relates to academics’ identity, which is closely linked to their discipline (7.8.1). In regards to the differences in curricula, DB stated, “there is a disparity in using LMS between faculties depending on the nature of the curriculums; for instance, in the faculty of Literatures, all their curricula are theoretical. Therefore academics in this Faculty use LMS more than those who teach in the Faculty of Designs as the latter mostly teach practical curricula”. This statement is compatible with the academics’ questionnaire results (5.4: Concept 12), where 56.5 per cent of academic participants believe that LMS is more useful for some disciplines than for others. Previously (2.6.1) the literature showed that LMS are often used as ‘one size fits all’ that does not take into account the variations in the requirements of different curricula (Vovides et al., 2007). This is particularly the case in the late 1990s, when initial versions of LMS were introduced to the field, and now to a certain degree. In current LMS, however, academics are able to create and set rules to customise their online courses based on their needs. For instance, Blackboard LMS has a function called Adaptive release that allows instructors to create rules and set them based on variety of conditions, e.g. date, time, group of students, individuals, and scores. However, unless LMS is fully exploited, many of these functions remain unused.

According to Bulunuz and Jarrett (2010, p. 65) effective educators are described as “interested in their subject and demonstrating enthusiasm for teaching the course content”. The point here however is; how does an academic’s interest develop? Interest is described as the “the outcome of an interaction between a person and a particular content” (Hidi and Renninger, 2006, p. 112). LMS needs to be an essential part of the HE system in order to develop academics’ interest in using it. It has been pointed out (ibid) that although the potential for ‘interest’ is in the person, the environment and other individuals can support interest development.

7.5.4 Time

One interviewee (HA) expresses lack of time as a factor influencing academics’ use of LMS, which supports reports in the literature that lack of time is the biggest barrier to academics’ use of LMS (Badge et al., 2005). Universities need to allocate time for LMS training courses and workshops on academic workdays. They need to generate a flexible timetable that enables academics to find time to improve their knowledge and skills in using LMS.

Overall, in this category, i.e. (7.5) the factors influencing academics’ use of LMS from the perspective of the interviewees are analysed individually, however, these factors combined can
influence each other. For instance, academics’ lack of knowledge in how to use LMS is directly influencing their interest in using it, since - as mentioned above - interest is the outcome of an interaction between a person and a particular content.

7.6 Female organisations and LMS in Saudi universities

The education system in Saudi Arabia is - as is the case in all fields of public life - grounded in gender segregation. The Ministry of HE has to provide university campuses that have two separate zones, one for males and the other for females. In each zone, there are male and female counterparts for all departments; however, the lower number of female academics in Saudi universities compared to the number of male academics requires some male academics to teach female students, as discussed below. In this section, the analysis does not include an argument of the differences in the use of LMS between genders but rather a discussion of the adoption of LMS in female organisations.

7.6.1 LMS as an alternative to CCTV

Respondent EA stated, “The use of LMS at the beginning was to deliver lectures prepared by male academics to female students due to the gender segregation system”. According to the most recent report provided by the Ministry of Higher Education, the number of female academics in Saudi universities is lower than that of their male counterparts - 36.5 per cent of the total number of academics (Doc.2, Appendix 10). In contrast, the number of female students in Saudi universities is higher than the number of male students (ibid). This shows the need for male academics to teach female students, which, however, is not possible through the traditional face-to-face teaching and learning due to the segregation system. Typically, Saudi universities use closed-circuit television (CCTV) to deliver lectures prepared by male academics to female students. Using CCTV to deliver lectures however has its challenges; one of them is that the only method for communication between male lecturers and female students is via telephone at the end of the lecture (Mehana, 2009), which limits opportunities for ongoing discussion. e-learning via various new applications and tools offers a variety of options to counteract the decrease in the number of female academics (Asiri et al., 2012) with advantages that were not possible through CCTV use. For example, synchronous sessions through LMS allow students to participate in the lecture and debate with the lecturer in a context that appears similar to a traditional class (Chi Ng, 2007; Hrastinski, 2008). Through synchronous sessions, students can make contact immediately with their lecturer and other students by asking questions, sharing information, and expressing ideas or thoughts. Visual cues, however, are to a great extent lost in
online discussion, which demonstrates that face-to-face interaction is still a better way to show human expressions (Wang and Lit Woo, 2007). Further elaboration on how LMS enhances teaching and learning is given below (7.8).

7.6.2 Training in the female context

As mentioned above, one of the projects run by the National Centre for e-learning and distance learning (NCeDL) is the Jusur LMS (3.4.2). Although the NCeDL has male and female trainers who are qualified to provide LMS training courses for both male and female academics (HA), interviews revealed that the number of female trainers is not as required. AA stated that:

“I attended an LMS training course which is a three-day course organised by the NCeDL...the attendances were from several universities. Since the trainers were male, the course was delivered through CCTV. I was sitting in a large stadium quite far from the monitor so I found it difficult to see the monitor and communicate with the trainers...the course was a kind of lecture rather than a practical course”.

Although this citation presents an example of the female training environment in a gender segregation system, it raises questions about the overall quality of training courses, since these issues - such as huge numbers of attendees and difficulty in seeing and communicating with the trainers - also happens in the male section. It has been noted, however, that the design of female campuses in Saudi universities - i.e. less productive/private spaces compared to men’s campuses - is influenced by a culture that traditionally grants roles, responsibilities and power to men (Alnassar et al., 2013). The organisers of LMS training courses should consider factors that influence training physical environment particularly in the gender segregation system, where they must ensure that each trainee has the same opportunities to participate in any training course. The next point discusses LMS training courses in detail.

7.7 Training for LMS

This section includes analyses of the organisation well as frequency, quality and issues of LMS training courses that are provided by the three universities for their academics. Prior to this, it is important to recall the questionnaires’ results related to academics and LMS training courses. The questionnaire’s results showed that the number of academic participants who did not attend any LMS training courses during the five years from 2007 to 2011, when LMS were in use in Saudi universities, is relatively high (5.4: Concept 4). These results show the kind of conflict that exists with the overall view that universities encourage the use of LMS or set policies to enforce its use, as indicated by 59.5 per cent of the academic participants (Figure 27) and by the
Deans of E-Learning and Distance Learning who claim to encourage the use of LMS. This matter was investigated further through the interviews, which revealed very little, or lack of, LMS training courses in the three universities and showed very little quality in the training courses.

### 7.7.1 Training strategy

The three universities differ in their LMS training strategy; while the PNU relies on the National Centre for E-Learning and Distance Learning (N CeDL) to train its academics, the UOD and AIU use in-house training methods. The PNU, as mentioned above, relies on the adoption of LMS on the N CeDL that provides local LMS Jusur and organises LMS training courses for academics. The N CeDL provides LMS training courses for all academics in Saudi universities who use Jusur. The PNU cooperates with the N CeDL to offer a number of places for its academics in these training courses. The N CeDL offers three programmes annually: the first semester programme, the second semester programme, and the summer programme (HA). The PNU encourages its academics to attend these programmes but does not obligate them to do so; however, they track the programme attendees through reports provided by the N CeDL (HA). Some PNU academics, however, complained about LMS training courses provided by the N CeDL, as discussed later on (7.7.2).

The AIU, which adopted a local LMS, Tadarus, provides LMS training courses for the new academics within the Deanship of E-Learning and Distance Learning (DELDL). If the number of new academics is large, the DELDL provides training courses that take place at the beginning of each semester. “In these training courses we show academics how to access the system and manage the teachers’ and students’ forum in addition to training them how to use the important LMS tools” (AM). However, if there are only one or two new academics, they attend a meeting with the Academic Affairs Department in the DELDL where they are shown how to access the system and use its main features. Thereafter, if they have any queries about or problems with the system they can contact the support team (AM). AS, however, criticises these training courses by saying, “we cannot call them training courses! They were not training courses; they only provide basic information about the system in no more than ten minutes!” These citations in addition to some complaints raised by a number of AIU academics regarding the LMS training courses (as discussed below) show the poor frequency and quality of LMS training courses in the AIU.
The UOD uses a ‘Training the trainers’ approach that means training sessions in which “the vendor trains the organisation’s employees called ‘super users’ to become in-house trainers in order to improve training quality and reduce training expenses” (Quizlet.com). The DELDL in the UOD chooses e-learning coordinators super users from each faculty who have the relevant background and interest, then trains them (SA). In their turn, those e-learning coordinators develop a training course plan to train academics in their faculties (SA). Initially, the e-learning coordinators develop a plan to organise LMS training courses weekly then monthly (DB); these courses include theoretical and practical elements such as an introduction to LMS, how to create/manage content, and using communication tools (Doc. 4, 5 & 6, Appendix 10). The training courses are run within a flexible timetable (Figure 21) to suit as many academics as possible (DB).

Currently, the UOD is at the stage where e-learning coordinators have been trained, and have developed LMS training courses plan for academics; however, these courses have not yet started, which make it too soon to assess them from academics’ perspectives.

The above data obtained from e-learning management/coordinators in the three universities showed no strong evidence that training academics to use LMS is an essential part of the LMS adoption process in the three universities. For example, the AIU does not have a clear strategy/plan for LMS training courses as they only provide courses that include basic information on how to access LMS and use its ‘important functions’. In addition, these courses
are only provided for new academics; there are no courses for existing academics to develop their skills and knowledge in using LMS. In regards to the PNU they rely for the training of their academics on the NCeDL that organises training courses for all academics in Saudi universities that use local LMS Jusur, regardless of each university’s needs and requirements. In addition, training courses organised by the NCeDL are subject to several complaints raised by academics, as illustrated below.

Although the data obtained from the UOD’s e-learning management/coordinators showed a better training strategy/plan in comparison to the other two universities, the interview revealed that only very limited criteria are considered when selecting e-learning coordinators. For example, when the e-learning management respondent was asked; how do you chose the e-learning coordinators who were trained by the LMS vendors and going to train academics in their faculties?, he responded, “We did not participate in this, they were nominated by their faculties, we asked each faculty to nominate an e-learning coordinator who has an interest in e-learning” (SA). Although this can be viewed as a kind of management flexibility, it shows lack of professionalism in choosing e-learning coordinators.

Training academics in how to use LMS must be considered an essential aspect of any LMS adoption process as many studies show a strong link between training courses and a change in the behaviour and knowledge of academics and their students’ views towards learning (Gibbs and Coffey, 2004; Ho, 2000; Ho et al., 2001; Southwell and Morgan, 2009). LMS training courses must be comprehensive courses that allow academics to use LMS to its full potential rather than just basic courses that train academics in how to use the important functions since LMS features and functions reflect a diversity of learning style and method, as discussed later on. LMS training courses must be continuous throughout the academic year rather than short training courses that “tend to have limited impact on changing teaching behaviour” (Prebble et al., 2004, p. 91).

Becoming proficient in using LMS functions, however, is not enough for the successful adoption of LMS; academics should be developed to the optimum use of these functions in effective pedagogic practice (Georgouli et al, 2008), i.e. how LMS functions could be utilised to support teaching methods and the learning objectives. Academics should be trained to successfully transform traditional pedagogy based on face-to-face teaching to a pedagogy that is based on LMS functions that have been designed to enhance it. LMS however offers a diversity of pedagogic functions that support different pedagogical considerations; therefore, it is academics’ responsibility to select those functions that best support the objectives of the
subjects that they deliver. The following point includes an analysis of the LMS training course issues that are most commonly raised by academics.

### 7.7.2 Training issues

In the previous section, the analysis revealed some of the issues related to LMS training’ strategy/plans. Here, the analysis includes some academics’ complaints about the frequency, content and quality of the LMS training courses. For example, AS stated, “They were not training courses; they only provided basic information about the system in no more than ten minutes!” AH stated, “They only provide training for new academics when they start using LMS”. These two citations show how limited LMS training is, both in frequency and in content. Another academic complains about the training physical environment which can be related to the training quality; AA stated, “I was sitting in a large stadium quite far from the monitor so I found it difficult to see the monitor and communicate with the trainers..the course was more a kind of lecture rather than a practical course”. These citations specify some of the issues that have been identified in LMS training courses, which are mainly found to be linked with frequency, quality, and the content of the courses; this in part demonstrates some of the factors influencing the relationship between academics and LMS.

Previously, the questionnaire results revealed that the number of academic participants who did not attend any LMS training courses is relatively high (5.4: Concept 4) which can be related to the very low quality of training courses, as frequently pointed out by interviewees. A recent study (Hussein, 2011) investigates the relationship between university teachers in six Saudi universities and the LMS (Jusur) that was established by the NCeDL. One of this study’s recommendations was to encourage the use of the LMS Jusur through training (Hussein, 2011). Another recent study affirms that “the number of faculty members utilising these systems is very limited. One reason could be that the universities and institutions do not provide enough training workshops for online learning systems” (Alebaikan and Troudi, 2010, p. 52). A study established from this research found out that the majority of academics’ responses in the three Saudi universities that form the cases of this study - the PNU, AIU, and UOD - had not attended any LMS training courses during the five years from 2007 to 2011, when LMS were in use in Saudi universities (Alshammari and Howley, 2012). As a result, academics need to be trained properly so that they can use LMS in an effective manner, and they must also be practically prepared to use it. The interviewees’ citations also show that claiming that universities provide training courses for their academics as expressed by e-learning management (7.7.1) does not
mean that they provide them as they should be, since assuring that these courses met their objectives is an essential outcome of any training course programme.

Overall, in this category - i.e. training for LMS - the data obtained covered the training for LMS in terms of strategy, frequency, attendances, issues, and their general quality. Further investigations, however, are required in regards to the nature and content of these courses, as they seem focused on training academics in using LMS as a computer system rather than developing them to use LMS to reflect different pedagogical approaches.

### 7.8 LMS and enhancing teaching

In this section, the discussion shows how LMS enhance teaching from the interviewees’ points of view. LMS can offer academics a great diversity of features and functions that reflect a variety of pedagogy functions to distribute learning materials in different teaching styles and to communicate with their students using different methods (2.5). Below is a discussion of interviewees’ perspectives regarding LMS and how it enhances teaching.

#### 7.8.1 Engagement in the process of teaching and learning

Many studies have explored extensively the notion of students’ engagement in the context of students’ learning (Beer et al., 2010; Dawson and McWilliam, 2008), whereas the concept of staff engagement has not been widely explored (Clark et al., 2010). This section explores academics’ engagement in teaching via LMS based on the interviewees’ perspectives.

Interviewee AH stated, “Academics teach through the system [LMS] more because teaching in the traditional way is two or three hours in addition to specific office hours, but through the system inquiries and assignment submissions are received every time, so faculty members can be involved with the system 24 hours a day”. Similarly, DB stated, “After providing a lecture through the system [LMS], inquiries start to flow from students...LMS requires more effort”. Although these responses were expressed by interviewees in a negative manner about using LMS in teaching, it could show how LMS deepens the relationship between academics and their students by engaging them more in the teaching process: but this raises the question of why some academics have a negative approach to using LMS in teaching. Radloff (2008) identified a number of factors that can account for academic staffs’ lack of engagement, such as academic identity, work priorities and conceptions of teaching. The academic identity is closely linked to their discipline (Becher and Trowler, 2001); for example, academics who teach business or health sciences may consider LMS irrelevant to their discipline or may assume that their
content, assessment, and other disciplines’ materials are not appropriate for delivery through LMS (Laverty et al., 2012b). Academics may consider that engaging in teaching through LMS - which requires effort and time to improve their skills and knowledge in using LMS - conflicts with their work priorities such as preparing the weekly teaching materials or teaching in traditional classrooms in addition to some administration work. Academics hold diverse conceptions of what teaching is, which affects their practice including their engagement in teaching via LMS. For instance, academics who consider teaching as a “delivery of content by a discipline expert...are likely to see little need to engage in [the] ongoing learning” (Radloff, 2008, p. 289) that LMS offers.

In contrast, another interviewee expressed a positive example of academics’ engagement in teaching via LMS. AF stated, “I replaced my office hours by communicating with students through LMS”. So rather than be available two hours twice a week in a physical room for students who cannot all have a chance to meet their teachers in these particular times, LMS allows academics to be available for their students anytime, anywhere which also requires more effort from academics. This is because, although some academics communicate virtually with their students at scheduled times, some students might have problems that require immediate response. In reality, although LMS offer students and academics flexibility in communication, academics cannot be available anytime, anywhere, to respond to students’ inquiries. In this regards, the University of Ulster has developed a completely automatic system that can independently interact with the student and find ways to assist them when a human advisor is not available. The system “involves an avatar at the front end which can take questions from the students, interrogate a knowledge base, and either verbalise an answer, point the student to a source of relevant information or redirect the query to a studies adviser” (Augusto et al., 2010, p. 1).

Traditionally, the relationship between academics and their students was limited to the classroom where available lecture time, classroom size and social inhibitions play a major role in limiting this relationship. LMS allows the academic and the student to have an individual relationship by providing them a private space in which to communicate which is not possible in the traditional classroom. Although other solitary tools such as email or telephone can also allow academics and students to communicate in private space, LMS offers various communication tools within one teaching and learning environment that respond to different learning inquiries. For instance, these include synchronous (real time) communication tools such as live chat and whiteboard, and an asynchronous communication tool such as discussion board. Research on academics’ engagement in teaching via LMS, however, should not be
limited to the *quantity* of that engagement but must include the *quality* of the engagement, taking into account academic: student ratios in higher education.

### 7.8.2 Expanding teaching methods

In addition to the above point that LMS expands the relationship between academics and their students outside the physical classroom, LMS also expands the teaching methods that are traditionally limited to direct instructions from academics through face-to-face lectures. LMS offers academics many methods to deliver learning materials, such as text, multimedia (including visual media and social media) resources, and simulation programs. In this regards, AR stated, “I use LMS to upload PDF files and video files that support the subject we study.” Literature reveals that learners are different in the way they prefer to learn, which reflects different learning styles (Akbulut and Cardak, 2012; Scott et al., 2014; and Yang et al, 2013). Learning styles can be defined as “a description of the attitudes and behaviours which determine an individual’s preferred way of learning” (Honey and Mumford, 1992, p. 1). Identifying students’ learning styles and consequently preparing learning materials and activities following these different learning styles can assist in enhancing teaching and learning. LMS offers a diversity of features and functions that respond to different learning styles. Table 30 presents different learning styles and LMS features and functions that respond to them.

In addition to understanding students’ learning styles, academics can benefit from having knowledge and skills in the differences between the various functions of pedagogy that LMS offers in order to implement them effectively in their teaching process. “Making students aware of their learning styles and presenting them with learning material that incorporates their individual learning styles has potential to make learning easier for students and increase their learning progress” (Graf et al., 2008, p. 482). So, identifying students’ learning styles not only helps academics in preparing learning materials and activities that fit their students’ preferred ways of learning but also helps students themselves in knowing their strengths and weaknesses which can explain to them why learning materials and activities are sometimes hard to understand.
Table 30 Learning styles and LMS features and functions
Source: Adopted from Graf et al. (2008, pp. 483-4) and Graf et al. (2009, pp. 5-7).

<table>
<thead>
<tr>
<th>Learning styles</th>
<th>Characterisations</th>
<th>LMS features and tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual learners</td>
<td>learn best from what they can see such as graphics, images, and flow charts</td>
<td>Visual media, e.g. video</td>
</tr>
<tr>
<td>Verbal learners</td>
<td>prefer to learn from words, regardless of whether they are spoken or written</td>
<td>Discussion forum, reading material such as content objects</td>
</tr>
<tr>
<td>Active learners</td>
<td>prefer to process information actively by doing something with the learned material; for example discussing, explaining or testing it.</td>
<td>Self-assessment tests, exercises, communication tools</td>
</tr>
<tr>
<td>Reflective learners</td>
<td>reflective learners prefer to think about the material and work alone.</td>
<td>Discussion forums: active learners post more often to ask, discuss, and explain something; reflective learners prefer to participate passively by carefully and frequently reading the postings</td>
</tr>
<tr>
<td>Sensing learners</td>
<td>favour concrete material like facts and data, they also like to solve problems and tend to be more patient with details</td>
<td>Content objects and self-assessment tests</td>
</tr>
<tr>
<td>Intuitive learners</td>
<td>prefer to learn abstract material and like to discover possibilities and relationships and tend to be more innovative and creative than sensing learners</td>
<td>Exercises</td>
</tr>
<tr>
<td>Sequential learners</td>
<td>Sequential learners are more comfortable with details</td>
<td>Explanation of content</td>
</tr>
<tr>
<td>Global learners</td>
<td>Global learners tend to be good in seeing the “big picture” and connections to other fields</td>
<td>Outlines of the course (syllabus)</td>
</tr>
</tbody>
</table>

7.8.3 Distance learning

Increasingly Saudi universities are becoming distance-learning providers through adopting LMS, e.g. the AIU, King Abdul-Aziz University, and the Arab Open University (3.4.2). Distance learning is defined as “a learning situation where instructors and learners are separated by distance, time, or both” (Raab et al., 2002 in Liaw, 2008, p. 864). Moore (1991) expands on distance learning to include “a distance of understandings and perceptions, caused in part by the geographic distance (2.3). Primarily, distance learning through LMS was applied in the context of Saudi Arabia due to the gender segregation system (Al-Khalifa, 2010). Academic males used to teach female students through CCTV that limits the opportunities for interaction between academics and their students (7.6.1). Another factor that contributes to the growing demand for distance learning programmes in Saudi Arabia’s universities is the large area that Saudi covers (2,217,949 km²) and most of the universities are located in the large cities (Al-Khalifa, 2010).
Only one of the three universities under study provides distance learning programmes; i.e. the AIU. Initially, the AIU applied distance-learning programmes to replace the traditional affiliation programme (AM). The affiliation programme does not engage students in the learning process as they were only required to attend a physical classroom on the campus for one week in the semester (AM) which could explain why degrees earned through this programme are not recognised in many public and private Saudi sectors. Regarding the academics’ view of distance learning where they teach courses that are fully online, the interview revealed some conflicts, taking into account that only academics from the AIU teach fully online courses. For example, AS stated,

“Distance learning is better than the old affiliation programme in terms of communicating with students; however, it is not better than teaching in the physical classroom, it just a solution for those who cannot attend physically...however, in teaching through LMS, I can share files with my students and discuss them which cannot be possible in the physical classroom”.

Distance-learning students in the AIU attend daily virtual classes which engage them more in their courses comparing to the old affiliation programme that required them to only attend one week of classes in the whole semester. This was appreciated by the majority of AIU distance students who participated in the students’ questionnaire (85.1 per cent of total participants) as only 2.5 per cent of total participants indicated that learning through LMS is useless (Concept 14).

Respondent AR stated, “In PNU, we do not teach fully-online courses, not all academics are capable to teach online”. The capability of academics to teach online, however, is not the only factor to consider when deciding to provide online courses. The expansion of online distance learning has generated many studies about the characteristics of effective online teaching and whether these characteristics are the same as those of effective teaching in the face-to-face environment (Delaney et al., 2010). Samarawickrema and Stacey (2007) pointed out that although the use of LMS allows universities worldwide to become distance-learning providers, they (universities) often give little thought to academics’ capabilities to teach online. Academics’ awareness of the differences between face-to-face teaching and online teaching is significant in order for them to overcome the latter weaknesses and get the most of its strengths. In online teaching, the curriculum design is different, and the social, dynamic and assessment strategies also differ. In addition, teaching online is subject to unexpected technical issues that can interrupt the virtual classroom (Treacy, 2007). Saudi universities that provide distance-learning courses should ensure that their academics who teach online meet the quality
requirements for this kind of teaching, particularly from a pedagogy perspective. Recently, a new form of distance learning is being developed (MOOCs) (2.5.3.2), which is meant to cater for interactive participants on a large scale through an open access virtual environment.

Despite the many LMS advantages highlighted in this section such as increasing academics’ engagement in the teaching process, expanding teaching methods, and making learning possible for those who cannot physically attend the universities’ campuses through distance learning, LMS has been criticised from different perspectives including its design, limitations, and future. Further details in this regards can be found earlier in this research (sections 2.6 and 2.8).

### 7.9 Issues in the adoption of LMS

Under this category, all issues raised by e-learning management and academics in regards to the adoption process of LMS are presented and analysed. The discussion starts by analysing e-learning management issues, followed by the issues raised by academics.

#### 7.9.1 Issues raised by management

There is a strong link between LMS and distance learning in Saudi universities as the former works as a platform for the latter. Saudi universities that began early in providing distance-learning programmes, such as the AIU, faced issues such as absence of strategy/direction relating to the adoption of LMS and how to run distance-learning programmes in term of regulations and policies (EF). They tried to adopt LMS through a trial and error process with no previous experience. In 2010, the Ministry of Higher Education (MHE) officially published and ratified the list of distance learning (Doc.3, Appendix 10) in Saudi higher education institutions (KAU. website). The aim was to produce standards to control and ensure the quality of distance learning in Saudi higher education institutions. Nonetheless, more than one interviewee pointed out that there is misunderstanding and/or ambiguity about some of its regulations (EF; HA). The list of distance learning consists of 25 regulations written over eight pages. Taking into account that this is the first version of this list of regulations, after its application, the MHE needs to re-evaluate it in order to overcome some of its weaknesses and/or add more regulations if needed, or interpret others.

#### 7.9.2 Issues raised by academics

Some academic interviewees were dissatisfied with the universities’ claim that they expend a huge amount of effort for the adoption of LMS and other technologies. For example, AA stated,
“recently we moved to the new University campus, it is very modern and supported by a diversity of hard and soft technologies everywhere...however, academics are not prepared to use and employ the huge number of these technologies”. Similarly, EA stated; “although LMS is installed in the university, only few academics access and use it”. In the same way, the questionnaires’ results (5.4 Concept 3) showed that almost 52 per cent of academic participants have never used a LMS. The previous citations can be seen from two perspectives; on the one hand they show academics’ lack of engagement in adopting LMS and other technologies provided by their universities in their teaching process, while on the other hand, they may indicate management failure in term of strategy and/or implementation process of these technologies; because making these technologies available for academics does not mean that they will use them, as is illustrated below.

Another issue raised by some academic interviewees was that they were not involved in the decision-making process of the LMS adoption. AA stated, “Although I am specialising in educational technology and teach it, I do not know who is responsible about planning the university policies of educational technology or if such thing is even exist, if they exist they are not doing a good job because we are not aware of them”. In the same context, HA stated, “a huge amount of academics are not aware of the existence of the distance-learning list that organises and explains distance learning policies”. Previously, the questionnaire’s results (5.5.5) show that nearly 40 per cent of the academic participants lacked knowledge about the LMS in their university and maybe about the existence of such systems in general (Alshammari et al., 2012). The questionnaire’s results also show that 31.1 per cent of the academic participants either do not know if their universities provide any support for the use of LMS or believe that their universities do not provide any ongoing support for LMS (5.5.9).

The above data show that the existence of any technology does not mean that it is used by academics. The data also show that some Saudi universities are focusing on developing the image rather than the content. Cadle and Yeates (2001, pp. 10-11) stated, “To implement the change successfully you have to ensure that people are using the system effectively and efficiently. Just because the system is available does not mean that people will use it”. Moving from traditional teaching to teaching via LMS is considered a big shift for academics. Therefore, and in order to ensure a successful transition, e-learning management needs to market the LMS adoption strategy to all stakeholders, particularly academics. E-learning management must ensure that academics are confident with the new environment - i.e. teaching via LMS. This occurs by knowing that all academics understand the new changes and are ready to apply them. In order to reach this stage, they have to explain and discuss the new changes with academics.
and respond to their queries about adopting LMS. In other words, e-learning management are required to offer a working structure and direction for academics in order to adopt LMS successfully.

In order to market the LMS strategy to the academics, e-learning management need to have strong knowledge of the status of academics in relation to LMS by conducting academics’ analysis, to identify the different types of members they have. This understanding will be very useful in eliminating academics’ fears concerning the use of LMS and in assigning training requirements. E-learning management also needs to manage academics’ personal and psychological problems relating to the use of LMS; for instance why do some academics fear change - i.e. teaching through LMS instead of teaching face-to-face?

Generally, people fear change, particularly if it is in something they have been used to doing for a long time. E-learning management should bear this fact in mind when marketing the LMS strategy. Some academics had been teaching in the traditional way for 10 years or more and, therefore, it is reasonable that they may be the least interested in anything to do with LMS or technologies in general. Paton and McCalman (2003, pp. 47-8) mention some reasons why people fear changes in the working environment:

1. “It can result in organisation redesign
2. It creates new technological challenges
3. It confronts apathy
4. It permeates throughout the supply chain
5. It challenges old ideas
6. It encourages debate”

Paton and Macalman also mention that people resist change “because they fear the unknown and are comforted by the familiar” (p. 47).

For all the above-mentioned reasons, and to involve academics in the LMS adoption process, e-learning management should spend as much as possible time with academics and:

1. Explain what changes will occur through adopting LMS and what they as academics are expected to do.
2. Present them with the benefits they will gain from using LMS.
3. Finally, e-learning management should clarify to the academics that LMS is a learning environment created to support and assist them in performing their jobs.
An additional criticism raised by some interviewees was that local LMS have some issues. These issues include poor functions (AAA; AM; AS); lack of capability to handle huge numbers of students (AM); and they are developed based on management needs rather than teaching and learning needs (AS). AA added another issue by stating,

“The process of registration in LMS ‘Jusur’ is difficult and takes a long time since we cannot add students to the course independently in the university, as the system installed on the NCeDL servers we require to collect students’ names and identities numbers then send them to the NCeDL. After that, the centre checks if the students’ information is correct and if so they add them to the system. These processes take around month and half of the semester that consist of fifteen weeks”.

In the same context, a study conducted by Al-Khalifa (2010a) to evaluate LMS Jusur showed that most student participants reported some major technical and functional issues including failure in the search feature and post organisation in the forum, in addition to difficulty when downloading course materials. Al-Salum (2009) points out other issues in LMS Jusur:

1. Only supports Arabic and English content,
2. Time consuming in adding/removing students that required to be conducted through the NCeDL.
3. Jusur sometimes works very slowly due to the increase in the number of users from all universities at certain times, which exceeds the capacity of the system and its readiness.
4. Does not show a list of the users who are online at the time.
5. Limited options to navigate through the system, i.e. next and last.
6. Conversation through the system does not work sometimes and there is no audio system.
7. Extensive files cannot be uploaded.
8. Jusur has not been integrated with other universities’ systems such as academics’ portals, which require users to have more than one user name and password.
9. Finally, any LMS needs to be installed in the university server under control of the university itself to make amendments, changes and development faster and easier.

Despite the above issues raised by some academics regarding local LMS, two interviewees mentioned that the main advantage of local LMS is that it was designed for the Arabic language (AAA; AM).
It can be noticed that the above complaints regarding issues in LMS were all made by interviewees from either the AIU or the PNU which have both adopted local LMS, but none was made by interviewees from the UOD which has adopted the well-known LMS, Blackboard. This may indicate the differences between local and international LMS in term of quality and functionality. Nonetheless, this does not mean that Blackboard and other well-known international LMS are issue-free, but it is relatively more advanced than local LMS. For instance, while Blackboard has a long history in the field (since 1997 with 37,000 clients worldwide) (Saudi Gazette, 2014), local LMS were only developed a few years ago to serve local Saudi universities.

This section – i.e. issues in the adoption of LMS - analysed the issues raised by interviewees regarding the LMS adoption process in their universities offering a clearer understanding of this aspects in the examined context. This is to say; knowing issues that academics and other users of LMS face can help in successful adoption of LMS. Others Saudi universities that plan to adopt LMS or that are still in the early stages of the adoption process need to consider these issues in order to overcome others’ mistakes.

7.10 LMS and the future

In this section, the interviewees’ perspectives regarding the future of LMS in Saudi universities are discussed. These include the role of the National Centre of E-Learning and Distance Learning (NCeDL) in adopting LMS in Saudi universities in additions to some e-learning managers’ opinions about the future of LMS in Saudi universities.

7.10.1 The NCeDL role

The adoption processes of LMS in Saudi universities are still considered to be in their early stages. The literature shows a tendency in Saudi universities towards adopting LMS (Alebaikan and Troudi, 2010); however, the majority of universities that adopted LMS are using it to support face-to-face teaching and learning and only a few universities provide distance learning courses that rely completely on LMS. As mentioned in this research previously (3.4), the NCeDL is responsible for the deployment of e-learning and distance education applications at the national level (Doc.7, Appendix 10). In this regard, the NCeDL holds annual seminars at national level to discuss topics related to e-learning and distance learning in Saudi universities including the adoption processes of LMS in Saudi universities and its future (NCeDL, 2014;
SA). These seminars are attended by those interested in e-learning and distance learning including the deans of DELDL in Saudi universities.

### 7.10.2 E-learning management views towards LMS future

The literature shows a tendency in Saudi universities toward adopting well-known LMS (particularly Blackboard) rather than depending on local LMS (Alebaikan and Troudi, 2010). In this regard, SA stated, “I believe that the use of LMS will continue to expand in Saudi universities but the question is which LMS...in last seminar held by the NCeDL I suggested that as most Saudi universities adopt/tend to adopt Blackboard LMS why we do not have a national project to adopt Blackboard”. As mentioned previously, Saudi universities’ activities/plans are concentrated within the Ministry of Higher Education (MHE) that developed a plan called ‘Afaq’ literacy translated as ‘Horizons’ which is a comprehensive development plan for the higher education system in the Kingdom (7.2). This fact shows that adopting a national project by MHE to adopt Blackboard and licensing it for use in all Saudi universities will result in many advantages. For instance, it will reduce the expense of adoption of Blackboard compared with if each university alone adopts it, and it will ensure standardisation of the adoption and usage of LMS in Saudi universities including standardising the training processes and reduce its expenses. In contrast, HA believes that Saudi universities should all adopt the local LMS Jusur as it is available from the NCeDL free of charge. She stated, “all LMS whether local or international ones share the same common functions and features. Why should we pay to have a commercial LMS like Blackboard when we have the option to choose a free-of-charge one [i.e. local LMS ‘Jusur’]?” It is free, however, for the universities but not for the Ministry of Higher Education that funds all Saudi universities (SACM, 2008) and funds the NCeDL that is responsible for developing and managing Jusur. Another factor that should be consider is that Jusur - like other local LMS - have some issues, as discussed earlier (7.9.2).

AAA suggested another dimension about the future of LMS; he stated, “in order to expand the use of LMS in the future, universities need to share content development materials i.e. e-modules in order to overcome its huge expenses”. This suggestion could be possible in compulsory-education - i.e. primary and secondary levels - where there are unified national curricula; this however is not the case in higher education. After all, academics have freedom in developing the curricula they teach in coordinating with the department where they belong. In addition, some academics consider that sharing content they have developed affects their intellectual property rights (AR).
Overall, the interview analysis revealed positive views towards the future of using LMS in the three universities, which corresponds with the academic questionnaires’ results that indicated that 90.6 per cent of academics participants believe that LMS has a promising future in Saudi HE institutions, and 88.2 per cent believe that LMS should be spread in Saudi HE institutions (5.4: Concept 13). The students’ questionnaire results also showed positive views towards using LMS as only 2.5 per cent of student participants believed that LMS is useless for supporting their study (5.5: Concept 14).

### 7.11 Summary and chapter conclusion

In this chapter, the research findings from the various data sources were organised, presented and discussed. Figure 22 summarises these findings and illustrates the key relationships between the identified concepts. The relationships are organised so that the concepts/categories from the LMS management level are at the top of the framework. Whereas, the concepts/categories linked to the academics are set next, both levels are related to the issues that develop through the LMS adoption process.

The findings presented in this chapter respond to the research questions (1.3), and they work towards achieving the research’s main aim of developing a clear understanding of the processes and conditions associated with the adoption of LMS by academics in Saudi universities. Although all the factors associated with academics adoption of LMS in Saudi universities have been explained thoroughly in this chapter, a further theorisation of the research findings is performed in the following chapter to develop its key outcomes. This theorisation process will allow a more general approach into understanding the adoption phenomenon of innovatory/new systems in Saudi universities.
Figure 22 The adoption and usage of LMS in Saudi universities
CHAPTER 8
Research Outcomes:
Theoretical Integration
8.1 Introduction

In this chapter, the substantive theory about LMS adoption by academics in Saudi universities is developed as the key research finding. Strauss and Corbin (1988, p. 15) define a theory as

“A set of well-developed concepts related through statements of relationship, which together constitute an integrated framework that can be used to explain or predict phenomena”.

A substantive GT is a form of theoretical explanation aiming to understand a phenomenon within one particular situation (Birks and Mills, 2011; Glaser and Strauss, 1967). The majority of GTs existing in the literature are of a substantive level (Birks and Mills, 2011) and most formal GTs that can be identified are based on substantive theories (Glaser and Strauss, 1967). A formal GT theory (in contrast to a substantive theory) is one that can be applied across a number of substantive theories, due to its higher conceptual level (Birks and Mills, 2011). A large scope of research is required to initiate a formal development of a theory, which is beyond the capacity of a PhD study, particularly in terms of time and resources. However, the substantive theory developed in this current research may play a significant role in the future development of higher-level theories.

The substantive theory began to emerge and take shape during the data analysis and the development of concepts in the previous chapter. In this chapter, and following the GT procedure described in 4.5.3, the relationships between the categories and their properties are explored in order to identify a ‘core’ category. The relationships identified are then shaped into a theoretical model, alongside an explanation of the relationships between the core category and other categories. The overall findings are then explained in the form of a substantive theory. Finally, a comprehensive model is produced as an outcome of this research, which includes all the findings and analyses, presented and discussed along with the theoretical verification results.

8.2 Identifying a core category

All categories and their sub-categories that emerged and developed through the data gathering and analysis stages were presented (Figure 20) and discussed in the previous chapter. At this stage in the research, it is pertinent to identify and state the core category, and relate it to other categories, this stage is key in grounded theory research. Strauss and Corbin (1990, p. 116) defined it as “the central phenomenon around which all the other categories are integrated”. Glaser (2007, p. 14) states that “it is often a high impact dependent variable of great importance; it is hard to resist; it happens automatically with ease. Researchers tend to see their core
category everywhere”. Strauss and Corbin (1998, p. 147) set six criteria for choosing a core category:

1. “It must be central; that is, all other major categories can be related to it.
2. It must appear frequently in the data. This means that within all or almost all cases, there are indicators pointing to that concept.
3. The explanation that evolves by relating the categories is logical and consistent. There is no forcing of data.
4. The name or phrase used to describe the central category should be sufficiently abstract that it can be used to do research in other substantive areas, leading to the development of a more general theory.
5. As the concept is refined analytically through integration with other concepts, the theory grows in depth and explanatory power.
6. The concept is able to explain variation as well as the main point made by the data; that is, when conditions vary, the explanation still holds, although the way in which a phenomenon is expressed might look somewhat different. One also should be able to explain contradictory or alternative cases in terms of that central idea”.

Based on the above criteria, the researcher identified the core category of this study as **Effectiveness in adopting innovatory systems**, which is considered the central theme in academics’ adoption of LMS in Saudi universities whereby it has relationships with all major categories identified. Effective adoption of LMS in Saudi universities is not an easily achievable target, since installing LMS in the universities’ campuses and making it available for academics does not mean that it has been adopted effectively. Lack of effectiveness has been noted to differing degrees in all identified categories. Similarly, the lack of a holistic strategy in the early adoption of LMS, the lack of academics’ involvement, adopting ineffective local types of LMS, academics’ negative beliefs and attitudes towards LMS, ineffective training courses for LMS, and the lack of knowledge of and interest in LMS form the categories signifying the difficulties preventing an effective adoption process of LMS in Saudi universities.

In the following section, there is a presentation of the research outcomes: (1) the theoretical model; (2) the developed substantive theory.
8.3 Academics’ adoption of LMS in Saudi universities: a theoretical model and a substantive theory

The aim of GT research is to generate theory that works as a product of analysis (Charmaz, 2006). After identifying the core category, the formulating of a theory can be initiated. Since theories explain processes (Birks and Mills, 2011), they may be presented in different forms mainly diagrams (8.3.1) and theoretical explanations (8.3.2). These are the forms adopted for presenting this research’s theory as in the following sub-sections.

8.3.1 Academics’ adoption of LMS in Saudi universities: the theoretical model

Figure 23 below illustrates the theoretical model of academics’ adoption of LMS in Saudi universities as an outcome for this study. It integrates all the findings accumulated through the research process, which were thoroughly explained in previous chapters. The model theoretically demonstrates the relationships between the major constituents forming the adoption process. This is in the sense that the level of abstraction is raised so that it (the model) not only represents the cases it developed through, but also other similar new systems adoption processes/phenomena carried out within the substantive area examined, i.e. universities in SA. The LMS adoption model focuses mainly on academics, i.e. the primary users of the system. It demonstrates the structure whereby LMS or any new system is introduced in a Saudi university context. The model also demonstrates the factors affecting and influencing the adoption process and reflects how the level of effectiveness is formed through the overall adoption process. The findings from this research have highlighted that serious issues existed in current LMS adoption systems, which eventually have decreased the level of effectiveness, or in other words, the level of efficiency in utilising these systems. Further elaboration on this theoretical development is explained in the following section through the substantive theory.
Figure 23 The theoretical model of academics adoption of LMS in Saudi universities

Adopting LMS in Saudi Universities by Academics

- **MHE** decides to adopt LMS and sets higher regulations
- **Universities** develop e-learning and distance learning units (Deanships)
- **Universities** manage the adoption of LMS
  - The adoption process affects professional development and training for LMS
  - Academics’ beliefs and attitudes towards LMS
  - Influenes: Teaching experience, Knowledge of LMS, Interest in LMS, Time
  - Consider LMS as a delivery tool for course materials

Effectiveness

LMS in Saudi universities
- Functions: Local brand, Global brand, Female learning, fully online courses, supports face-to-face learning
8.3.2 Academics’ adoption of LMS in Saudi universities: the substantive theory

The core theme of the phenomenon under study has been established as: ‘Effectiveness in adopting innovatory systems’. As noted previously, effective adoption of LMS in Saudi universities (as an example of an innovatory system) is not a target easily achievable, due to the lack of efficiency noted in differing degrees in all developed categories. A detailed explanation of the phenomenon in the examined situation is presented in the developed theory below.

The decision to adopt LMS in Saudi universities is not purely a university decision; rather it is the Ministry of Higher Education (MHE) policy and all public universities have to comply with this directive. Consequently, Saudi universities create e-learning and distance learning units that are responsible for adopting and managing LMS, and generally take the form of Deanships. The e-learning and distance learning systems/software adopted in Saudi universities vary between those that have been locally developed and brands that are well known. The systems are employed for different learning approaches, varying primarily between the provision of fully online courses and those that act to support face-to-face learning. Although the decision to adopt LMS is set in accordance with the MHE legislation, differences in application between universities come about clearly.

The adoption process of LMS by e-learning management sections in Saudi universities influence and play a role in shaping academics’ beliefs and attitudes towards LMS and consequently their use of the system. In general, academics hold positive beliefs and attitudes towards the LMS, some of them however, dread using technology; they reject using LMS because they believe it requires further effort from them, and will complain about LMS increasing their workload. Thus, academics’ beliefs and attitudes towards LMS clearly affects their use of LMS.

The factors influencing academics’ use of LMS include: 1) the adoption process set by e-learning management teams; 2) academics’ beliefs and attitudes towards LMS; 3) teaching experience; 4) knowledge of LMS; 5) interest in LMS; and 6) time.

Younger academics in Saudi universities use LMS in their teaching more often than other age groups. Similarly, new academics are more familiar with LMS functions compared to those who have taught for a much longer period. A large group of academics in Saudi universities lack knowledge about LMS in terms of their existence; or have never used them. Most academics that use LMS only employ their main functions, which could indicate limited knowledge of
LMS as a holistic teaching and learning environment. Academics’ very limited or complete lack of knowledge of LMS is the common reason behind academics not using LMS effectively. Lack of interest in using LMS and lack of time are also reasons behind the very low use of LMS as mentioned above.

All the above factors contribute to the varying degrees to which academics use LMS. These factors are behind the very limited number of academics who access and use LMS in Saudi universities at the early adoption stages. One of the stages in the LMS adoption process is concerned with academics’ professional development and training for LMS; in this stage there are issues in terms of the amount, content and quality of the training which has a negative impact on academics’ level of use of LMS.

Relatively, few academics across Saudi universities use LMS. Those who do use LMS, mainly use particular functions that are essential to deliver the courses they teach. For example, ‘PowerPoint’ is the most commonly used LMS function among academics; in contrast, ‘Blogs’ are the least used LMS function. Academics’ interaction with their students through LMS is not a regular part of the teaching process. Some academics find LMS useful for supporting and interacting with weaker students. Others interact more when teaching fully online courses in comparison with when using LMS to support classroom teaching.

In general, academics believe that LMS enhances the teaching process; this is in terms of engaging them more in teaching, expanding teaching methods, and working as a platform for distance learning. The last - i.e. distance learning - replaced the traditional affiliation programme, which allows academics to communicate/interact further with students who study in this mode. LMS deepens the relationship between academics and their students by increasing the number of the communication channels between them. Some academics that only have face-to-face lectures start using LMS to upload different multimedia files that support the subjects they teach.

In addition, e-learning management and academics believe that LMS enhances female students’ learning in the courses that have to be taught by male academics through a closed-circuit television (CCTV) (owing to the fewer number of female academics and in compliance with segregation requirements). Delivering lectures prepared by male academics to female students is one of the initial reasons behind the introduction of LMS in some Saudi universities.

Nevertheless, at the beginning and during the adoption process of LMS in Saudi universities, some issues from both e-learning management and academics themselves arise, which affects
the whole adoption processes. Saudi universities that started early in providing distance-learning programmes encountered issues such as the absence of a clear strategy/direction towards the adoption of LMS, and how to run distance-learning programmes in terms of regulations and policies. The MHE (Ministry of Higher Education) that is responsible for all universities’ operations including administrative, financial, and policy setting, have officially published and ratified the regulations of distance learning in Saudi higher education institutions in 2010. Prior to this, universities adopted LMS with no previous experience, and through a process of trial and error. Nonetheless, following the issuing of the regulations, there remains misunderstanding and/or ambiguity in universities in relation to a number of points.

Some universities focus more on the image rather than the content as they provide diverse technologies including LMS but fail to introduce them to academics in an effective manner, i.e. making these technologies available for academics does not mean that they will be used by them. Such universities fail to involve academics in the decision-making process about LMS adoption, which participates in academics minimal engagement with LMS. E-learning management in Saudi universities try to overcome their issues by collaborating with the NCeDL that is responsible for the deployment of e-learning and distance education applications at the national level. They also become involve in the seminars organised by the NCeDL, which discuss topics related to e-learning and distance learning in Saudi universities including the adoption processes of LMS and its future. The adoption processes of LMS in Saudi universities are still considered in their early stages. Most academics and all e-learning managers in the universities believe that LMS has a promising future in Saudi HE institutions.

Overall, LMS does not show as a well-established part of academics’ activities in the examined context despite the positive views expressed towards it. LMS is either considered as a secondary method to support face-to-face teaching, or under-utilised in fully online courses where only essential functions that deliver course materials are being used. There is no evidence showing advanced use of LMS (during the construction of the research), i.e. by utilising it to its full potential through applying its diverse functions in the teaching practice. Most academics do not consider LMS as a comprehensive environment that can stand on its own to meet all teaching and learning requirements; rather they consider it as a delivery tool for course materials, and therefore supplementary to the teaching and learning process.

### 8.4 Summary

This chapter began by exploring the relationships between categories and their properties, resulting in the identification of the core category/theme for this study, i.e. effectiveness in
adopting innovatory systems. A theoretical model demonstrating the constituents and processes associated with the adoption of LMS by academics in Saudi universities was illustrated, followed by a substantive theory explaining the examined phenomenon. The main contribution of the research has now been presented, and a discussion of the research conclusion and recommendations will be undertaken in the following chapter.
CHAPTER 9

Research Conclusion and Recommendations
9.1 Introduction

This research investigated the adoption and usage of LMS by academics in Saudi Arabia’s universities. Alongside the adoption process, it examined the relationship between academics and technology from a number of different personal and practical dimensions. An in-depth literature review followed by a research methodology that was guided by GT principles was established. As a result of the extensive process, valuable data and findings were obtained. The research outcome was a substantive GT that both described and explained the examined phenomenon, thus contributing significantly to the investigated area and consequently to the general field of knowledge concerned with *effectiveness in adopting innovatory systems*.

A conclusion has been drawn in this chapter based on all the information identified, discussed and developed throughout the course of the study. Consequently, recommendations and suggestions for future research have been formed and presented.

9.2 Research originality and contribution

Among the many descriptions of what verifies a research to be considered ‘research’, Biggs and Büchler (2008) reviewed and identified three conditions to enable a work to be described as research: 1) dissemination; 2) originality; 3) context. These three conditions have been established in the course of the current research, confirming the research validity and subsequently its contribution to knowledge.

1. Dissemination (in the sense of the research influencing and benefiting other professionals within its field of enquiry) can be established through the unprecedented outcomes developed during its process, and, more significantly, through the set of recommendations (9.5) and the future research suggestions presented later in this chapter (9.6).

2. Originality can be established not only through the research outcomes, but also through its process and the data generated. However, the grounded theory developed towards the end of the investigation represents the primary aspect offering originality in accordance to the definition of Biggs and Büchler (2008: 89-91), which mainly identifies it as something that was not previously claimed by anyone or interpreted in a similar way elsewhere.

3. The context of a research supports the argument concerning its originality. It also clarifies the modes of understanding through which it has been developed, and demonstrates the ways in which the developed knowledge can be used (in particular by
other researchers wishing to develop different interpretations through what they can then claim as originality). The adoption of LMS in universities was therefore examined in a clearly specified context, whose details were fully described, i.e. within Saudi universities and within the framework of academic users. This contextualisation supports the third condition required for presenting this work as rigorous research.

Accordingly, the research contribution to its field of knowledge is established through the following:

1. The theoretical model and substantive theory explaining academics’ adoption and usage of LMS in Saudi HE (8.3). These outcomes not only describe the adoption of LMS by academics in the examined universities, but also raise the level of abstraction to offer a theorised explanation of the phenomenon, enabling it to be more easily understood and applied in other, similar, contexts.

2. The outcomes reveal that LMS is not yet a well-established aspect of academics’ practices (in the examined context), but there remains a positive perception towards its application (8.3.2). Additionally, it became evident that a number of different constituents play a role in the adoption process, and that these can determine its effectiveness. Accordingly, this knowledge is able to play a role in understanding the process and incorporated features in a deeper sense, along with enabling the modification of current plans and processes in order to improve outcomes.

3. A number of earlier studies (see section 3.3.1) have discussed the relationship between teachers and technology in general (or within the context of developed countries in particular). However, to the best of the researcher’s knowledge, no study has yet investigated academics’ adoption and usage of LMS in Saudi universities or similar contexts with the depth and scope presented in this research. The provision of this knowledge will help enhance the education process and consequently it outcomes at this location in particular, and similar contexts that are starting to consider or are in the early stages of adopting innovatory systems in their HE learning process. The outcomes may also help the systems’ developers in terms of enhancing their ability to evaluate their products, and/or in terms of setting strategies for future developments whether related to LMS content or suggested training schemes.

4. As noted above, new data with considerable practical applicability has been presented in this investigation, focusing on the adoption of LMS as a teaching environment, regardless of its brand, thus enabling the results of this study to be generalised to the majority of LMS types. In addition, the investigation encompassed all strategies,
procedures, and issues (7.9) associated with academics’ adoption of LMS. Such a relatively open approach has provided outcomes that can benefit a wider range of stakeholders, whether from the management/developers’ level or the users’ level (i.e. mainly academics and students).

5. This research has presented a valuable contribution in relation to the applied research method, i.e. although questionnaires were suggested as a data-gathering technique in GT research, very few details concerning the application of this technique could be allocated (4.6.1.3). Thus, the practical provision of questionnaires in GT research presented in this investigation is highlighted as a contribution. In the application of this method, questionnaire findings were employed to construct the questions used in the interviews. The objective behind using questionnaires in this research was not to provide statistical data as an end-result, but rather to explore the examined phenomenon and inform the researcher of the related broader set of concepts (4.6.1.4). This practice offers an insight into the practical experience of the use of questionnaires in a GT research. However, it does not dictate the way in which questionnaires should be used in GT research, but rather offers a direction towards many other potential methods for the application of questionnaires.

Consequently, this research sustains its originality and contribution to its field of knowledge, while contributing to the context under examination, ensuring its role as a practical source for future developments.

9.3 Limitations of the study

Each study contains a number of restrictions leading to certain limitations. The identified limitations in the current research are identified below:

1. This study is restricted to Saudi Arabia, its aim was not to generalise its findings. However, at the same time, the findings have the potential to apply to contexts with similar characteristics. The provision of detailed description of the examined context allows others from different areas to verify the validity of the outcomes of this research to their own context.

2. Recent updates regarding the subject revealed that a decision was taken by the MHE in 2013 to cancel distance learning in all Saudi universities, and instead confine it to a new university, named the ‘Saudi Electronic University’. Although this will take few years to be fully implemented, this decision will not affect the existence of LMS within these
universities, due to the fact that it is employed both for distance learning and to support face-to-face teaching. However, this development raises a number of questions in relation to the reasons behind this decision, and whether it bears any relation with the findings of this research. It also raises questions concerning which elements may be related and which changes in the outcomes may be affected.

3. Because it has taken a generic approach to the phenomenon, the investigation did not take into consideration the variations in academic disciplines. An examination focussing specifically on academic disciplines and academics’ educational background may offer further understanding concerning the adoption process in terms of disciplines (e.g. whether scientific or humanities).

4. A further limitation to be considered concerns the form of LMS employed in each university. In order to offer a wider insight into the phenomenon during the limited time and resources available, the research focused on LMS in general. However, specialised analysis of the adoption process of specified LMS types can assist in identifying certain issues, resulting in more specific recommendations towards development.

However, the limitations outlined above do not influence the value of the research outcomes, since the overall process and context has been carefully described and explained. Thus, any outcomes have been justified, and therefore must be referred to through the investigation’s original context.

9.4 Research conclusion

This research investigated the adoption of LMS by academics in Saudi universities through a variety of sources and by the use of GT informed approach. It began with a broad literature review, with the aim of understanding the general factors constituting LMS and their adoption in higher education, and with the objective of identifying omissions in the research. When required, further focused reviews also followed each stage in the research process.

The literature review revealed the importance and position of LMS in HE. It also demonstrated the role of academics in promoting its use in the learning process. However, a clear gap was identified in the studies examining the introduction of LMS in HE and its adoption processes, which, if available (preferably with examples offering a wider variety of concepts and themes to permit comparison), would allow more understanding of the practice and any issues encountered. These forms of studies were particularly missing in contexts such as Saudi Arabia, which are considered to be developing regions, with rapidly changing education systems, which are non-profit oriented and legislated mainly by government.
The aim of this research was focused on filling this knowledge gap. As a relatively new phenomenon, there was a need to take a holistic approach to the investigation of LMS adoption in Saudi universities, due to the limited information available. At the same time, there needed to be a consideration of both direction and focus in order to set the research frame/boundaries. Consequently, the focus on the key promoters of LMS (i.e. academics) was set as the investigation’s main area of interest, but without overlooking any further factors that might be linked, and which were considered whenever necessary.

It was established that the adoption of a GT research methodology would be more effective in achieving the research objectives, due to its suitability for investigating new phenomena (4.5.2). Nevertheless, the variation in methods offered by this methodology (along with the different approaches suggested by GT specialists) permitted a degree of flexibility in the selection of the most appropriate methods for achieving the research objectives, particularly when it came to data gathering and outcome demonstration techniques. Despite being labour-intensive, the process resulted in the accumulation of original primary data, allowing the generation of a valuable set of concepts regarding the phenomenon of LMS adoption in Saudi universities. The findings were then discussed and integrated in order to form the theory and the theoretical model concerning effectiveness in adopting innovatory systems, with the substantive area being the adoption of learning management systems (LMS) in Saudi universities. The developed theory explains the ways in which Saudi universities adopt innovatory systems, with LMS used as the example.

The theoretical model (see Figure 23) demonstrated the key constituents of the examined phenomenon, along with their relationship. It demonstrates how the effectiveness in adopting LMS (or any other similar system) in Saudi universities is determined through a number of factors, and all factors are directed towards academics use of LMS. On top of these factors sets the organising and managing sectors that set aside and control the adoption processes. Although there are a number of factors influencing the adoption process including those related to academics themselves; the developed model as a whole, determines how effectiveness or efficiency in adopting LMS, lays upon the set of identified relationships, that is all constituents combined rather than isolated factors or stakeholders. Therefore, any development and/or evaluation process must be applied through the consideration of all the factors and stakeholders in the model. In other words, any attempt towards adopting new systems, or towards the development of existing processes, should consider all the constituents of the developed model and their relationships if aiming to be effective.
The substantive theory (following the developed theoretical model), outlined the ways in which new systems are introduced in Saudi universities, and by whom. The theory established the relationships between stakeholders in the examined phenomenon and confined their roles in the adoption process of LMS (or in any new system adopted in the same context). It showed in more detail the nature of the relationships, which were established earlier through the model. So in essence, the two outcomes complement and support each other. While the model focusses on content and relations, the theory presents explanation. The substantive theory demonstrated the role of the government in regulating such systems. The theory also explained the effects of the adoption-process on promoting the use of new systems, alongside its influence (i.e. the applied process) on users’ attitudes and beliefs towards the new systems, and consequently its impact on the level of use. The theory further notes variations in the adopted systems and between the adoption processes followed in Saudi universities under the same management system (i.e. MHE). A vital aspect of the developed theory concerned the reasons affecting the level of use, which emerged from the data analysis, particularly in relation to training (7.7), along with the modes of use (7.4), which underlined distinctions between users’ approaches in using certain functions from the system being offered.

An essential aspect of the theory refers to the relation between the adoption of new systems and special circumstances, in this case, the segregation required in female education as part of the cultural system. The theory examined an example of this application, including the potential benefits/issues of the adoption of new systems. The theory also explains the issues resulting from the adoption process in relation to both management and academics/users. The presented theory concludes with an examination of the status of innovatory systems adopted in Saudi universities, in this case LMS, together with the status of the adoption process and the anticipated future of LMS.

This research has presented an original contribution to its field of knowledge, and the theorised outcomes will offer significant assistance in understanding, evaluating and developing the adoption of innovatory systems in Saudi universities, and particularly LMS. The following sections provide further details concerning the significance of the outcomes, and the potential for future developments to be guided and/or enhanced by their use.

9.5 Research recommendations

As a consequence of the research undertaken, a set of recommendations in relation to the development of the adoption process of innovatory systems in Saudi universities, are listed and
explained below. The recommendations reflect primarily on the adoption process of LMS, although the recommendations may be theoretically applicable to further, similar, systems:

1. Developing clear and consistent strategies by LMS management sectors to allow its gradual introduction (due to the fact that since its adoption in HE teaching LMS has become an essential aspect within Saudi universities (7.2.1), leading to a possibility that there may no longer be a choice as to whether or not to use the system). These strategies should revolve around certain objectives aimed primarily at academics. Examples of these objectives are outlined below.

   a. Building a clear understanding of the roles LMS (or other newly introduced systems) can offer and the values academics can gain through their use, not only in aspects of the teaching process, but also in relation to its effect on the teaching load and other practical matters concerning academics, which are identified through the following practices and objectives.

   b. Engaging academics in the adoption process, not only as users, but as associates in the decision-making and implementation process set by the managing sectors. This involves discussing their visions, expectations, concerns and subject specific matters in relation to the proposed system.

   c. Supporting a positive attitude towards the proposed system (7.3.2). This may be achieved through highlighting its practical benefits, and also through rewarding academics who employ the systems, and offering positive feedback to develop the adoption process.

   d. Motivating the use of as many LMS functions as possible (where positive outcomes may be gained) is practical by clearly explaining the types of functions offered, along with examples of their application methods and outcomes.

   e. Amending the academic job descriptions for new posts arising with universities to include, digital literacy and online teaching skills, due to the rapid expansion of the use of LMS and other technologies in Saudi HE universities. This has a particular application for those universities providing fully online courses.

2. Saudi universities should consider offering specialised degrees in ‘Online teaching’. Alternatively (or as an initial step), courses directed towards the teaching profession should develop their curricula to enable them to consider developing the skills required for teaching using LMS. This will be particularly effective in resolving issues related to the findings demonstrating a lack of awareness among academics of the most
appropriate methods for designing and teaching courses through LMS, despite the rapidly increasing demand for online courses in Saudi universities.

3. Universities should arrange for their LMS training courses for academics to be constantly re-evaluated in terms of their quality, quantity, and (most importantly) in terms of their nature and content. Current training courses appear to be focused on a general approach to training academics in using LMS as a computer system, rather than developing academic skills and linking them to reflect different pedagogical approaches and requirements. Academics still need to be aware of the roles and functions offered by LMS. However, they also need to develop their skills to enable them to utilise LMS tools/services to improve the achievement of the objectives of their syllabuses in a simpler manner than exists currently. Without this, the adoption of LMS will make no sense.

Despite the fact that these recommendations have been developed through the practice of adopting LMS in Saudi universities, the system and process will also prove to be similar should any other new system be introduced within the same structure. Nevertheless, each new system will be made up of its own special characteristics and users’ needs, which will need to be examined and fulfilled carefully, as previously recommended above. This research has identified and covered an important gap in knowledge and has led to awareness of further areas that might benefit from further in-depth investigation. The following section forms a discussion of a number of such areas.

9.6 Suggested future research

The main focus of this research has been the adoption of LMS by academics in Saudi universities. A number of issues have been identified during this process. Some have been the focus of the discussion, whereas others require more specialised and focused investigation. Nonetheless, there a number of aspects related to these research findings and outcomes that would also benefit from further research, either to extend the findings or to identify alternative results from alternative viewpoints. Applying this research will assist in establishing comparative studies that not only verify the outcomes of the current research, but also lead on to the development of further substantive theories and consequently formal theories (Birks and Mills, 2011). This will enrich the area of enquiry of this current research, i.e. the adoption of innovatory systems in universities, and LMS in particular. The following points therefore offer a number of suggestions for future research, including some that will form the future research plans for the current researcher.
1. The investigation of academics’ use and adoption of LMS in the teaching process should initially become an ongoing research process, one that is more effectively performed within universities with greater awareness of their contexts and the changing aspects that influence them. This research should aim to be evaluated and amended throughout the adoption process.

2. Research similar to that presented in the current thesis should be undertaken in order to enhance the research outcomes, but with the use of different variables such as: subject oriented analysis of the use of LMS; development of LMS training strategies from the perspective of management.

3. An improved understanding of the process and influencing factors could be established through an investigation of the adoption and use of LMS by academics within different contexts and in varying stages. This could contain the facility to support its adoption in other places and further reduce the possibility of repeating similar issues. This would also significantly assist LMS developers to review and enhance their products in an improved and more practical manner.

4. Extensive research should be undertaken tracking and comparing learning processes and outcomes as they move from the traditional system to ones adopting LMS. This should be performed through all forms of pedagogical approaches, in order to enable any differences to be noted. Such studies will verify the true value and benefits of the adoption of new systems and tools, and will assist in the identification of the benefits and drawbacks of the adopted systems, both the traditional and the innovative.

5. A quantitative investigation of a representative sample of Saudi academics, focussing on their mode and level of use of LMS functions, would result in valuable data that could be adopted in the suggested studies, as well as other research with an interest in e-learning and teaching the general use of LMS.

6. It would be beneficial to undertake research to investigate the possibility of LMS offering particular benefits to females participating in HE in the context of Saudi Arabia.

7. It would be beneficial to conduct a comparative study between local and other well-known global LMS. The findings of this current study reveal that local LMS contain additional issues compared to well-known global LMS, but are still in use by some Saudi universities, having the advantage of having been designed to support the Arabic language.

The above list of suggested research has been developed from the issues identified and argued through this current research. It would be beneficial if Saudi Arabia’s MHE could develop a
research centre focussing on the adoption of advanced/innovative technologies and systems in HE. The centre could have cooperating branches in all universities, with each being responsible for particular elements (whether management, adoption, evaluation or development, or any other factor under discussion), with results/findings brought together periodically in national meetings or symposiums. Moreover, such findings could be published in order to record developments and enhance other experiences.

9.7 Research summary

This research has investigated the adoption and usage of LMS by academics in Saudi Arabian universities. It has examined the adoption process, including the influencing factors, and has identified the results and issues arising through the application of that process. The research was applied following a research methodology guided by GT principles, leading to an extensive set of findings, which were then developed into a theoretical model and a substantive GT that described and explained the phenomenon under examination.

The outcomes of this research have contributed new knowledge that has fulfilled the aims and objectives of this research. The outcomes have also led to the identification of further knowledge issues and gaps. These are now in need of investigation to enhance the processes used for adopting innovatory systems in universities in general, and to enhance LMS adoption and usage in Saudi universities in particular.
References


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• KAU (2013) Deanship in Brief. King Abdul-Aziz University. [Online] available at: http://elearning.kau.edu.sa/Pages-%D8%A7%D9%84%D8%B9%D9%85%D8%A7%D8%AF%D8%A9-%D9%81%D9%8A-%D8%B3%D8%B7%D9%88%D8%B1.aspx [Accessed 23 September 2013].


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Appendix 1 Academics questionnaire

Academic Questionnaire on the Status of Learning Management Systems in Saudi Universities
Academic Staff questionnaire

Dear Participants
Your cooperation in this survey is highly appreciated

This survey is conducted as part of a PhD study supervised by Dr Richard Howley under the authorisation of the Centre for Computing and Social Responsibility at De Montfort University.

The research investigates the relationship between academic staff and Learning Management Systems (LMSs) in Saudi Universities. It specifically focuses on LMSs’ teaching tools such as the discussion board, blog, etc. LMSs can be any software provided by your university/institution to be used in teaching, such as, Blackboard, Moodle, WebCT, Jasur, and Tadars. Therefore, your participation is important for the research outcomes.

The survey will only take about 14 minutes to complete. The questions are divided into three sections; 1) about you, 2) about your university/institution, 3) and your views of LMSs and its tools.

Your Rights

By submitting the completed questionnaire, you permit the researcher to use it for his study. Personal data collected in section one will only be used to support the analysis undertaking as part of this research. It will not be distributed or shared with anyone outside the university. All data will be destroyed in accordance with De Montfort University published policies and procedures. You can withdraw your contribution by emailing the researcher before the end of December 2011, please note that it is important to send the code you provided in question 1 to withdraw.

Thank you again for your assistance

Kind regards,
Mohammed S. Al Shammani
De Montfort University
Faculty of Technology
Centre for Computing and Social Responsibility http://www.ccsr.cse.dmu.ac.uk/
E-mail: p07012911@email.dmu.ac.uk
Academic Questionnaire on the Status of Learning Management Systems in Saudi Universities

Academic Staff questionnaire

1. If you think you may withdraw later, please provide a six-digit code that can be used to identify your contribution

   

About You

2. Gender
   ☐ Male ☐ Female

3. Age range
   ☐ 25 or less ☐ 26-30 ☐ 31-40 ☐ 41-50 ☐ 51 or more

4. Your scientific rank
   ☐ Teacher ☐ Teacher assistant ☐ Lecturer ☐ Assistant professor ☐ Associate professor ☐ Professor
   ☐ Other scientific rank: 

5. Length of time teaching
   ☐ One year or less ☐ 2-5 years ☐ 5-14 years ☐ 15 years or more

6. Your discipline
   ☐ Arabic language ☐ Business and law ☐ Computer science and technology ☐ Education studies ☐ Engineering
   ☐ Foreign languages ☐ Islamic studies ☐ Medical and health science ☐ Science studies ☐ Social studies
   ☐ Other discipline: 

7. What technological tools other than Learning Management System (LMS) do you use in teaching? Please select all that apply:
   ☐ Smart board
   ☐ Multimedia e.g. video, animation
   ☐ Computer lab
   ☐ Web-based tools
   ☐ Data show
   ☐ Projector
   ☐ Other tools: 
   ☐ None

8. How many years have you used Learning Management System (LMS) in your teaching process?
   ☐ Never used a LMS
   ☐ Less than one year
   ☐ 1 year
   ☐ 2 years
   ☐ 3 years
   ☐ 4 years or more

9. How many LMS's training courses have you attended in each of the following years?

<table>
<thead>
<tr>
<th>LMS's training</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 or more</th>
<th>I do not remember</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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<tr>
<td>2008</td>
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<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2009</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2010</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2011</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

213
About Your University/Institution

10. Please fill in the following:
   Your university/institution name
   [Select]
   If other university/institution, please specify
   __________________________
   In what city is your university/institution?
   [Select]
   If your university/institution located in other city, please specify
   __________________________
   Does your university/institution provide fully online courses where no requirement to attend classes exist?
   [Select]

11. Your university/institution and LMS
   In your opinion, what is your university/institution attitude towards using LMS?
   ☐ Encourage the use of LMS but is not an obligation
   ☐ Set policies to frame the use of LMS
   ☐ Do not show any interest in using LMS
   ☐ They are against the use of LMS
   ☐ I do not know
   Please explain any of the points given above
   __________________________

About Your Learning Management System (LMS) and its tools

12. What LMS is provided by your university/institution? Please tick all that apply
   ☐ Blackboard
   ☐ Moodle
   ☐ VlecsCT
   ☐ Jasur
   ☐ Taduss
   ☐ We have other LMS?
   ☐ We have LMS but I do not know its name
   ☐ I do not know if we have LMS or not
   ☐ None

13. Please provide the following information:

<table>
<thead>
<tr>
<th>Number of subjects you teach in total</th>
<th>[Select]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of subjects you teach in classrooms only without any use of LMS</td>
<td>[Select]</td>
</tr>
<tr>
<td>Number of subjects you teach with using LMS to support classrooms teaching</td>
<td>[Select]</td>
</tr>
<tr>
<td>Number of subjects you completely teach using LMS i.e. with no classroom teaching</td>
<td>[Select]</td>
</tr>
</tbody>
</table>

Please comment on the figures given above
   __________________________
14. Your university/institution and LMS support
   Is there any ongoing support for the use of LMS when needed within your university/institution? Please tick all that apply
   □ Online
   □ By email
   □ By phone
   □ Other ongoing support?
   □ I do not know
   □ None

   What other ongoing support methods for the use of LMS would you like to see in your university/institution?
   1
   2
   3

15. What are the tools provided within your LMS that you use in teaching process?
   □ Blogs
   □ Discussion board
   □ Video
   □ Power point
   □ Virtual classrooms
   □ Messages
   □ Tasks
   □ Other LMS's tools?
   □ None

16. Do you ask your students to use LMS?
   □ Yes
   □ No

   Please explain why?
   

215
17. In your opinion, what are the most important benefits from using LMS in the teaching process?

<table>
<thead>
<tr>
<th>Please state them below</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

18. In your opinion, what are the most significant barriers against the use of LMS in the teaching process?

<table>
<thead>
<tr>
<th>Please state them below</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

19. Variations in fields of study and LMSs:
   Do you believe that LMS is more useful for some disciplines than others?
   ☐ Yes
   ☐ No
   ☐ I do not know

Please explain your response

|                                           |

20. What do you think the future will be with LMSs in Saudi Higher Education?

|                                           |

21. What do you think the future should be with LMSs in Saudi Higher Education?

|                                           |

22. Please add any other comments/suggestion that you feel will inform this research

|                                           |

23. If you are willing to receive follow up questions, please provide your email

|                                           |
Appendix 2 Undergraduate students’ questionnaire

Academic Questionnaire on the Status of Learning Management Systems in Saudi Universities
Students Questionnaire

Dear Participants

Your cooperation in this survey is highly appreciated.

This survey is conducted as part of a PhD study supervised by Dr Richard Howley under the authorisation of the Centre for Computing and Social Responsibility at De Montfort University.

The research investigates the relationship between academic staff and Learning Management Systems (LMSs) in Saudi Universities. It specifically focuses on LMSs’ teaching tools such as the discussion board, blogs, etc. LMSs can be any software provided by your university/institution, to be used in the teaching-learning process, such as, Blackboard, Moodle, WebCT, Jusur, and Tatams. Therefore, your participation as a higher education student is important for the research outcomes.

The survey will take about 9 minutes from you to complete. Questions are divided into three sections; 1 about you, 2 about your university/institution, and finally 3 the role/status of LMSs and its tools in your education.

Your Rights

By submitting the completed questionnaire, you permit the researcher to use it for his study. Personal data collected in section one will only be used to support the analysis undertaking as part of this research. It will not be distributed or shared with anyone outside the university. All data will be destroyed in accordance with De Montfort University published policies and procedures. You can withdraw your contribution by emailing the researcher before the end of December 2011, please note that it is important to send the code you provided in question 1 to withdraw.

Thank you again for your assistant

Kind regards,
Mohammed S. Al Shammar
De Montfort University
Faculty of Technology
Centre for Computing and Social Responsibility http://www.ccsr.cse.dmu.ac.uk/
E-mail: p07012001@email.dmu.ac.uk
1. If you think you may withdraw later, please provide a six-digit code that can be used to identify your contribution: 

About You

2. Gender
   ☐ Male ☐ Female

3. Age range
   ☐ 12 or less ☐ 13-22 ☐ 23-33 ☐ 34-45 ☐ 46-55 ☐ 56 or more

4. Which year level are you at:
   ☐ First year ☐ Second year ☐ Third year ☐ Fourth year or more

5. Your discipline
   ☐ Arabic language ☐ Business and law ☐ Computer science ☐ Education studies ☐ Engineering
   ☐ Foreign languages ☐ Human studies ☐ Medical and health sciences ☐ Science studies ☐ Social studies
   ☐ Other discipline: ___________________________

About Your University/Institution

6. Please fill in the following:
   Your university/institution name: ___________________________

   If other university/institution, please specify: ___________________________

   In what city is your university/institution located? ___________________________

   If your university/institution is located in another city, please specify: ___________________________

About the role of Learning Management Systems (LMSs) in Your study

7. Number of subjects you study currently with or without LMS:
   Please provide the following information:

<table>
<thead>
<tr>
<th>Numbers</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of subjects you study in total</td>
<td>Please Select – [ ]</td>
</tr>
<tr>
<td>Number of subjects you study classroom only without any use of LMS services</td>
<td>Please Select – [ ]</td>
</tr>
<tr>
<td>Number of subjects you study that use LMS to support classroom study</td>
<td>Please Select – [ ]</td>
</tr>
<tr>
<td>Number of subjects you compare study using the LMS i.e. with no classroom attendance</td>
<td>Please Select – [ ]</td>
</tr>
</tbody>
</table>

   Please comment on the future generation:

8. What LMS is provided by your university/institution? Please tick all that apply
   ☐ Blackboard
   ☐ Moodle
   ☐ WebCT
   ☐ Joomla
   ☐ Sakai
   ☐ We have other LMS: ___________________________
   ☐ We have LMS but I do not know its name
   ☐ I do not know if we have LMS or not
   ☐ None
9. Your study and the LMS
   Please indicate how useful you think the LMS for supporting your study
   ☐ Very useful     ☐ Useful     ☐ Neutral     ☐ Useless     ☐ Very useless

   Please explain why do you think so?

10. What makes you use the LMS? Please tick all that apply
   ☐ The instructor of the course
   ☐ University regulations
   ☐ Self motivation
   ☐ Other reason? ____________________________

11. Your teachers and LMS
   In your opinion, what is your teachers attitude towards using LMS?
   ☐ Encourages the use of LMS but is not an obligation
   ☐ Set assessment based on your use of LMS
   ☐ Do not show any interest in using LMS
   ☐ They are against the use of LMS
   ☐ I do not know

   Please provide further explanation of the instructor/teacher's role in using LMS in your education

12. Please add any further information/comments about your experience in LMS that you think might be of interest to this research

13. If you are willing to receive follow up questions, please provide your email

_____________________________
Appendix 3 Semi-structured interviews questions

The initial interview questions are demonstrated below, these were developed based on the concepts obtained from the two questionnaires; other questions have been raised as the categories developed and the theory emerges.

1) Participant basic information:

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Gender</td>
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<tr>
<td>Age (for academic staff)</td>
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<tr>
<td>University</td>
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<tr>
<td>Faculty</td>
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<tr>
<td>Scientific rank</td>
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<tr>
<td>Discipline</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Position: Academic staff (AS)/Dean of e-learning deanship (DELD)/ E-learning coordinator (ELC).</td>
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<td></td>
</tr>
</tbody>
</table>

❖ Academics interview questions:

2) How many years have you been teaching?
3) How long have you used LMS?
4) What types of LMSs have you used?
5) How do you compare the differences/similarities between local and international LMSs? (for those who used both)
6) Have you attended any LMS’s training courses? How many? And How was it?
7) What modules do you teach through LMS? And do you think LMS is useful in some discipline more than other?
8) What tools provided by the LMS do you use in your teaching? describe how do you use these tools?
9) What do you do when you face a technical problem while using the LMS? How do you describe the LMS’s ongoing support process?
10) As a teacher, is there a process for raising your comments about LMS to the LMS developers?
11) How do you describe teaching through LMS? How do you describe it in comparison with the traditional face-to-face teaching on its own?
12) When you teach fully online courses, do LMSs provide you with all your teaching needs?
13) What motivates you to use LMSs? Does your University encourage or force you to do so?
14) Do you encourage your students to use the LMS? Why?
15) What are the main barriers that prevent/minimise your use of LMS?
16) What do you think the future will be with LMSs?
17) Would you like to add anything else related to the subject discussed and has not been mentioned?

❖ Deans of E-learning Deanships interview questions:

1) What is the role of E-learning Deanship?
2) What LMSs are used in the University?
3) Why do you use this particular LMS? Did you consider adopting a local/international LMS?
4) Tell me about the LMS’s training courses that are provided for academics.
5) How would you describe academics use of LMS? Do you encourage or force its use?
6) What are the main issues you face in regards to academics use of LMS?
7) In regards to the use of LMSs, what do you think the future will be?
8) Would you like to add anything else related to the subject discussed and has not been mentioned?

❖ E-learning coordinators interview questions:
1) As an E-learning Coordinator, what is your role/s?
2) How would you describe academics use of LMS?
3) Tell me about the LMS’s training courses that are provided for academics.
4) What are the main barriers that prevent or minimise the use of LMS by academics?
5) What is the process when academics face any technical issue during their use of LMS?
6) Would you like to add anything else related to the subject discussed and has not been mentioned?
Appendix 4 Consent Form

Authorised by:............................................................................................................................

This interview is part of my PhD research requirements, any information or observation obtained through this meeting will only be used with your permission by signing this form.

The research title is “Adoption and Usage of Learning Management Systems in Saudi Arabia’s Higher Education” it mainly focuses on investigating the relationship between academics and Learning Management Systems (LMSs) in Saudi Arabia’s HE sector.

The researcher reassures that none of your personal information will be revealed in any way that will make your identity identified or identifiable unless authorised by you. Your participation however, is voluntarily and you may withdraw from the interview at any time.

If any of this is not clear or further information is required please ask at any time.

<table>
<thead>
<tr>
<th>I authorize the researcher to use and publish interview details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I authorize the researcher to use and publish Identifying details: personal and workplace details</td>
<td></td>
</tr>
</tbody>
</table>

Researcher: Mohammed S. Alshammari (PhD candidate)

Informatics Department
Faculty of Technology
De Montfort University, UK
mohammed.alshammari@myemail.dmu.ac.uk
Appendix 5 Example of academics response to questionnaire
Your university/institution name
Princess Nora bint Abdulrahman University

If other university/institution, please specify

In what city is your university/institution?
Riyadh

If your university/institution located in other city, please specify

Does your university/institution provide fully online courses where no requirement to attend classes exist?
I do not know

11. Your university/institution and LMS

In your opinion, what is your university/institution attitude towards using LMS?
Do not show any interest in using LMS

Please explain any of the points given above
Theoretically, they encourage the use of LMS, but practically nothing has been done. We once tried Studious and it was good, but when we asked for a subscription they did not respond.

12. What LMS is provided by your university/institution? Please tick all that apply
None

13. Please provide the following information:

<table>
<thead>
<tr>
<th>Number of subjects you teach in total</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of subjects you teach in classrooms only without any use of LMS</td>
<td>6</td>
</tr>
<tr>
<td>Number of subjects you teach with using LMS to support classrooms teaching</td>
<td>0</td>
</tr>
<tr>
<td>Number of subjects you completely teach using LMS i.e. with no classroom teaching</td>
<td>0</td>
</tr>
</tbody>
</table>

Please comment on the figures given above
We do not have an LMS in our university, but we still use technology. In most of the classes we have a ePodium, a smart board, a projector and a data show. Although not yet fully operated in the new campus.

4. Academic Staff questionnaire

Your university/institution and LMS support

Is there any ongoing support for the use of LMS when needed within your university/institution? Please tick all that apply

What other ongoing support methods for the use of LMS would you like to see in your university/institution?

What are the tools provided within your LMS that you use in teaching process?
5. Academic Staff questionnaire

14. In your opinion, what are the most important benefits from using LMS in the teaching process?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>more convenient and time-saving</td>
</tr>
<tr>
<td>2</td>
<td>more interesting for both teachers and students; more room for creativity</td>
</tr>
<tr>
<td>3</td>
<td>more control on the course, more chances to monitor and manage students’ progress. Every student progresses at their own pace</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

15. In your opinion, what are the most significant barriers against the use of LMS in the teaching process?

<table>
<thead>
<tr>
<th>Rank</th>
<th>Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If the university does not provide such facility.</td>
</tr>
<tr>
<td>2</td>
<td>Ignorance of its importance or effectiveness on the part of both the administration and some staff members.</td>
</tr>
<tr>
<td>3</td>
<td>Inefficiency or incompetence of some members in using technology.</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

16. Variations in fields of study and LMSs:

Do you believe that LMS is more useful for some disciplines than others?
No

Please explain your response
I think it can be used and adapted to any discipline.

17. What do you think the future will be with LMSs in Saudi Higher Education?
People, in the globalization age, will definitely realize the importance of such tools, especially with growing numbers of saudi students studying abroad and having the chance to see how the world is like outside.

18. What do you think the future should be with LMSs in Saudi Higher Education?
I think we should integrate these tools in our educational system.

19. Please add any other comments/suggestions that you feel will inform this research.
I think people here need to be informed about LMS. Most of the people in the administration have no idea about these things. Also, almost all the staff members in all the departments, except for those who use English in teaching, have no idea about these systems.

20. If you are willing to receive follow up questions, please provide your email
fdd111@hotmail.com
Appendix 6 First example of interview with participant from UOD

Interview with SA from UOD
E-Learning Director

Researcher: Just to clarify: you have learned about the Letter’s subject from the Consent Form, I would like to know generally about the role of Deanship of E-Learning and Distance Learning in the University.

Interviewee: In the name of Allah, May God bestow blessings upon Muhammad and the household of Muhammad… on the purpose of Deanship’s role: it is planning, so we planned and put in place a general strategy of E-Learning, we implemented the systems and the training on those systems and the support to the users, and that is the role of the Deanship in general.

Researcher: When was that initiated?
Interviewee: Two years ago, roughly.
Researcher: Oh, impressive.
Interviewee: Less than two years and eight months.

Researcher: Okay, was there a clear strategy put in place?

Interviewee: At the beginning, there was a survey to assess the needs and the survey was distributed to both faculty members and students. Response rate was low but good enough; 25% of the faculty and 20% answered the survey’s questions and the Needs Analysis was conducted, and based on that a contract was put in place with experts to draw up a strategic plan, which was made, all praise to Allah, and now it is being disseminated to interested faculties as they will help us implementing the strategic plan.

Researcher: As for the E-Learning Management (LMS), what are the systems in place and their utilisation?
Interviewee: What we have now is a Virtual Learning Environment, integrated with Blackboard. We have Recording Lectures systems and Virtual Classroom Systems.
Researcher: Okay, on Blackboard: are you using it fully (Full Online Learning) or parts of it (Blended Learning)?
Interviewee: Nothing has been used yet; we are just starting. It is about to start but the strategic plan, to use E-Learning in three ways: either continuously supportive, or blended or full online, and that is optional for the faculty, based on the nature of the course, as some courses cannot utilise the fully online learning tools and might use blended learning tools, and sometime blended learning cannot deliver the lecture online. Particularly, in the case of the scientific subjects and labs, the professor might use the supportive model, but at this point in time, the experiment is a new one.

Researcher: I understand from this that sometimes those systems do not work for all courses or might be applicable for more than one course.
Interviewee: Quite right. Depending on the subject; you cannot present an autonomous course online; that is just impossible! You might present a lecture or two online and even virtual labs and simulation can use the supportive materials, but that does not dismiss the necessity of face-to-face interactions especially with the lab courses. Even with Chemistry or Physics, it could be useful as it saves time and resources, but the student has to go to the lab, this is not open for discussion, they are useful but cannot substitute for the instructor or the lab.
Researcher: Sir, you stated that the three E-Learning systems are currently not in use at Dammam University.
Interviewee: Yes, we just started the implementation,
Researcher: So can any of the faculty access the system now?
Interviewee: No, not yet. We shall start in February, at the beginning of the second semester, and we shall use the system to teach distant students and begin piloting the system by using it partially as for the orientation year, and some selected groups from the second year; we have a very well designed rollout plan. We will not launch the service across the board because it may cause resistance and no one will use the system, we also have limitations with licences so we will deploy it next year or next semester to the orientation year and groups of the second year. Next year in September, it shall be fully deployed.
Researcher: Limitations? You mean with funds?
Interviewee: Yes, funds.
Researcher: Okay sir, I expect that there is at least, for example, a preparation plan or training for the faculty, Provide insights please.
Interviewee: We endorsed a ‘training for trainers’ course that started from day one for us. We cannot train 2000 faculty members but we selected male and female coordinators for colleges and they are power users and we trained them Onsite and Online. We requested that before the service they have to train the end users: faculty members they work with. The users will start using it but people still cannot access it because the setup has not been completed, however, the training is still ongoing for the coordinators as they are still training the end users and it is showing good progress.
Researcher: Is there a selection method for coordinators or power users or selecting the colleges?
Interviewee: We requested colleges to nominate people who showed an interest, and for this: maybe the background’s specialty matters, and recommendations came in and we started off the training.
Researcher: Okay, through your communication with the coordinators, were there barriers or resistance from the faculty members? And how is the training going?
Interviewee: No, no such behaviour was reported; no one absolutely rejected it. But to this point, people do not fully know the system, so they cannot judge: will they use it or not? I expect as of now coordinators are all okay; they started using the system and training on it. Even the power users and end users started asking when they could log in to the system and use it. End users from King Faisal University used to have courses on the WebCT and now they are requesting moving to Blackboard, so there is an excitement because we are near year’s end and the users are using the Plus system. I even read that there are incentives or a laptop allowance or, if possible, to reduce the cost on the coordinators from faculty members because they do extra work of course. This is all left to the college to reduce the cost based on need, and thus encouraging the people.
Researcher: Are there coordinators from the Deanship of E-Learning or from college training agencies?
Interviewee: No, coordinators are not part of us. They belong to the colleges. Does he follow his college? His deanship? Or the quality college agency? Or or or. Every college has departments within it with quality and development courses and others do not, and thus the coordinators follow the Dean directly or the dean of the academic affairs, but I am not interested in those; as for the current strategic plan we focus on the college’s E-Learning Unit and we started the E-
Learning unite, until it becomes independent and becomes an agency or belongs to a college, or directly to the dean, and that is an internal decision. Our concern is our strategic plan and we aim to establish an e-learning unit composed of three parities: the subject, the matter, and the expert, i.e. the specialised faculty member, instructions designer and trainer or coordinator. If we established a unit for each college; we detach ourselves from its administrative connection. Usually most colleges have a development and quality agency and that connects the external coordinators to the agency. Some colleges established an agency for distance education like the one presenting distance programmes to the College of Literature so it connected the coordinators with the Agency for College Education, but there is no direct connection, and it would not work to connect with us directly because we would isolate the coordinator from his college; it is best to have a unit because we want to reach a stage where each distance-learning college’s deanship has a unit, so that in the future they do not need us. Instead, they develop and train while the Deanship of E-Learning and Distance Learning devotes itself to strategic planning and developing systems, and innovative ideas; and the support and technical support of the old and new systems will excel from inside and outside the colleges and they would have their own subject matter and instructions designer and with internal trainers and thus become innovative in their own way.

Researcher: A question on the technical support, but before we go into it, you mentioned that the College of Literature has an agency?

Interviewee: Yes, they created an agency for E-Learning and distance learning.

Researcher: Is this done independently from you?

Interviewee: No, not independently but with us in the subjects of our specialty and supporting the systems, but operations are internal and follow the college’s Deanship. This means that the agency of distance education cannot address any external parties without going through the Deanship of E-Learning but if they want to do something internally for the college like extra training or contacting the coordinators or the end users that is their matter and it is internal but no, they do not operate independently from us.

Researcher: There are universities here in Saudi where E-Learning Deanships are operational and are using LMS, and at the same time, lots of colleges within those universities are operating independently and have their own LMS, especially, Computer Colleges that usually have specialists people.

Interviewee: No, this is unneeded, LMS is LMS and with all due respect to those who put… of course it is a catastrophic mistake to install LMS in each college solely because it makes no sense, not for you, not for the administration and not for the quality as most computer colleges adopt the system and other colleges adopt other systems, and the university selects another one and this is a mess and achieves nothing. The idea of E-Learning is to be a centralised platform with all the courses there and their learning objectives and everything that enables humans to share, and that is what matters; you have a place to check the learning outcomes and the performance of the organisation, because Why should I have my own LMS, alone, and you have your LMS alone and another has a LMS alone and we do not share, and the concept behind the LMS is to share knowledge.

Researcher: Sir, I am sure you heard some remarks that those tools are just a store for traditional learning materials, and thus do not reflect actual education. Does the Deanship think of developing Digital Learning Units and would it take the same traditional learning materials and redesign them?
Interviewee: What we have now is Content Developers and we are starting with female and male content developers. As we start, I will not alter anything, as I shan’t spend time on content development, as it is such a simple task of a bigger part. Unfortunately, there are many universities around here that spent much time on developing the content and the outcomes were no different from a normal one. Presently we do not ignore developing the content, but we have put in place a shared responsibility of tasks between the Deanship and the faculty members; the Deanship shall provide instructional designers who will help faculty members to know how to transfer from traditional course to e-content. Afterwards, gradually, when the units are established in colleges, there will be instructional designers, presumably in every college. Thus each becomes designated to that college; be that a medical school or architect school, like the repository and has digital repository with a content database for each college and can upload it to a centralised repository, which would be the main centralised database; thus people can share what is needed, but it should not consume much time as it happens with developing content; everyone now is fed up with content development, the deanship is fed up too because it cannot develop the content any further. It is very difficult to develop 100, 200, 300, 400, 500 courses; you cannot follow up. The best thing to do is to give users the concept of instructional designing; they understand the concept, you give them the tools, you train them to use the tools and then it is done: the faculty member is responsible for that and you remain in the background to support them.

Researcher: Do you not think that Blended Learning is okay, but for example, in the Full Online Learning, developing content is important? Or is it all the same?

Interviewee: In some cases it does, in others it does not.

Researcher: But if you taught using a completely online learning model, do you not think it is important to develop the content?

Interviewee: Developing content is an important deal, but not all your time should be spent on it, it might a transitional phase; to move from Face-to-Face to Online is the first thing you need, then you move to developing content, because it is important. But that is the responsibility of the faculty members; for the phase in which we are at, you cannot demand that the faculty moves from traditional education to E-Learning, plus the content development. It has to be done gradually, step by step, but content development is still very important. Blended or Full online learning, but to which extent? And that is the question: shall I develop the thing and make it interactive or develop parts of it and parts remain theoretical, or should I develop the simulation content or use separate learning objects and apply them as I deem convenient? It depends; but such our situation where it is difficult to start this from day one, there are matters where development is needed but it will not be a radical one like in the Islamic subjects and Arabic language. We will develop, but how much would you add? Mini things but nothing like virtual lap or simulation, and transitions with big jumps, but it can be adapted to an electronic mode, or at least part of it.

Researcher: I am sure you have observed the matters that were criticised: that E-Learning is boxes-like and that one size fits all; the vendors of those LMS have developed it. For example, Blackboard version 9.1 is more open now, with tools open to the Internet like YouTube.

Interviewee: That is true.

Researcher: The problem now is that the faculty members are using the tools provided by those systems, so you find out they are only using a tool or two, is the problem in training? Why do the faculty members not interact more with those systems?
Interviewee: In training you need to learn one thing: man fears what he does not know; if he does not know how to use YouTube, he will not use YouTube, and if he does not know how to use Social Networks, he won’t. Only little of instructors use social networks, especially amongst the old ones. If he does not use social networks in his personal life such as Facebook, Twitter, and has no social media interactions, there is no way you can ask him to use it in the LMS, but with a bit of training the faculty members who have no social networks background might start using them. By the way: LMS is not everything, LMS is just a platform, I can use things outside the LMS. Backboard, or whatever has become an open architecture, so it accepts to integrate with it. But I can teach using anything online, the collaboration tools in Web 2.0 now provide everything, so LMS is not everything; maybe LMS is open as I said, so if you have any Web 2.0 materials you can upload them to LMS, so it gives you a platform to manage all, but this advantage is not accessible to all faculty members, but not all faculty members use the delivery, for example: rarely you find them using electronic quizzes and exams but let them just start, and he will transform from a traditional person to one who puts materials online, and afterwards he starts discussions forums with his students, and afterwards he uses exams and assignments and the like. I think all it needs is time, it is training and time, and most systems fail because as you have mentioned they think One Size Fits All, it does not work. The second source of failure is what is called full deployment from day one, which usually leads to failure; there is no discussion about this. Even if you talk with the techy-wise, it will fail, because you dump the massive systems (not one system). LMS now has a lecture capturing feature and virtual classrooms and collaboration tools and other features; it is not a simple thing, it is a complicated system and integrated into too many things so there must a gradual deployment and a plan that in each phase a new service is introduced, or a module, or continuous training and surely the outcomes will be measured. A faculty member senses and a student senses the change and that a value was added to his learning experience thanks to the E-Learning. They would say: I used to study this module and now I do this electronic one. They sense the difference. It is not necessarily that every faculty member must be an online teacher or can use E-Learning, those things are important after a while like research, evaluation, return investment, experience, perceptions of the instructors and students. There are students who are not comfortable with online education or had computer issues or are computer-illiterate, or has a computer phobia and other things but you need to deploy it first and then evaluate the first phase, and conduct tests and follow ups and the likes.

Researcher: Okay sir, now the plan is implement LMS to all University’s colleges, Interviewee: Yes, God willing.

Researcher: Does the University’s management policy assigns policies to mandate the faculty members to start using LMS or encourages using it?
Interviewee: As of now, there is no such encouragement; if you seek for example a laptop allowance, you must use it but it is not mandatory, it is up to the faculty member.

Researcher: All right sir, I have two further questions, Interviewee: Please go ahead.

Researcher: If an instructor decides to use the E-Learning and runs into a process problem, what of the technical support?
Interviewee: First-line support is supposedly the coordinators of the college. Second-line support is the help desk of the college. The Help Desk now presumably trains intensively.
Researcher: This is at the deanship?
Interviewee: Yes, deanship has an IT department for how to reply, but the help desk cannot fix everything; the help desk works on the technical matters like: ‘I cannot log in to my course, I cannot log into the system, I forgot my username, or password’, but the system’s functional items like adding courses, dropping courses, viewing problems like for assignments and exams. Those are problems the help desk cannot solve, so it is solved by the first-line support: the coordinators, because they have received functional side training and this mechanism exists today.

Researcher: So faculty members do not communicate with technical staff at the deanship, but rather with coordinators.

Interviewee: It is functional, but technical - they cannot log into the functionality; - for example until he communicates (which is a technical problem) he calls technical support and tells them about the problem and it would be resolved, but if the problem is a functional one, the answer comes from the first line of support, or the second line of support, who are functional engineers, and we have them. Coordinators have limited authority which cannot be exceeded, so they are not a full Admin. Later on, as of now, the system can provide higher authorities or he becomes an admin of his college, and that is our current direction, so if we have five coordinators at the medical college, one of them can become an Admin and he connects with students’ information systems. As of now; this does not exist. With the beginning of the service we will delegate the responsibility, even if the first-line support solves the problem before the second-line support, which are the functional-side solvers, and they exist in the deanship.

Researcher: Okay sir, on the future, do you expect that our understanding in Saudi Universities of those systems will expand? Or will they be abandoned?

Interviewee: Well, LMSs are being used, all Universities do.

Researcher: Okay, but do you expect its continuity?

Interviewee: I sincerely cannot answer this, but I expect we should. But the question is which systems to use? There are universities that use open source LMS, others use Jusur LMS (that being the National Centre of E-Learning and Distance Learning- NCeDL), others use Blackboard. Which one would we use? Or would we diversify? Or would people use what they deem fit? All possible. But I see that we focus on a national matter: since all Universities are using Blackboard, is it possible that there is a national project to adopt Blackboard as a national LMS? With a national licence? We have already discussed this at NCeDL because the majority of Universities are using Blackboard. So yes, I do expect that it is necessary for the future of education. The Knowledge Master (the instructor) who stands before the students now has been replaced by Google, which is the new knowledge master. But would E-Learning substitute for the faculty member? No! It is a tool that is supposed to increase the chances of education, its quality, when used properly. But it will never substitute for the instructor. The human factor is quite critical because it plays a big part in the education process, which is the human part, but I expect it to facilitate and provide a better and more developed educational organisation through resources, which are provided through different resources or even in the ease of communication, the ease of acquiring information, and more importantly, the knowledge sharing that I think has the biggest advantage of those existing systems.

Researcher: Okay sir, we have covered the aspects I have, but you, being a specialist, do you see that there is information we can add that I missed? Especially when it comes to the faculty members and the challenges, they face.

Interviewee: Probably the barriers they face are not really barriers. There is sometimes a problem we face which is that faculty members think that E-Learning is related to programing;
they think it is too advanced for them. The perception we received from the questionnaire is that there is a general belief that it is difficult to learn programming, so there is a misunderstanding, and misconception on the part of the faculty members, but with awareness sessions we conducted last year the vision has clarified further, everyone now knows that E-Learning is just a system and you train for it, and it requires no programming, nor a deep computer knowledge, so tension has subsided. But no, you have covered pretty much everything impressively.

Researcher: Thank you sir,
Interviewee: Strategic planning and training and systems, perhaps the trend of ubiquitous learning or mobile learning, these things are much focused on now, so it seems. Now we are using Blackboard mobile,
Researcher: You can access it from your mobile device.
Interviewee: Yes, from Blackberry and iPad and all those handheld devices, and I think this mobility is very important, and they have existed since day one, because your number one focus is the students. They are mobile, so you can reach them, and the new systems are supporting those things, people now speak about LMS 3.0, E-Learning 3.0, this new concept, it might not have been used yet,
Researcher: Okay, thank you sir.
Interview with (AA) from (PNU)  
Academic  

Researcher: If you may Doctor, please provide general information about the academic degree and the major?  
Interviewee: Okay. I am an Assistant Professor, I have received my Doctorate in 2009, so I have not been an Assistant Professor for a long time; roughly a year and a half. As for the major I studied both Doctorate and Master degrees in Educational Technology, and my Bachelor degree was Information Systems.  
Researcher: Impressive, and for how many years have you taught in the University?  
Interviewee: I joined the Scholarship programme immediately after graduating High School, and I stayed in Britain for nine years, during which I received those three degrees and I started teaching after I returned, which is roughly a year and a half.  
Researcher: Okay, and during this period of a year and a half, you were using the Administration Management System in teaching?  
Interviewee: I used the Blackboard education tools during my academic years. You know in Britain they only use Educational Tools, so I used them and used the Moodle system, but here the Jusur system has a problem, and I would like to address it: its registration process is quite difficult, during which we must provide our national ID to The National Education Centre, so students collect them and send them to receive the approval and provide us with the passwords. This method squanders a month and a half of the semester until the student is registered to the system, and my courses are tailored to fit the semester, meaning that I teach them over 15 weeks, so if I lose six weeks until the student logs her information to the system, and of course this is the first time she's exposed to Educational Tools, so it takes her three weeks until she is familiar with it and how to use Navigate software with all its components and services. And for me to test them with quizzes, I have to download the software and its components, the end of semester would be close, with no attained educational/learning value. The problem is that there is no strategy, the fact that I majored in Educational Technology, I'm the only one using the system since it's not mandatory. Back when I was in Britain, all courses use LMS, and this doesn't exist here; consequently students are unprepared for it. I teach Level Three courses, so the students should have been exposed to the system since orientation year, but they are not. And by the time they arrive to Level Three courses, while they should know it, the reality is that they actually don't know it. And I have to start anew with them. Some of them do not have an email! So there exists a gap, and it is a huge one. Sometimes I meet a student with no email, on the other hand: I meet a student with accounts on Twitter and Facebook, and she would be carrying an iPhone and iPad to the lecture. This digital divide is massive, and I would like to highlight this point: the digital divide is massive, and the LMS Jusur system has proven a failure as it is very restrictive. Assume I have a password as an Instructor and that I'm registered too, so it should make sense that I can add students or reject them, like any other educational tool, but not in Jusur, it is very restrictive, and this makes you prefer other systems. Even if you pay for a system, unlike the free Jusur, at least you have liberties to do what you want.
Researcher: Okay Doctor, this leads us to the next question: if you were to compare the Blackboard and Jusur, in terms of tools and functions in both systems, are they unified or different?

Interviewee: They are very similar. I have used the Jusur system and did not observe that much of a difference; it is almost an Arabic version of the Blackboard, so there is not much difference there. To be fair: they are not the same. But the problem lies in two fundamental points. The use of technology is limited, meaning there is no Educational Policies, and that is a very important point. I even addressed this in my doctorate discussion; the solution to our problems in using technology must be a policy, and not an initiative taken by the professors. It should not be like: 'I choose to use it or choose not to', rather it must be mandatory to select my courses electronically. There has to be an electronic communication, as the gap is large. For example: I have the evaluation question at the end of each level. My students have blogs, and I ask them to write about their educational experience in the Educational Technologies course, and to state the positives and negatives and to suggest improvements. The majority of them express appreciation to me for using technologies, because I do not have office hours, so I communicate with them even at 1 a.m. and I reply to their emails. True, our communication is very dense, and it has given my students more knowledge. One of my students said to me: 'thank you, now I do not need to scan notes.' because I provide the lecture notes on my website. And this is neglected by other instructors. So there have to be top-down orders from Management to mandate some practices, instead of a few instructors practicing them individually. But I keep marketing my ideas and advise them to follow them. Shockingly: there are professors in the department who majored at Educational Technology and they do not have websites! This is an example of a gap. I'm sorry, I forgot your question and digressed, but we have plenty of problems in this subject.

Researcher: I asked about the comparison between Blackboard and Jusur.

Interviewee: Again, to be fair: the problem is the restrictions they imposed on Jusur. When I used it was fully functional but I believe its functionality will increase if every student had an ID number. When a student at the Princess Nourah University registers she is automatically added to the Jusur system, so the instructor does not waste time registering them manually like in our University. The connection should be a basic IT service, and it is not difficult to do so! Each student somewhere between the Level One and graduation, regardless of their major, and must communicate via Jusur in certain courses, so they must be enrolled in the system already, which lightens the load on the professor. But sometimes to register them I actually have to collect their IDs, or students have to register with their national IDs, which makes it a tedious task and makes people prefer not to use it.

Researcher: I would like to address a point you mentioned earlier about the role of University Management. As you have explained: there is no policy that mandates the faculty members. Is there a way to incentivise the faculty members to commit?

Interviewee: Absolutely not. I am speaking out of experience. We have recently relocated to the new buildings on the Airport Road in this semester. The new buildings are technically prepped and with an IT team, and E-board, E-podium, in fact it looks very similar to the halls back in Britain. But when we were in the old buildings on Al Malaz road, it was a very difficult task to the point that everyone here had graduated during the 30 years from them! In these buildings there is only available projector and everyone uses it and exchanges it. When a light lamp dysfunctions, it is very likely to stay in that shape for two or three weeks, so the faculty member changes it herself. The halls are technologically unprepared, despite the fact that some of those technologies have been in the market a long time and should have been implemented; therefore,
if they implemented them to 10 halls a year, we could have had them implemented five years ago. It only takes self-initiative. And the professors are keen to develop these things. The Educational Technology's scope is shrinking. For example: I cannot force an Arabic Language professor or Religious Studies professor to implement them, and they could respond with a question on the educational goal of this, and she might resist, and this what we call in the Educational Technology literature the Resistance To Change, and it is very strong, especially with the burden that instructors might have to change their old methods and learning strategies and the likes. But in the field of Educational Technologies it is very useful that one thinks 'Outside the Box' because I am an outcome of their educational system, and change does not bother me, and I come from abroad, so I have a larger enthusiasm. During the first semester, we conducted lots of projects with the students: we created Gmail accounts, and created a website by Google Site. Of course, my idea was that technology is free and requires no effort, so I always use Google tools with them, so we have a portfolio for each student with her outcomes. We also created Blogs and Wikis and used them. I had a special website for communication. We conducted lots of projects. When the semester concluded I felt that I had learnt a lot from this experience; there are things that I will imitate, and things I will abandon. I headed to the Department Chair and told her that colleagues are still teaching the old courses and some of them are teaching the new one, and I suggested that since all of us will be teaching the new course, I would like to conduct a seminar to share my experience. This was a habit we did a lot in Britain, where everyone shares and enriches everyone else, no monopoly. But it is different here: everyone keeps to themselves. The Department Chair approved and asked me to organise it. I told her that if the request came from the Department Chair they would commit. But what authority does AA have? We are all Assistant Professors here, who can I force to attend? There are no policies, or a unification of projects; my grading system is designed as 40 points for the exam, and 60 points for the project, which means my students suffer while students in other classes prepare only a Power Point show. In those Educational Technology classes, some use Power Point shows but with links, but my class makes Wikis and creates Blogs and modifies Wikipedia pages and covers a lot that is related to Educational Technology. But I end up losing students (laughs) because the work I demand is much more. There are not even policies at this level since the department has a small number of staff, and my boss who studied the same major as me, and should have appreciation and support me. And instead of saying: 'AA, those are good ideas, let us put our heads together,' nothing happened. And this forced me to conduct a workshop at the college level on using 'Blogs in Education', everyone registered from my department, but here was the shocker: those who were supposed to attend and learn from the experience did not show up. And this was at the Educational Technology college, can you imagine what would happen at University level? There are no policies that sway the Faculty. I once spoke to a Dean; she was open-minded and wanted a change, she had just attended an E-Learning workshop in America, so I thought to myself that here is a fresh mind that can help me. I explained to her my point of view that Top-Down Approach will mandate faculty members to follow, and also to make it part of their evaluation. She replied that the employee evaluation for instructors is out of her control, meaning the applications are received from Employees Affaires to be filled, and cannot be modified. It seems that everyone is throwing the responsibility at someone else's lap, refusing to solve it. The only way to fix education policies is to make it a Top-Down Approach.

Researcher: Though some Universities use financial incentives, so that the faculty uses those technologies,
Interviewee: We receive a Laptop Allowance; they assume that because we specialise in Education Technology that we are using the technology, but they don't force us to use it, and you would think that they would increase or decrease the allowance, but no, it's unified for the Education Technology. But do they use incentives? The Quality Department distributes surveys at year's ends to the students to receive their Feedback, and one of the inquiries asks if the instructor uses technology, etc. Theoretically speaking: they should collect and analyse the Surveys so that if that if the answer to the inquiry was positive, there should be financial incentives. I recall that in a department meeting, there was a discussion on a Teaching Excellence Award or such a thing but nothing materialised. But I do not think a financial incentive would motivate them to use it. With our system and kind of attitude, the method has to be a policy, where the staff are forced to comply. If you do not have qualifications or you are not qualified, I am willing to put you in workshops and you must take the workshop. For example, from an experience at Kind Saud University, the new Faculty now undertakes a mandatory 36 hours to cover the skills, because as we learned in the doctorate, we conduct research, but in my case I was thrown to the students with no background. True, I had come from Britain, but how would they know that I had? I have read and worked on to teach and the instructions of teaching, but Education Technology students do not receive that kind of knowledge because it is not a teaching programme. Back to King Saud University, in the structure of their 36 hours, there subjects on Education Technology in education, and you do not start teaching until you have fulfilled the prerequisites. As a recommendation, I say that those new appointees, which are massive, in the Princess Nourah University, and internships are too, there must be a condition prior to teaching; that you must undertake X number of hours on using Education Technology. Ironically: Education Technology is limited in our university to Educational Departments, meaning I only teach kindergarten students, English and elementary-level teachers, and for the next semester, Special Education. The rest of the majors are not accessible. After all, all female graduates end up in teaching.

Researcher: But Doctor, is it possible that this is due to the nature of the Educational Subjects, being easier to be taught via technology?

Interviewee: I do not believe so. We have experimented with lots of subjects using technology and it was never a barrier, I even recall visiting Quran schools where they used that technology, and to my surprise there was an electronic board on which they displayed the words pronounced by the Reciters, and it remains shaded. So there are different usages, even if they were basic, I still repeat to my students: why are we using technologies in educational fields? Because of the new Generations. If you want to be heard you must speak their language. The new Generations only understand the language of Technology. So it is no wonder that I must speak their language so they could understand me. We can no longer confine them into four walls, separate them from the rest of the world and try to feed them information. There sure will be resistance in that kind of education. A very critical point is that what happens outside the classroom reflects what happens inside it. We learned Physics and do not know how to apply it, the same goes for Math and Algebra. Others knew the applications of it and built on that. But now technology facilitates that, so what happens outside the classroom must reflect what goes on within it, and technology will help us, in addition, the student does not feel the connection between his life and his education. I always explain this, particularly to the kindergarten students; you have a child student who left his Game Boy or his iPad in the car who comes to you, so there has to be a technology present there. But the problem is that No; this is my answer to your question on its
relation to Educational subjects. Everyone is using technology and this must be reflected within the walls of the schools and the educational institutions regardless of the educational level.

Researcher: Okay Doctor, now I understand that you do not use Jusur, instead you use Web 2.0 tools. I'm sure that you are aware that LMS has a management side, like tracking the students and their progress, etc. Web 2.0 tools might not provide these, so how do you overcome it?

Interviewee: I actually did overcome it. For example, in the second semester I tested my students with an online quiz, by using Google Forms, as it transfers the data directly to a spreadsheet, so I now regularly use it. Even in my website is also a Google Site. I largely use Wiki, it tells me accurately who visited and who wrote what, etc. It is easy to use and plenty of students use it despite the fact that its interface is English, not Arabic, but I teach my course in English, so it's not a problem. Wiki solves the problem of knowing who did what in group projects, because it is unjust to unify the grades because students depend on each other in group projects; it depends on character: for example there is the driven student and she does the whole work because she won't wait for the rest, so there is a lack of group dynamics. That is what we call invisible methodology, so it is not all about the final outcome of the project. There are things they learn within the project, but this is a problem when you assign 15 points to everyone because there are students who receive a grade that they do not really deserve. So Wiki is the solution to this problem as it indicates who wrote what, and who deleted what, and who added what picture, and I also can follow up on their discussions, and how the ideas develop and who logged when and at which hour! Therefore, when I assign a grade, I do it with a clear conscience, because I monitored each stage of the process. Wiki has definitely resolved this for me, and it is satisfactory 100%, especially that it is free, a very critical factor.

Researcher: LMS systems, especially its latest versions, have been integrated with Web 2.0 tools like Blogs and Wiki, do you not think that it fulfils some needs?

Interviewee: I am afraid I have not seen such versions,

Researcher: I know that Blackboard 9.1 has Blogs and open for YouTube…

Interviewee: Jusur is not like that, like the Blackboard, maybe 3 or 4 years ago.

Researcher: Okay Doctor, based on what you said, do you see Jusur developing to be as easily accessible or should we abandon it completely and depend on Web 2.0 tools?

Interviewee: Not completely; one does not have to necessarily be negative, I mean they have exerted a massive effort to develop and provide it in Arabic, and this is good since we lack Arabic interfaces in the educational environments. So no, their efforts are highly appreciated but they should begin where others have stopped, meaning they could learn from Blackboard and how far it reached, Moodle too, and they can imitate them because there is no monopoly (Moodle is an open source) and it does not require much effort. Even the policies which we discussed earlier in the universities policies, as Moodle is an open source and does not require much effort, and they already have the servers of the University, and it can be easily implemented. It should not take more time to reach that information as others already have. I cannot compare them to other universities. King Saud University already has a Blackboard, so why are we late tracing these things and they are open source? All it needs is that we download the server which is effortless. Currently our students do not have emails; they use the personal emails at the universities. Google offers Google Education services; the University can create accounts for the students and add the domain PNU, so why are we not doing that? I was not aware that we have an administration called Electronic Affaires, that handles the students’ academic records. I do not know if there are specialists to manage the University policy in terms
of Educational Technology, and if they do exist, they are not doing a good job. Because I do not know about them and I am a faculty member.

Researcher: Okay doctor, is there a technical department in the University that supports Jusur?

Interviewee: Jusur? No.

Researcher: What happens in the case that a faculty member faces a technical problem in one of the college?

Interviewee: As for Jusur we do not have a technician for it. We have IT support which offers technical support. For example, the Educational College exists in every floor of the college, so assume I have a problem with the projector or the electronic board does not work, or if the computer does not connect to the internet, IT would come to help, but that is the most they can do for you. The University has not adopted the Jusur system, how can they have an IT team for it?

Researcher: Okay, do you have an idea about the National Centre for Electronic Distance Learning (NCeDL)?

Interviewee: It regards what?

Researcher: Regards Jusur, I heard that they act as a supervising authority or such for the system.

Interviewee: They are the authorising party, you reach Jusur through them, when you visit their website you find a Jusur icon, but it is the authoritative and supervising party for Jusur.

Researcher: Do they send trainers to faculty members to introduce them to the system?

Interviewee: They have a system where they announce workshops in the centre. If you have subscribed to them they occasionally send you emails. They do not always advertise in the news, they announce that, for example, next week’s workshop about X & Y is held. They do not conduct it at your institution, so they would not come to Princess Nourah University, you would have to go to them. For example, I attended training at King Saud University in Al Malaz Road, they announced it, and we attended for three days, but their teaching methodology had flaws, for example the doctors explaining the content directly to men while women watched them on CCTV or the web. So I saw them via a screen, in a stadium. And it was not like I was watching on a hands-on-application or a computer screen. And I sat there passively watching them going about the training. I attended this back in 2008, while visiting during my doctorate days. Perhaps it is more developed now; maybe they have decreased the numbers. And by that time I already had experience with Blackboard so I did not need to attend the workshop in the first place. I too already knew about Jusur, but regardless: you can change the platform but you still get the same services. The training is not held at your work place, no, you have to go to them in different places and different people, this is their way.

Researcher: All right doctor, if we wanted to summarise the biggest barriers facing the faculty when using LMS, what are they?

Interviewee: Do you want a specialist answer in terms of technology, or should I speak on behalf of my department members, or general opinions?

Researcher: Speak as a faculty member in general.

Interviewee: Okay, to faculty members I know it is not an issue of time or work load, I am part of the team, so I think the first barrier is a matter of 'I want to sell something to somebody,' and them understanding 'what is there for them.' Once they know how beneficial it is they would be interested. Once awareness spreads I am positive the resistance will fade, because this resistance is not against technology; to the contrary, lots of the faculty use Power Point slides, but we need to take it a step further and put systems in place so everyone can recognise the value as their
teaching hours will decrease, duties like grading and quizzes are not difficult anymore. So the first point is awareness, the second is mandating the faculty members to commit to it, and I cannot emphasise that importance of this. And this is probably the result of the poor desire to be an instructor. I am sure you have seen what it is like in Britain, for one to become a professor they have to work really hard to get there because they really want that position, and they do not need that kind of mandatory treatment and they are creative, even at retirement age they still issue publications. Do you agree?

Researcher: I do.

Interviewee: Unlike us here, to be an assistant professor or to become a professor, and despite stopping, Google their name and observe the massive amount of publications they have done, and still doing it because they have the drive. We lack drive; we do not have people with passion for a position in education. For me to love my job because it does not exist, and I cannot create or produce it, this is the culture, it is bigger than education, and if I cannot then mandate them. So I must be forceful when I tell them we need to use technology. Currently, in the evaluation sheet of teachers in schools, and part of it is concerned with the use of technology when the force to use technology has applied, teachers have changed. This is how it should be.

The Top-Down Approach will force teachers and make it part of their evaluation to use technologies, and teachers should adapt to that reality and develop. We use to say that Governmental schools are hopeless and now they actually self-initiative from the cash of the school's commissary to buy electronic devices and now they have resources. So we must mandate the same to faculties regardless of their academic credentials because of the culture and mentality in which they live. Initiative to mandate its usage, they must show us the websites and provide us with links and they must be supervised, and in a short period of time they will observe the advantages of what they do.

As I said: two factors to remove those barriers: enforce policies to mandate the faculty, and they must understand its benefits and what is in for them.

Researcher: Okay doctor, I have covered all that which comes mind, but since you are the specialists, there is a possibility that in your mind there are important matters…

Interviewee: No, God bless,

Researcher: Goodbye.
Interview with AS from AIU

Academic

Researcher: Doctor, let us start with your academic credentials and major.

Interviewee: An Assistant Professor at the Quranic Studies, Religious Teachings College,

Researcher: For how many years have you taught and for how long have you been using the educational tool Tadarus LMS?

Interviewee: I have taught for roughly 23 or 24 years, 19 of those were taught in University, and I have used Tadarus for the last three years.

Researcher: Nice! Besides Tadarus, have you had experience with systems like Jusur or Blackboard?

Interviewee: To be honest, I had a brief experience with e-learning Universities outside Saudi Arabia, but it is a minor experience, therefore I cannot build an assessment on it or compare it with Tadarus. My predominant experience is with Tadarus.

Researcher: Okay, when you started using Tadarus, were there introductory courses or was it easy to use?

Interviewee: Truth be told, there were no training sessions, there was a simple introduction to the System's basics, and it is actually simple. Regardless: there still needs to be a proper introduction so that the faculty members understand all the components of the System.

Researcher: So there is no training as such?

Interviewee: Throughout the years there were elementary introductions on how to use the System, but those introductions did not cost the employees more than 10 minutes of their time. There were workshops for the new instructors; maybe I had it differently because I was part of the Dean's Office. I never was part of the workshops, but they were quite beneficial for the new instructors.

Researcher: All right, regarding the Tadarus System, what courses are teaching now?

Interviewee: Due to the nature of my major, I teach the Exegesis of Quran and its Studies,

Researcher: Yes, do you think the System is more potent in one course than another?

Interviewee: It is difficult for me to assess because nothing mandates the student to be present Online. What makes them attend is that I have courses (coughs) where I need to listen to the students' recitation, and how they utter and pronounce the letters and their readings, while in other courses I only have to listen to their questions, but attendance is not mandatory… not mandatory…you cannot compare between a course and another, usually, students' attendance is in low numbers, because attendance is not mandatory.

Researcher: Okay, so what tools do you use in the teaching process?

Interviewee: For example: using the board allows… allows using private conversation, allows written conversations, and sometimes you need more than that. The board for instance is for writing in the System, and it seems to me that there is a shortage. I sometimes need to share a file on my device but I cannot through Tadarus System, while there are systems where you can share a file and display it, like PowerPoints files. So I would say the System needs some improvements.

Researcher: So regarding this observation, is there a channel to communicate it to the Administration or to the Dean's Office?
Interviewee: Well, I speak on my behalf first, then for the faculty members. Being in the Dean's Office, the complaints can be heard quickly, those outside the Dean's Office. Truth be told, communication is scarce, though it is available, and accessible, I mean there are meetings almost once a year in each semester between the System Administration and the Faculty Members to provide comments. And some comments appear to be valid.

Researcher: Regarding the development, I heard that there exists a new version of Tadarus coming out in Dhu Al Hijjah month. Do you think this development reflects administrative goals or educational ones?

Interviewee: As a matter of fact it can be said that it focuses on the earlier more, based on the administrative needs, as they are clearly and accurately registered and are followed up. Observations on the educational process can be regarding involving the faculty members more by expressing complaints and voicing them strongly, but they are not a priority, taking into consideration that there is a plausible change.

Researcher: Assume while using the system that you faced a technical difficulty, how do you solve it?

Interviewee: There is the technical support of course, and academic support too. In the Dean's Office we have three employees present during Online Live Broadcasts in the courses where I need to log in with the students with Night Shifts, which is done out of consideration. In case a situation faces a faculty member, he can communicate with them in two ways: in the case that the faculty member observes a problem, he contacts them. The second one is the staff that are concerned with follow-ups, and they pass by us during Online courses and investigate the problems like log-in issues, and in the case of simpler problems occurring, they will be handled directly, but if it is beyond their knowledge, they call for technical support.

Researcher: But regarding the Virtual Classes’ problems that require technical support on the spot, how does communication happen?

Interviewee: You would receive notes from the Technical department.

Researcher: So there is a direct communication between faculty members and technical support?

Interviewee: Technical support is available for communication to everyone who uses the system, be that a student or faculty member…or anyone else, so a request is made, which will be handled by technical support. If it is a technical problem, it will be dealt with directly. If it is related to other departments it would be delegated accordingly with follow-ups taking place until completely resolved. And this is available to any person who uses Tadarus, be that a student or faculty member. The problem sometimes is the lack of clarity to the faculty member. The amount of requests that technical support receive that are made by faculty members is small compared to that of the students. Probably because of the faculty member's business or lack of awareness of the medium he could he use to deliver.

Researcher: I personally contacted EF, the technical support officer and he told that there is no direct communication between faculty members and technical support in Non-Virtual Classes. And he told me that communication between the faculty members and technical support usually happens through a third party, that being the Academic Affairs; so the faculty member contacts them with the requests and they contact the technical support on his behalf.

Interviewee: Probably my user account differs from the rest because I am the System Officer in the Dean's Office, and I do not experience problems logging in and sending the requests to the technical support and receiving replies from them. Maybe this is not needed by the other faculty members?

Researcher: Or maybe not knowing the procedure?
Interviewee: I do not think so, if EF mentioned that faculty members do not have that kind of access, his statement must be more credible; I am speaking only on my behalf here. I log in easily and send my requests and receive replies, and this is probably because my user account differs from the rest of the faculty members.

Researcher: Doctor, considering your experience, you have taught the traditional way and you are using the educational tools LMS. Does using Tadarus make teaching easier or more difficult? How would you describe it?

Interviewee: In my personal assessment, undoubtedly, face-to-face teaching is the ideal method of teaching, but E-Learning provides a solution to students with whom communication is difficult, so it breaks the physical barriers. Those tools overcome you not being able to be with the students; you might share a file on your device with them wherever they are, but being in the classroom, arguments and discussions are spurred and discussed, given that you have the time. In traditional education, you only sit with the student for 60 minutes or 55 minutes, while in E-Learning the student is willing and has the ability to review the lecture and participate…very energetic contributions too and he shares his work with everyone.

Researcher: Okay doctor, regarding the academic material you teach, do you feel that the system provides all the functions you need to display the material or that you cannot display it because the system is unequipped to do so?

Interviewee: In Tadarus?

Researcher: Yes,

Interviewee: I feel that there are functions I need to activate/ and utilise but I do not know how, maybe it is my lack of knowledge and not necessarily the System, but certainly there are functions that, if made available, would make my job easy, but they are not Tadarus. But undoubtedly the systems has some shortcomings.

Researcher: Okay doctor, how would you describe the role of the University in terms of E-Learning? Does it encourage the faculty members to use LMS or assign policies to mandate them? Or is it unconcerned with subject?

Interviewee: As a matter of fact there is an encouragement to commit to it, and there is the attempt to engage the faculty member to use the tools sometimes. Technology is beautiful and parts of it, including E-Learning, there are obvious efforts and encouragement using several ways to open that door.

Researcher: Meaning there exist strong policies that mandate it?

Interviewee: Yes, there exist strong policies that were mandated…

Researcher: Were?

Interviewee: were and still mandatory…in the way the faculty members use educational tools to communicate with the students wherever they were, whether they were regular students, or an E-Learning student…it was mandatory, actually it was almost mandatory,

Researcher: Doctor, in your interaction with the students, do you encourage them to use the systems and log on to the tools, or do you just go about the materials?

Interviewee: The years prior to becoming part of the Dean's Office, I worked in a University's institution based in Indonesia. Students there were gender-segregated into different classrooms, so naturally I had to communicate with everyone through the System, consequently: the System was being utilised and students were encouraged to use it by the university, but the fact is that it is interaction, and I hope in the future it changes, not like my experience in Indonesia.

Researcher: why? Students there were more aware?
Interviewee: That is part of it, and the other is that we have male and female students; and the female students interact much more than their counterparts, and I know not why.
Researcher: Okay doctor, regarding the Tadarus System, what is your expectation? Do you think it must develop or replaced by another system? Or that education through those tools is useless?
Interviewee: I want to reaffirm that this is my opinion.
Researcher: Please go on.
Interviewee: I hope we utilise the powerful and internationally recognised existing systems. But for us to start with Tadarus which is custom made to meet the requirements of the Dean's Office, the Dean's suggestions and E-Learning, and the system upgrades according to our researchers’ needs, and as I understood regarding this…in my personal opinion that there are problems in dealing with the System. There exist other tested systems which are recommended by concerned parties in the country, in here, you recommend and it shall be implemented. The truth is that systems…they are available and have been readjusted as needed, they are flexible and can be modified. In my opinion the Tadarus System is appreciated but the fact is that other systems can be used that are more advanced, more precise and designed for such ideas.
Researcher: What are the barriers that obstruct the faculty members from using the LMS systems more and be more interactive whether on a personal level? Please speak based on both your personal experience and faculty members’ experience.
Interviewee: I noticed that some faculty members' treat technology with awe and this is a problem, thus they have no benefits from the system. The younger faculty members are more engaged but I also believe that this is supposed to be the University’s priority to encourage its use, and incentivising them financially is not enough. I want to use this technology and know all its secrets, by attending many technical workshops every interval for all the faculty members and all the majors. For the young generation, it must be linked to Master’s degrees, which should prepare them to teach in the future…I see them having the capacity to handle the systems, I see a large number of the faculty in this environment with the capability, and they lack nothing but nothing is available, meaning ‘encouraged’ or ‘advertised’. I assure you: if it were available, a huge number of faculty members will participate, especially in our current times.
Researcher: Doctor, I have mainly covered all my points, but do you see a point worth adding?
Interviewee: You have done a commanding job and covered all aspects. It saddens me that E-Learning tools are there to break barriers of time and place; this way you teach someone in the afternoon and another in the evening. If the information is available on the website, and at any hour the faculty member can log in at time of his connivance, which is a strong point in order to empower learning outreach and education. First point of E-Learning is that the faculty members benefit from it; I mean the E-Learning. I might not be able to participate until certain parties participate in adopting it, and recognise it as a healthy educational tool for teaching electronically. Me as a traditional teaching faculty member for students all over the world, e-learning provides me information relevant to the major while I am at home, regardless of the major. And those fruits of this will benefit both me and my students, because once you build a faculty member the correct way, his return for this nation will be realised quicker, because it will affect his students, who, after four or five years will be leading…may Allah bless our efforts.
Researcher: Thank you for your time sir,
Interviewee: Bless you.
Appendix 9 Memos taken during the field study

<table>
<thead>
<tr>
<th>Memo</th>
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<td>Memo 2</td>
<td>Differences in practice</td>
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<td>Memo 3</td>
<td>Confusion over which LMS to rely on</td>
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<td>Memo 4</td>
<td>E-Learning units in universities’ structure</td>
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<td>Memo 5</td>
<td>Influence of individuals in leadership positions</td>
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<td>Memo 6</td>
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<td>Memo 7</td>
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<td>Memo 9</td>
<td>Academics’ lack of, or /poor interaction</td>
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<td>Memo 10</td>
<td>Is “teaching experience” still related to the number of teaching years?</td>
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<td>Memo 11</td>
<td>Choosing trainers</td>
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<td>Memo 13</td>
<td>Developing the image rather than the content</td>
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<td>Business interest</td>
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<td>Memo 15</td>
<td>Local vs. international LMS</td>
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<td>Memo 16</td>
<td>Existence of LMS is not enough</td>
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<td>Memo 17</td>
<td>LMS expands the relationship between academics and students</td>
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<td>Memo 18</td>
<td>LMS expands teaching methods</td>
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academics through face-to-face lectures. LMS offers academics many methods to deliver learning materials, such as text, multimedia resources and simulation programs.

<table>
<thead>
<tr>
<th>Memo 19</th>
<th>Training through CCTV</th>
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<tr>
<td>AA stated that:</td>
<td>“I attended a LMS training course which is a three-day course organised by the NCeDL...the attendees were from several universities. Since the trainers were male, the course was delivered through CCTV. I was sitting in a large stadium quite far from the monitor so I found it difficult to see the monitor and communicate with the trainers...the course was a kind of lecture rather than a practical course”. Although this interviewee describes the female training environment in a gender segregation system, it raises questions about the overall quality of training courses, since these issues also happen in the male section.</td>
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<th>Memo 20</th>
<th>National project to adopt LMS</th>
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<td>SA stated:</td>
<td>“In the last seminar held by the NCeDL, I suggested that as most Saudi universities adopt/tend to adopt Blackboard LMS, why do we not have a national project to adopt Blackboard”? The expected benefits of the proposed project: it will reduce the expense of adoption of Blackboard compared with if each university alone adopts it, and it will ensure standardisation of the adoption and usage of LMS including standardising the training processes and reducing its expenses. What else?</td>
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## Appendix 10  Documents used in this study

<table>
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<td>Doc.2 Higher Education in the Kingdom of Saudi Arabia: Local Indicators and International Comparisons</td>
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<td>Doc.5 VLE Summery Training Schedule for Summer 2013 (Females)</td>
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### DATA ANALYSIS: Academics & LMSs in SA

#### Table 31. Data resources legend

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<td>E-Learning is prime component of HE system</td>
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Data gathering UNIT/aim: Academics’ adoption and usage of LMS in Saudi Arabia’s Universities.
### Grounded theory

#### Categories (abstract)
- **Phenomenon/concepts (i.e. data) obtained from:**
  - Academics & students questionnaires, interview transcripts, documents obtained from the field study, and memos

#### Sub-categories

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<td>Differences in practice:</td>
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<td>Although the decisions to adopt LMS in the three universities under study were set in accordance with the MHE legislations, there are some differences in practice. Some universities were much better in the adoption process than the other.</td>
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<td>Involve academics/faculties in the e-learning general strategy</td>
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<td>Confusion over which LMS to rely on:</td>
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<td>From EF interview: Three LMS were installed in the university which suggests confusion over which to rely on.</td>
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<td>Spread LMS over all foundation year subject</td>
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<td>Implementing LMS gradually</td>
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<td>Independent e-learning unit in each faculty (trainer, instructional designer, academic)</td>
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<td>E-Learning units in universities’ structure: From SA, HA, and AAA interviews: E-Learning units in universities have different forms e.g. deanship, department, and administration, each of these forms has different status in universities’ structure which reflects differences in the degree of importance for e-learning and distance learning between universities</td>
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<td>Academics’ beliefs and adoption of LMS: Does academics’ beliefs in LMS affect its adoption in their universities? If it does, to what level?</td>
<td>Academics’ awareness of the use of LMSs within their universities</td>
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<td>Positive view towards LMS …LMS reduces office hours</td>
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### Phenomenon/concepts (i.e. data) obtained from: Academics & students questionnaires, interview transcripts, documents obtained from the field study, and memos

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<td>LMS creates interactive environment</td>
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<td>Mn7</td>
<td>LMS increase academics’ workload: From AH interview: AH stated, “LMS is useful for students but burdensome for faculty members, because a faculty member teaches in the traditional face-to-face way and additionally through the system. He teaches through the system more because teaching in the traditional way is two or three hours in addition to specific office hours, but through the system inquiries and assignments submission are received all the time, so faculty member can be involved with the system 24 hours”. This interviewee expressed a pessimistic view towards using LMS in his daily practice, as he believes that it adds an extra load on him. His complaint mainly focuses on students’ inquiries that he receives through LMS 7/24. LMS is recently introduced in Saudi universities and most academics are not familiar with it. Teaching with LMS does not necessary mean an extra workload.</td>
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<td>Factors affect academics’ use of LMS functions: EF stated, “Despite the fact that LMS has many functions and features, only one or two functions are used by academics”. Similarly, EA pointed out that academics only use a few particular LMS functions. These citations show that academics only used a few LMS functions that are essential for them to deliver their courses. This type of utilisation of LMS does not reflect the true value of the rich variety of LMS functions available, which raises questions about the factors that affect academics’ use of LMS?</td>
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<td>Academics’ lack of, or /poor interaction: From AH interview: Should we blame academics for lack of, or /poor interaction through LMS? What is the role of E-Learning management in this ‘phenomenon’? Factors could be blamed: (1) e-learning management, (2) students, (3) academics themselves, (4) what others?</td>
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<td>Misunderstanding/misconception of LMS</td>
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<td>LMS’s level of use vary between faculties depending on the nature of the subject types</td>
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<td>Interest in LMS</td>
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<td>AS</td>
<td>Lack/poor of interest influenced academics’ use of LMS</td>
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<td>AA</td>
<td>Academics’ disciplines influence their interest in using LMS</td>
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<td>Using social media as a thermometer to measure academics interest in using LMS</td>
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<td>EA</td>
<td>LMS as a solution for gender segregation system</td>
<td>LMS as an alternative to CCTV</td>
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<td>Doc.2</td>
<td>Number of female academics vs. male in HE</td>
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<td></td>
<td>Number of female students vs. male in HE</td>
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<td>HA</td>
<td>Female and male trainers</td>
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<tr>
<td>AA</td>
<td>Training through CCTV</td>
<td></td>
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<tr>
<td>Mm19</td>
<td>Training through CCTV: AA stated that: I attended a LMS training course which is a three-day course organised by the NCeDL...the attendees were from several universities. Since the trainers were male, the course was delivered through CCTV. I was sitting in a large stadium quite far from the monitor so I found it difficult to see the monitor and communicate with the trainers...the course was a kind of lecture rather than a practical course”. Although this interviewee describes the female training environment in a gender segregation system, it raises questions about the overall quality of training courses, since these issues also happen in the male section.</td>
<td>Training in the female context</td>
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<td>AcQ</td>
<td>High number of academics did not attend any LMS training courses</td>
<td>Training strategy</td>
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<tr>
<td>AcQ</td>
<td>Conflict in universities’ attitude towards encouraging LMS use</td>
<td>Training for LMS</td>
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<td>Cooperation with NCeDL</td>
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<td>NCeDL training courses quantity</td>
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<tr>
<td>AS</td>
<td>Poor training courses in term of content and time</td>
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<tr>
<td>DB</td>
<td>Training the trainers</td>
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<tr>
<td>SA</td>
<td>Train the trainers</td>
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<td>Mm11</td>
<td>Choosing trainers: From DB interview: How are the trainers chosen?</td>
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<td>Doc.4</td>
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<td>Doc.5</td>
<td>Training sessions content</td>
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<td>Doc.6</td>
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<td>AM</td>
<td>Poor training sessions content</td>
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<td></td>
<td>Support team</td>
<td></td>
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<tr>
<td>HA</td>
<td>(enforce) track who attend</td>
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<td>DB</td>
<td>LMS training plan</td>
<td></td>
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<tr>
<td>Mm12</td>
<td>Flexibility or poor of professionalism: From SA interview: SA stated that they did not participate in choosing the E-Learning coordinators, rather they were nominated by their faculties. Although this can be viewed as a kind of management flexibility, it shows poor of professionalism in choosing E-</td>
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<td>Data source</td>
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<td>Categories (abstract)</td>
<td>Grounded theory</td>
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<tr>
<td>Learning coordinators.</td>
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<tr>
<td>SA</td>
<td>Lack of professionalism in choosing the trainers</td>
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<tr>
<td>DB</td>
<td>Flexible training courses</td>
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<tr>
<td>AH</td>
<td>Limited training sessions</td>
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<tr>
<td>AS</td>
<td>Poor in the quantity/quality of training sessions</td>
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</tr>
<tr>
<td>AA</td>
<td>Poor in the quality of the training sessions</td>
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</tr>
<tr>
<td>AcQ</td>
<td>High number of academics did not attend any LMS training courses</td>
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<tr>
<td>AH</td>
<td>LMS increasing academics engagement</td>
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<td>DB</td>
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<tr>
<td>AF</td>
<td>LMS instead of office hours</td>
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<tr>
<td>AF</td>
<td>LMS as communication tools</td>
<td></td>
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<tr>
<td>Mm17</td>
<td>LMS expands the relationship between academics and their students outside the physical classroom.</td>
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<tr>
<td>AR</td>
<td>LMS expanding teaching methods</td>
<td></td>
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<tr>
<td>Mm18</td>
<td>LMS expands teaching methods: AR stated, “I use LMS to upload PDF files and video files that support the subject we study.” In addition, literature reveals that learners are different in the way they prefer to learn, which reflects different learning styles. This shows that LMS expands the teaching methods that are</td>
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</table>

**Initial/open coding:**

**Secondary-level labelling**

**Intermediate coding:**

**Primary-level labelling**

**Advanced coding**

**Categories (abstract)**

**Grounded theory**
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<th>Sub-categories</th>
<th>Categories (abstract)</th>
<th>Grounded theory</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>traditionally limited to direct instructions from academics through face-to-face lectures. LMS offers academics many methods to deliver learning materials, such as text, multimedia resources and simulation programs.</td>
<td>[dimensions of elements]⇒</td>
<td>[elements of categories]⇒</td>
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<tr>
<td>SiQ</td>
<td>Positive students’ views towards LMS</td>
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<tr>
<td>AM</td>
<td>Distance learning as alternative of affiliation program</td>
<td>Distance learning</td>
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<tr>
<td>AS</td>
<td>Distance learning vs. affiliation programme</td>
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<tr>
<td>AR</td>
<td>Lack of distance learning due to academics’ lack of capability to teach online</td>
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<tr>
<td>AM</td>
<td>Affiliation programme does not engage students with learning as LMS do</td>
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<tr>
<td>EA</td>
<td>Lack of strategy in which LMS (Moodle, Jusur, and Bb)</td>
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<tr>
<td>Doc.3</td>
<td>the list of distance learning</td>
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<tr>
<td>EF</td>
<td>lack of direction/strategy of the implementation of distance learning</td>
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<tr>
<td>HA</td>
<td>misunderstanding in implementing the distance learning regulation list issued by Ministry of HE</td>
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<tr>
<td>AcQ</td>
<td>Claims and reality in the extent of LMS use</td>
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<tr>
<td>Mm16</td>
<td>Existence of LMS is not enough: From EA interview: He stated, “Although LMS is installed in the</td>
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<td>Data source</td>
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<td>[dimensions of elements]→</td>
<td>[elements of categories]→</td>
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<tr>
<td>AA</td>
<td>Developing the image</td>
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<td></td>
<td>university, only few academics access and use it”. Existence of any technology does not mean that it is used by academics.</td>
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<tr>
<td>Mm13</td>
<td>Developing the image rather than the content: AA stated, “Recently we moved to the new University campus, it is very modern and supported by a diversity of hard and soft technologies everywhere...however, academics are not prepared to use and employ the huge number of these technologies”. Similarly, EA stated; “although LMS is installed in the university, only few academics access and use it”. In the same way, the questionnaires’ results showed that almost 52 per cent of academic participants have never used a LMS. These citations show that some Saudi universities are focusing on developing the image rather than the content</td>
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<td>AcQ</td>
<td>Academics lacked knowledge about LMS in their university</td>
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<tr>
<td>AA</td>
<td>Academics are not prepared to use technology</td>
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<tr>
<td>EA</td>
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<td>one tool</td>
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<tr>
<td>AA</td>
<td>Academics are not involve in LMS adoption process</td>
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<tr>
<td>HA</td>
<td>lack of academics awareness of the regulation list of distance learning</td>
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<tr>
<td>AAA</td>
<td>poor functions</td>
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<tr>
<td>AM</td>
<td>poor functions</td>
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<tr>
<td>AS</td>
<td>lack of capability to handle huge numbers of students</td>
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<tr>
<td>AM</td>
<td>lack of capability to handle huge numbers of students</td>
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<td>Mm15</td>
<td>Local vs. international LMS: Some Saudi universities adopted local-developed LMS and others adopted international well-known ones; why? What are the differences between them?</td>
<td>Local LMS</td>
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<tr>
<td>AAA</td>
<td>Support Arabic language</td>
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<tr>
<td>AM</td>
<td>Support Arabic language</td>
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<tr>
<td>AS</td>
<td>developed based on management needs rather than teaching and learning needs</td>
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<tr>
<td>AS</td>
<td>Time consuming in adding/removing students</td>
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<td>Doc.7</td>
<td>The NCeDL role</td>
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<td>SA</td>
<td>annual seminars</td>
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<td>The NCeDL role</td>
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<td>LMS and the future</td>
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<tr>
<td>AAA</td>
<td>LMS future…Universities need to share content development materials (e-modules) to overcome its expenses</td>
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<td>SA</td>
<td>LMS future…Which system? National LMS project</td>
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<td>SiQ</td>
<td>positive students’ views towards using LMS</td>
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<td>LMS will continue to expand</td>
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<td>Sharing content issues</td>
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<td>AcQ</td>
<td>positive academics’ views towards using LMS</td>
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<td>HA</td>
<td>Local &amp; international LMS share the same functions</td>
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<td>Mm20</td>
<td>National project to adopt LMS: SA stated: “In the last seminar held by the NCeDL, I suggested that as most Saudi universities adopt/tend to adopt Blackboard LMS, why do we not have a national project to adopt Blackboard”? The expected benefits of the proposed project: it will reduce the expense of adoption of Blackboard compared with if each university alone adopts it, and it will ensure standardisation of the adoption and usage of LMS including standardising the training processes and reducing its expenses. What else?</td>
<td>[elements of categories]⇒</td>
<td>E-learning management views towards LMS future</td>
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<tr>
<td>HA</td>
<td>“Jusur” is free of charge</td>
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Appendix 12  Questionnaires’ findings

Academics’ questionnaire results

The academics’ questionnaire provided both qualitative and quantitative data, which are presented and discussed below. The section starts with general demographics data followed by information about the subject under study.

Gender

Two hundred and fifty-two participants responded to this question. Table 32 below shows that female participants (159/ 63 per cent) are higher than males (93/ 36.9 per cent).

Age range

Two hundred and fifty-one participants responded to this question. Table 32 below shows that the largest group of the participants (31.9 per cent) are in the age range 31-40. This is followed by 24.7 per cent in the age range 41-50. The third largest group (22.3 per cent) are in the age range 26-30 while 11.6 per cent are in the age range 25 or less. Finally, 9.6 per cent) of the participants are 51 years old or more.

Table 32 Academic participants’ demographic results

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<th>Gender</th>
<th>Frequency</th>
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<tr>
<td>Male</td>
<td>93</td>
<td>36.9</td>
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<tr>
<td>Female</td>
<td>159</td>
<td>63.1</td>
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<td>Total</td>
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<th>Age range</th>
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<td>25 or less</td>
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<td>11.6</td>
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<td>26-30</td>
<td>56</td>
<td>22.3</td>
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<td>31-40</td>
<td>80</td>
<td>31.9</td>
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<tr>
<td>41-50</td>
<td>62</td>
<td>24.7</td>
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<td>51 or more</td>
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<td>9.6</td>
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<tr>
<td>Total</td>
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<th>Academic participants’ scientific rank</th>
<th>Frequency</th>
<th>Per cent</th>
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<tr>
<td>Teacher</td>
<td>15</td>
<td>5.9</td>
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<tr>
<td>Teacher Assistant</td>
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<tr>
<td>Lecturer</td>
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<td>30.6</td>
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<tr>
<td>Assistant Professor</td>
<td>79</td>
<td>31.0</td>
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<td>Associate Professor</td>
<td>25</td>
<td>9.8</td>
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<tr>
<td>Professor</td>
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<td>3.1</td>
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<td>Other scientific rank</td>
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<tr>
<td>Total</td>
<td>255</td>
<td>100.0</td>
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</table>

<table>
<thead>
<tr>
<th>Academic participants’ length of time teaching</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>One year or less</td>
<td>44</td>
<td>17.5</td>
</tr>
<tr>
<td>2-5 years</td>
<td>75</td>
<td>29.8</td>
</tr>
<tr>
<td>6-14 years</td>
<td>64</td>
<td>25.4</td>
</tr>
<tr>
<td>Academic participants’ disciplines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>15 years or more</td>
<td>69</td>
<td>27.4</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Academic participants’ disciplines**

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic Language</td>
<td>11</td>
<td>4.3</td>
</tr>
<tr>
<td>Social Studies</td>
<td>28</td>
<td>11.0</td>
</tr>
<tr>
<td>Other Discipline</td>
<td>15</td>
<td>5.9</td>
</tr>
<tr>
<td>Business and Law</td>
<td>10</td>
<td>3.9</td>
</tr>
<tr>
<td>Computer Science And Technology</td>
<td>24</td>
<td>9.4</td>
</tr>
<tr>
<td>Education Studies</td>
<td>32</td>
<td>12.6</td>
</tr>
<tr>
<td>Engineering</td>
<td>27</td>
<td>10.6</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>19</td>
<td>7.5</td>
</tr>
<tr>
<td>Islamic Studies</td>
<td>25</td>
<td>9.8</td>
</tr>
<tr>
<td>Medical and Health Science</td>
<td>27</td>
<td>10.6</td>
</tr>
<tr>
<td>Science Studies</td>
<td>36</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Academics’ university/institution name**

<table>
<thead>
<tr>
<th>University/Institution</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Princess Nora University</td>
<td>48</td>
<td>21.9</td>
</tr>
<tr>
<td>Al-Imam University</td>
<td>26</td>
<td>11.9</td>
</tr>
<tr>
<td>University of Dammam</td>
<td>126</td>
<td>57.5</td>
</tr>
<tr>
<td>Al Baha University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Al Kharj University</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>King Abdulaziz University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>King Saud University</td>
<td>4</td>
<td>1.8</td>
</tr>
<tr>
<td>Jazan University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Najran University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Prince Mohammad Bin Fahd University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Qassim University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Riyadh College of Dentistry and Pharmacy</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Taibah University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Taif University</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Umm Al-Qura University</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>University of Ha’il</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>219</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Academic participants’ scientific rank**

Table 32 above shows that the two largest groups of participants are Assistant Professor (31 per cent) and Lecturer (30.6 per cent), followed by Teacher Assistant (18.4 per cent) and Associate Professor (9.8 per cent). Teachers and Professors account for 5.9 per cent and 3.1 per cent respectively. Three of the participants chose other scientific ranks. Two declined to indicate their scientific rank and the third indicated that she was Vice-Dean of the foundation year.

**Academic participants’ length of time teaching**

Table 32 presented above shows that the largest percentage of participants (29.8 per cent) have been teaching 2 to 5 years, followed by those who been teaching for 15 years or more (27.4 per cent) and 25.4 per cent for those who been teaching for 6 to 14 years. Finally, those who been teaching for one year or less accounted for 17.5 per cent.
Academic participants’ disciplines

Participants were from various disciplines, which may be considered one of this questionnaire’s strengths. The largest group were from the Sciences (14.2 per cent) while the smallest was from Business and Law (3.9 per cent).

Academic participants’ universities’/institutions’ names

Table 32 shows that the majority of the participants were from the three universities involved in the study; i.e. 57.5 per cent from UOD, 21.9 per cent from PNU, and 11.9 per cent from AIU. The high response from these three universities compared to others is due to the process followed in distributing the questionnaire as previously discussed. Those participants from other universities and indicated the name of their institution represented 8.6 per cent of the total participant population.

How many years have you used Learning Management Systems (LMS) in your teaching process?

Two hundred and forty-four participants responded to this question. The chart above (Figure 24) shows that the largest percentage of participants (51.2 per cent) has never used a LMS. The second largest percentage (13.5 per cent) has used LMS for less than one year, followed by those who used it for 4 years or more (12.7 per cent) and then those who used it for 2 years (10.2 per cent). The second smallest group are those who used LMS for 3 years (7.3 per cent). The smallest group have used LMS for only 1 year (4.9 per cent).
What technological tools other than Learning Management systems (LMS) do you use in teaching?

Please select all that apply

Two hundred and fifty-three participants responded to this question. Most of them chose more than one tool. The chart presented above (Figure 25) shows those academics that responded to this question are to some extent using technological tools other than LMS in their teaching process. These tools are different in their spread among participants, i.e. projector (173/68.3 per cent), data-show (145/57.3 per cent), multimedia (124/49 per cent), Web-based tools (105/41.5 per cent), computer lab (92/36.3 per cent), smart board (78/30.8 per cent) and other tools (21/8.3 per cent). In contrast, 21 or 8.3 per cent participants indicated that they do not use any technological tools in their teaching process, which is the same sum of those who indicated they used other tools, 19 left the field empty (did not indicate any tool) or indicated tools that are not considered technological ones. Of two other participants, one indicated that they used an iPad and the other a Samsung Galaxy in their teaching process.

How many LMS training courses have you attended in each of the following years?

Table 33 Academic participants and LMS training courses

<table>
<thead>
<tr>
<th>Year</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 or more</th>
<th>I do not remember</th>
<th>total Responses</th>
<th>missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>138</td>
<td>8</td>
<td>4</td>
<td></td>
<td></td>
<td>3</td>
<td>13</td>
<td>166</td>
<td>93</td>
</tr>
<tr>
<td>2008</td>
<td>140</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
<td>4</td>
<td>12</td>
<td>164</td>
<td>95</td>
</tr>
<tr>
<td>2009</td>
<td>141</td>
<td>10</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
<td>10</td>
<td>171</td>
<td>88</td>
</tr>
<tr>
<td>2010</td>
<td>141</td>
<td>12</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td>10</td>
<td>172</td>
<td>87</td>
</tr>
<tr>
<td>2011</td>
<td>147</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td></td>
<td>5</td>
<td>13</td>
<td>179</td>
<td>80</td>
</tr>
</tbody>
</table>
In order to be able to read Table 33 shown above let us take an example from it. In 2007, 138 participants indicated that the number of LMS training courses that they attended was zero. The table shows that the majority of the participants did not attend any LMS training courses over the five years between 2007 and 2011, which is the overall period that LMS have been in use in Saudi universities. Regardless of those who could not remember how many LMS training courses they attended, the second largest group comprised those who attended one LMS training course between the years 2007 to 2011. The numbers who attended two and five or more LMS training courses are almost convergent. None of the participants attended either three LMS courses between the years (2007 to 2009) or four LMS courses between the years 2007-2011.

Does your university/institution provide fully online courses where no requirement to attend classes exists?

Two hundred and ten participants responded to the above question. The chart (Figure 26) shows that the majority of the participants (49 per cent) indicated that their university does not provide full online courses. In contrast, 33.3 per cent indicated that their university provided full online courses and only 17.6 per cent indicated that they did not know whether their universities provided full online courses.
In your opinion, what is your university’s/institution’s attitude towards using LMS?

Two hundred and thirteen participants responded to this question. The chart presented (Figure 27) shows that the largest group of the participants (43.1 per cent) believed that their university encouraged the use of LMS. The second largest group (30.5 per cent) indicated that they did not know their university’s attitude towards using LMS. The third largest group (16.4 per cent) indicated that their university set policies to enforce the use of LMS. On the other hand, 9.3 per cent indicated that their university did not show any interest in using LMS and only one participant indicted that their university is against its use.

Please explain any of the points given above

In this question, participants are given an open box to explain their university’s or institution’s attitude towards using LMS in greater detail. Forty-three participants responded to this question. Table 34 shows that only eight (18.6 per cent) of the participants believe that their universities do not encourage the use of LMS as they fail in adopting it appropriately. This is in opposition to the majority of participants (67.3 per cent) who believe that their universities encourage the use of LMS through several methods. Nonetheless, 13.9 per cent of the 67.3 per cent included some issues that need to be overcome.
Table 34 Academics’ opinions in regards to their universities’/institutions’ attitude towards using LMS

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>University encourages academics to use LMS and provides all software and equipment required for this purpose</td>
<td>9</td>
<td>20.9</td>
</tr>
<tr>
<td>University encourages the use of LMS through providing training courses and/or providing financial bonuses for academics who use LMS</td>
<td>14</td>
<td>32.5</td>
</tr>
<tr>
<td>University encourages academics to use LMS but some issues need to be overcome, i.e. lack of academics’ LMS training, failure in the development of appropriate infrastructure for LMS, lack of consideration for the appropriateness of LMS for different disciplines, lack of time for academics</td>
<td>6</td>
<td>13.9</td>
</tr>
<tr>
<td>There is a trend to adopt a LMS but this is still in progress</td>
<td>6</td>
<td>13.9</td>
</tr>
<tr>
<td>University does not encourage the use of LMS as they fail in adopting it as it should be for different reasons, i.e. lack of LMS training courses, LMS interface has two languages (A&amp;E) which makes it difficult to use, LMS administrations do not run it as it should be, faculties’ policies do not encourage academics to use LMS, LMS mainly used for financial purposes, no response from technical support when needed, and university mainly used LMS for its reputation</td>
<td>8</td>
<td>18.6</td>
</tr>
</tbody>
</table>

What LMS is provided by your university/institution? Please tick all that apply

Two hundred and twenty-seven responses were received to the above question. The chart (Figure 28) shows that the largest group of the participants (26.8 per cent) indicated that their university adopted ‘Blackboard’. The second largest group (25.1 per cent) indicted that they did not know if they have LMS. The third group (9.2 per cent) indicated that their university adopted ‘Tadarus’ LMS, while 8.8 per cent of the participants specified that their university provided WebCT LMS, and 7.9 per cent of the participants pointed out that they have LMS but did not know its name. Another 7.9 per cent indicated that their university did not have LMS. Seven per cent of the participants specified that their university adopted ‘Jusur’ LMS. Finally, 6.1 per cent of the participants indicated that their university has LMS other than those mentioned in the question. A closer look at this 6.1 per cent (14 participants) response rate,
however, showed that none of their responses referred to LMS; they simply mentioned some other type of software.

**What are the tools provided within your LMS that you use in the teaching process?**

One hundred and eighteen participants responded to this question. Most of them chose more than one function. The chart presented above (Figure 29) shows that ‘PowerPoint’ is the most common LMS function used by participants with 60.1 per cent academics using it. ‘Messages’ are the second popular LMS function among participants (33.8 per cent). ‘Blogs’ are the least mentioned LMS function by participants (17.7 per cent). In contrast, 22 per cent of the participants indicated that they do not use any LMS function. Finally, 6.7 per cent (8 participants) indicated that they use other LMS functions. More particularly three participants did not mention what other LMS function they used. Two mentioned some software, which is not considered an LMS function, e.g. ‘Drop-Box’. A further two mentioned that they use ‘Announcements’ and one indicated that they use ‘Calendar’.

**Is there any ongoing support for the use of LMS when needed within your university/institution? Please tick all that apply**

![Figure 30 LMS ongoing support methods that are provided by academics participants' universities](image-url)
One hundred and thirty-five participants responded to this question. Some chose more than one method. The chart presented above (Figure 30) shows that 31.1 per cent of the participants indicated that their university provided support for the use of LMS by email; 29.6 per cent of the participants indicated that their university provided support for the use of LMS by phone; 23.7 per cent of the participants indicated that their university provided support for the use of LMS online, and 22.2 per cent of the participants specified that they did not know if their university provided any ongoing support for the use of LMS. On the other hand, 8.8 per cent of the participants specified that their university did not provide any ongoing support for the use of LMS. Finally, 11.1 per cent (15 participants) specified that their university provided support for the use of LMS other than the methods mentioned. More particularly two of the above 15 participants indicated that they asked for support in person. One participant said they asked for support through SMS. The rest (13) did not clarify what other ongoing support method their university provided.

**What other ongoing support methods for the use of LMS would you like to see in your university/institution?**

In this question, participants are given three open boxes to suggest ongoing support methods for the use of LMS other than what their universities already provided. Twenty-seven participants responded to this question. The table below (Table 35) groups the participants’ suggestions. The results show that 40.7 per cent suggested a unit in each faculty that involves full-time specialists in LMS technical issues, 22.2 per cent suggested online support, and 18.5 suggested lectures and workshops that that explain to academics how they overcome the main issues they could face when using LMS. The remaining participants suggested other methods for support, i.e. SMS, email system, develop a FAQ, brochures, and 24/7 direct phone line.

Table 35 Participants’ suggestions for LMS ongoing support methods other than those their universities already provided

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a unit in each faculty that involve full-time specialists in LMS</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>technical issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online support through the internet including live chat</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>Support through Short Messaging Service (SMS)</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Support through email system</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>Face-to-face support through lectures and workshops</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Develop a Frequently Asked Questions (FAQ) about issues that might be</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>faced when using LMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribute a brochure containing some information about how to use LMS</td>
<td>1</td>
<td>3.7</td>
</tr>
<tr>
<td>and who to talk to (and how) when facing problems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24/7 direct phone line</td>
<td>1</td>
<td>3.7</td>
</tr>
</tbody>
</table>
Do you ask your students to use LMS?

One hundred and eighteen participants responded to this question. The chart presented above (Figure 31) shows that 58.4 per cent of the participants indicated that they asked their students to use LMS while 41.5 per cent did not encourage their students to use it. In order to explain these responses the data were investigated by another question, which is analysed in the following chapter together with the interview analysis.

**Please explain why**

In this question, participants are given an open box to explain why they ask/do not ask their students to use LMS. Fifty-eight participants responded to this question. The table below (Table 36) groups the main reasons why academics participants ask/do not ask their students to use LMS. The results show that only 12 per cent of participants do not ask their students because they themselves do not use it or do not know how to use it. In contrast, the majority (63.6 per cent) of participants ask their students to use LMS for several reasons, e.g. they are convinced that it is an effective tool in the teaching and learning process, and make communication between academics and their students much easier. However, 24.1 per cent of participants indicated that they do not ask their students to use LMS because either they do not have one or did not have it yet.
Table 36 The reasons why academics ask/do not ask their students to use LMS

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not ask my students to use LMS because we do not have one/it is still in the preparation process</td>
<td>14</td>
<td>24.1</td>
</tr>
<tr>
<td>I do not ask my students to use LMS because I do not know how to use it</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>I do not ask my students to use LMS because I do not use it myself</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>I ask my students to use LMS because it makes the communication between us very easy</td>
<td>11</td>
<td>18.9</td>
</tr>
<tr>
<td>I ask my students to use LMS because LMS is an effective tool to improve the learning process/exchange information/collaboration learning/more interaction between the teachers and students and the students themselves/support students to understand the curriculum in greater depth</td>
<td>16</td>
<td>27.5</td>
</tr>
<tr>
<td>I ask my students to use LMS because it makes the learning process easier</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>I ask my students to use LMS because of the university regulations/I teach fully online courses</td>
<td>5</td>
<td>8.6</td>
</tr>
</tbody>
</table>

In your opinion, what are the most important benefits from using LMS in the teaching process?

In this question, participants are given five open boxes to state the most important benefits from using LMS in the teaching process: 141 participants responded to this question with more than one benefit from each. The table below (Table 37) summarises the benefits from using LMS from the academics’ perspectives. The results show that the main three benefits from using LMS from academics’ perspectives is that it makes teaching and learning easier (35.4 per cent), it offers chances to those who cannot attend classrooms physically (34.7 per cent), and improves communication between either teachers and students or students themselves or both (34.0 per cent).

Table 37 Academics’ opinions on the most important benefits from using LMS in the teaching process

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS is a valuable method for teaching and learning</td>
<td>47</td>
<td>33.3</td>
</tr>
<tr>
<td>LMS is a valuable method to improve the teaching and learning experience</td>
<td>27</td>
<td>19.1</td>
</tr>
<tr>
<td>LMS makes teaching and learning easier</td>
<td>50</td>
<td>35.4</td>
</tr>
<tr>
<td>LMS makes teaching and learning faster</td>
<td>11</td>
<td>7.8</td>
</tr>
<tr>
<td>Improves communication between either teachers and students or students themselves or both</td>
<td>48</td>
<td>34.0</td>
</tr>
<tr>
<td>LMS encourages and motivates students to study</td>
<td>32</td>
<td>22.6</td>
</tr>
<tr>
<td>Improve students’ self-study skills</td>
<td>7</td>
<td>4.9</td>
</tr>
<tr>
<td>Helps users keep up to date with technology</td>
<td>15</td>
<td>10.6</td>
</tr>
<tr>
<td>LMS offers chances to those who cannot attend classrooms physically</td>
<td>49</td>
<td>34.7</td>
</tr>
<tr>
<td>Decreases the teaching and learning costs</td>
<td>10</td>
<td>7.0</td>
</tr>
<tr>
<td>Saves time</td>
<td>33</td>
<td>23.4</td>
</tr>
<tr>
<td>I do not know</td>
<td>8</td>
<td>5.6</td>
</tr>
</tbody>
</table>
In your opinion, what are the most significant barriers against the use of LMS in teaching?

In this question, participants are given five open boxes to state the most significant barriers against the use of LMS in the teaching process: 129 participants responded to this question with more than one barrier from each. The table below (Table 38) summarises the barriers against the use of LMS from academics’ perspectives. The results show that the main four barriers against the use of LMS from academics’ perspectives are reported as technical problems (28.6 per cent), academics’ lack of or very little knowledge/experience in using LMS (27.9 per cent), lack of or poor LMS technical support when needed (22.4 per cent), and students’ lack of or very little knowledge/interest in using LMS (22.4 per cent).

Table 38 Academics’ opinions of the most significant barriers against the use of LMS in teaching

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of or poor LMS training courses for academics</td>
<td>28</td>
<td>21.7</td>
</tr>
<tr>
<td>Academics’ resistance or lack of or poor interest</td>
<td>16</td>
<td>12.4</td>
</tr>
<tr>
<td>Academics’ lack of or poor knowledge/experience of using LMS</td>
<td>36</td>
<td>27.9</td>
</tr>
<tr>
<td>LMS’s technical problems</td>
<td>37</td>
<td>28.6</td>
</tr>
<tr>
<td>Lack/poor of LMS technical support when needed</td>
<td>29</td>
<td>22.4</td>
</tr>
<tr>
<td>Students’ lack/poor of knowledge/interest in using LMS</td>
<td>29</td>
<td>22.4</td>
</tr>
<tr>
<td>Universities are one of the barriers to the use of LMS as they do not provide the infrastructure required, or fail to implement LMS as it should be, or do not provide financial/moral support for academics who use LMS</td>
<td>27</td>
<td>20.9</td>
</tr>
<tr>
<td>Lack of trainers who are qualified to provide training for academics</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Academics’ lack of time</td>
<td>9</td>
<td>6.9</td>
</tr>
<tr>
<td>LMS itself for more than one reason, i.e. LMS relies on the internet which is not always available for students either because of its cost or its poor infrastructure, LMS does not suit all subjects, LMS is difficult to use</td>
<td>24</td>
<td>18.6</td>
</tr>
<tr>
<td>I do not know</td>
<td>8</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Do you believe that LMS is more useful for some disciplines than others?

![Figure 32 Do academic participants believe that LMS is more useful for some disciplines than others?](image-url)
One hundred and sixty-eight participants responded to this question. The chart presented above (Figure 32) shows that the largest group of participants (56.5 per cent) believed that LMS is more useful for some disciplines than for others, while 22.6 per cent of the participants indicated that they do not know if LMS is more useful for some disciplines than for others. Finally, 20.8 per cent of the participants do not believe that LMS is more useful for some disciplines than for others.

Please explain your response

In this question, participants are given an open box to explain their response either if they believe that LMS is more useful for some disciplines than others, and 66 participants responded to this question. The table below (Table 39) groups the main academics’ responses. The results show that the majority of participants (69.6 per cent) believe that LMS does not fit all disciplines. In contrast, only 22.7 per cent believe that LMS is useful with all disciplines. Finally, 7.5 per cent think that using LMS is significant in some disciplines.

Table 39 Participants’ opinions in variations in fields of study and LMS

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS is useful with all disciplines as long as academics use it appropriately</td>
<td>15</td>
<td>22.7</td>
</tr>
<tr>
<td>LMS is not useful with practical disciplines</td>
<td>24</td>
<td>36.3</td>
</tr>
<tr>
<td>LMS is more useful with some disciplines than others</td>
<td>22</td>
<td>33.3</td>
</tr>
<tr>
<td>Using LMS is significant in some disciplines</td>
<td>5</td>
<td>7.5</td>
</tr>
</tbody>
</table>

What do you think the future will be with LMS in Saudi Higher Education?

This open question was posed to those who have been using LMS at some stage. Respondents were provided an open space to express their views. Table 40 shows that only two (1.6 per cent) of the participants who have used LMS believe that LMS do not offer a promising future for the HE sector. This is in opposition to the majority of responses (90.6 per cent) who believe that LMS do have a positive influence on the future of HE. Nonetheless, 16.1 per cent of the 90.6 per cent included recommendations or conditions for LMS adoption in universities in order for them to succeed, such as providing more intense LMS training for academics in order that LMS is used properly.
Table 40 Participants’ future thoughts of LMS in Saudi Higher Education

<table>
<thead>
<tr>
<th>Future Thought</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promising</td>
<td>88</td>
<td>74.5</td>
</tr>
<tr>
<td>Promising if further steps are implemented</td>
<td>19</td>
<td>16.1</td>
</tr>
<tr>
<td>I do not know</td>
<td>9</td>
<td>7.6</td>
</tr>
<tr>
<td>Unpromising</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>Has no future</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

What do you think the future should be with LMS in Saudi Higher Education?

This open question was put to those who have used LMS at some stage. Respondents were provided an open space to express their views. Table 41 shows that only one (0.9 per cent) of the participants who have used LMS believes that LMS should not be used in Saudi HE. This is in opposition to the majority of responses (88.2 per cent) who believe that LMSs should be spared in Saudi HE. Nonetheless, 10.7 per cent of the participants believe that universities should be careful in using LMS and consider other elements, such as the benefits that students gain from these systems, and differences in disciplines.

Table 41 Participants’ opinions in what the future should be with LMS in Saudi Higher Education

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS should be spread more in Saudi HE</td>
<td>86</td>
<td>84.3</td>
</tr>
<tr>
<td>LMS should be spread gradually in Saudi HE</td>
<td>4</td>
<td>3.9</td>
</tr>
<tr>
<td>Universities should be careful in using LMS as it is not always suitable</td>
<td>11</td>
<td>10.7</td>
</tr>
<tr>
<td>LMS should not be used in Saudi HE</td>
<td>1</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Please add any other comments/suggestions that you feel will inform this research

This last question was included to offer the participants an opportunity to add any other comments/suggestions that they feel would inform this research. Only 32 participants responded to this question. The table below (Table 42) summarises the participants’ main comments and suggestions. The largest group of participants (40.6 per cent) suggested that universities need to provide more LMS training courses for academics.

Table 42 Participants’ comments/suggestions for this research

<table>
<thead>
<tr>
<th>Comment</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities need to provide more LMS training courses for academics</td>
<td>13</td>
<td>40.6</td>
</tr>
<tr>
<td>Universities should encourage the use of LMS</td>
<td>7</td>
<td>21.8</td>
</tr>
<tr>
<td>Universities leaders lack, or have very little of knowledge about LMS and its importance</td>
<td>2</td>
<td>6.25</td>
</tr>
<tr>
<td>Academics and students struggle with the technical problems and poor support relating to the use of LMS</td>
<td>2</td>
<td>6.25</td>
</tr>
<tr>
<td>There is lack of knowledge in using LMS among academics</td>
<td>4</td>
<td>12.5</td>
</tr>
<tr>
<td>There is lack of knowledge in using LMS among students</td>
<td>4</td>
<td>12.5</td>
</tr>
</tbody>
</table>
The above data are the findings from the academics’ questionnaires, and these are analysed in section (5.4).

**Undergraduate students’ questionnaire results**

This section presents data from the undergraduate students’ questionnaire.

**Gender**

There were 1818 participants who responded to this question. Table 43 below shows that the percentage of females who participated in the undergraduate students’ questionnaire (51.7 per cent) is slightly higher than males (48.2 per cent).

**Age range**

A total of 1,840 student participants responded to this question. Table 43 below shows that the largest group of participants - 36.2 per cent - are in the age range 24 to 30, followed by those in the age range 31 to 40 with a percentage of 26.5 per cent. The third largest group, 22.3 per cent, are in the age range 20 to 23, followed by those in the age range of 19 or less, at 9 per cent. This is followed by a group with a percentage of 5.3 per cent in the age range 41 to 50 and finally there is a group with a percentage of 0.4 per cent who are 51 years old or more.

Table 43 Undergraduate student participants’ demographic results

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>878</td>
<td>48.2%</td>
</tr>
<tr>
<td>Female</td>
<td>940</td>
<td>51.7%</td>
</tr>
<tr>
<td>Age range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 or less</td>
<td>166</td>
<td>9.0%</td>
</tr>
<tr>
<td>20-23</td>
<td>411</td>
<td>22.3%</td>
</tr>
<tr>
<td>24-30</td>
<td>667</td>
<td>36.2%</td>
</tr>
<tr>
<td>31-40</td>
<td>489</td>
<td>26.5%</td>
</tr>
<tr>
<td>41-50</td>
<td>98</td>
<td>5.3%</td>
</tr>
<tr>
<td>51 or more</td>
<td>9</td>
<td>0.4%</td>
</tr>
<tr>
<td>Which year/level are you in?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>786</td>
<td>42.2%</td>
</tr>
<tr>
<td>Second year</td>
<td>385</td>
<td>21.0%</td>
</tr>
<tr>
<td>Third year</td>
<td>330</td>
<td>18.0%</td>
</tr>
<tr>
<td>Fourth year or more</td>
<td>332</td>
<td>18.1%</td>
</tr>
<tr>
<td>Your discipline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arabic Language</td>
<td>20</td>
<td>1.0%</td>
</tr>
<tr>
<td>Business and Law</td>
<td>1010</td>
<td>55.0%</td>
</tr>
<tr>
<td>Discipline/Program</td>
<td>Frequency</td>
<td>Per cent</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>Computer Science and Technology</td>
<td>11</td>
<td>0.5%</td>
</tr>
<tr>
<td>Education Studies</td>
<td>42</td>
<td>2.2%</td>
</tr>
<tr>
<td>Engineering</td>
<td>13</td>
<td>0.7%</td>
</tr>
<tr>
<td>Foreign Languages</td>
<td>9</td>
<td>0.4%</td>
</tr>
<tr>
<td>Islamic Studies</td>
<td>446</td>
<td>24.3%</td>
</tr>
<tr>
<td>Medical and Health Science</td>
<td>12</td>
<td>0.6%</td>
</tr>
<tr>
<td>Science Studies</td>
<td>26</td>
<td>1.4%</td>
</tr>
<tr>
<td>Social Studies</td>
<td>70</td>
<td>3.8%</td>
</tr>
<tr>
<td>Foundation Year</td>
<td>150</td>
<td>8.1%</td>
</tr>
<tr>
<td>Other discipline</td>
<td>25</td>
<td>1.3%</td>
</tr>
<tr>
<td>Your university/institution name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Princess Nora University</td>
<td>211</td>
<td>11.4%</td>
</tr>
<tr>
<td>Al-Imam University</td>
<td>1565</td>
<td>85.1%</td>
</tr>
<tr>
<td>University of Dammam</td>
<td>10</td>
<td>0.5%</td>
</tr>
<tr>
<td>Al Baha University</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>3</td>
<td>0.1%</td>
</tr>
<tr>
<td>College of Technology</td>
<td>5</td>
<td>0.2%</td>
</tr>
<tr>
<td>King Abdulaziz University</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>King Fahd University of Petroleum and Minerals</td>
<td>3</td>
<td>0.1%</td>
</tr>
<tr>
<td>King Faisal University</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>King Khalid University</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>King Saud University</td>
<td>18</td>
<td>0.9%</td>
</tr>
<tr>
<td>Prince Mohammad Bin Fahd University</td>
<td>7</td>
<td>0.3%</td>
</tr>
<tr>
<td>Prince Sultan University</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>Qassim University</td>
<td>7</td>
<td>0.3%</td>
</tr>
<tr>
<td>University of the Northern border</td>
<td>1</td>
<td>0.05%</td>
</tr>
<tr>
<td>Other university/institution</td>
<td>4</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

**Undergraduate students’ year/level**

A total of 1,833 participants responded to this question. Table 43 above shows that the largest group of the participants are in their first year (42.8 per cent). The second largest group of students who participated in the questionnaire are in their second year (21 per cent). The third group are in their fourth year or more (18.1 per cent) and slightly less in their third year (18 per cent).

**Undergraduate students’ discipline**

A total of 1,834 participants responded to this question. Table 43 above shows that the largest group from the participants are from Business and Law (55 per cent), which is slightly above half of the all participants. The second largest group are from Islamic Studies (24.3 per cent), followed by those in the Foundation Year (8.1 per cent). Social Studies and Education Studies
were represented with 3.8 per cent and 2.2 per cent respectively. Finally, there were groups of disciplines, which were convergent in their ratios (Table 43).

**Undergraduate students’ universities’/institutions’ names**

A total of 1,839 participants responded to this question. Table 43 above shows that the majority of the students who participated in answering the questionnaire are from the AIU (85.1 per cent). The second group are from the PNU (11.4 per cent), followed by those from King Saud University (0.9 per cent). The fourth group from UOD (0.5 per cent) is followed by Prince Mohammad Bin Fahd University (0.3 per cent) and Qassim University (0.3 per cent). Finally, there are groups of five or less from different universities, which are convergent in the ratios (Table 43).

**What LMS is provided by your university/institution? Please tick all that apply**

In total, 1,770 participants responded to this question. A few chose more than one answer. Figure 33 above shows that the majority of the student participants (75.6 per cent) indicated that the LMS provided by their university is ‘Tadarus’. The second largest group (13.7 per cent) indicated that they do not know whether they have LMS or not. The third largest group of students (4.2 per cent) indicated that they have LMS but they do not know its name, while 3.4 per cent of the participants specified that their universities provide ‘Blackboard’ as a LMS. Two per cent indicated that their universities do not provide any LMS. ‘Moodle’ and ‘WebCT’ are equal in their spread among participants’ universities (1 per cent) each, and 0.7 per cent of the participants indicated that they have other LMS, while 0.6 per cent indicated that their universities provide ‘Jusur’ LMS.
Please indicate how useful you think the LMS is for supporting your study

A total of 1,360 students responded to this question. Figure 34 above shows that the largest group of the participants students (48.6 per cent) think that LMS is ‘very useful’ for supporting their study. The second largest group of the participants (38.9 per cent) indicated that LMS is ‘useful’ for supporting their study, while 8.6 per cent of the participants indicated that they are ‘neutral’ toward this question. Finally, only 1.9 per cent of the participants indicated that LMS is ‘very useless’ for supporting their study while 1.6 per cent specified that LMS is ‘useless’ for supporting their study.

![Figure 34 How useful students think the LMS are for supporting their study](image)

Please explain why you think that LMS is very useful, useful, neutral, useless or very useless

There were 672 responses to this question. Table 44 groups the main reasons why the participants think that LMS is ‘very useful’, ‘useful’, ‘neutral’, ‘useless’ or ‘very useless’ for supporting their studies. The table is divided into two sections: 1) the reasons why students think LMS ‘very useful’/’useful’ and 2) the reasons why they think LMS ‘very useless’/’useless’.

Table 44 The reasons why students think that LMS is useful/useless for supporting their study process

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMS is useful because it makes the learning process easy and simple and saves time</td>
<td>204</td>
<td>30.3</td>
</tr>
<tr>
<td>LMS is useful because it ensures learning materials are available all the time</td>
<td>20</td>
<td>2.9</td>
</tr>
<tr>
<td>LMS is useful because it is as good as face-to-face learning</td>
<td>11</td>
<td>1.6</td>
</tr>
<tr>
<td>LMS is useful because it encourages self-learning</td>
<td>14</td>
<td>2.0</td>
</tr>
<tr>
<td>LMS is useful because it develops my technology skills</td>
<td>13</td>
<td>1.9</td>
</tr>
<tr>
<td>LMS is useful because it makes communications with academic staff easier</td>
<td>54</td>
<td>8.0</td>
</tr>
<tr>
<td>LMS is useful because I cannot attend because I have a job or family circumstances or live some distance from the university</td>
<td>232</td>
<td>34.5</td>
</tr>
</tbody>
</table>
LMS is useful in the learning process because it helps me understand the subject and its requirements

LMS is not useful because of the many related technical problems

LMS is not useful because it is difficult to deal with, and I do not understand how to use it

LMS is not useful because of the instructors' lack of interaction

LMS is not useful due to a number of defects which mean it is not a suitable alternative for face-to-face learning

Distance education through LMS is not useful because its degree is less valued than degrees obtained through traditional learning

What makes you use the LMS? Please tick all that apply

There were 1,422 participants who responded to this question. Some of them chose more than one reason. Figure 35 below shows that the just above half of participants (53.0 per cent) indicated that ‘University’s regulation’ is the reason why they use LMS. The second largest group (48.5 per cent) indicated that ‘self-motivation’ is the reason why they use LMS. The third largest group (11.3 per cent) indicated that reasons other than those mentioned in the questions make them use LMS. These reasons are explained by the next question. Finally, 9.0 per cent of the participants indicated that ‘the instructor of the course’ is the reason why they use LMS.

What makes you use LMS other than the reasons mentioned in the previous question?

In response to this question, there were different expressions, which can be formulated into a single cause. Below (Table 45) is the formulated single cause in addition to the frequency and percentage of the participants’ responses to this question.
Table 45 What are the reasons other than University's regulations, self-motivation, and the instructor of the course that make students use LMS?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid I use LMS because I have to, as I am studying as a distance-learning student undertaking &quot;completely online learning&quot;</td>
<td>162</td>
<td>8.7% of the total participants (1848)</td>
</tr>
</tbody>
</table>

In your opinion, what is your teacher’s attitude towards using LMS?

A total of 1,394 participants responded to this question. Figure 36 below shows that the largest group of the participants (42.7 per cent) indicated that their instructors encourage the use of LMS but do not require them to use it. The second largest group of participants (41.0 per cent) specified that they are ignorant of their instructors’ attitudes towards using LMS; while 10.2 per cent indicated that their instructors do not show any interest in using LMS and 5.6 per cent indicated that their instructors set assessments based on their students’ use of LMS. In contrast, only four participants indicated that their instructors are against the use of LMS.

Please provide further explanation of the instructor's/teacher's role in using LMS in your education

In total, 298 participants responded to this question. Figure 37 below grouped the participants’ opinions relating to their belief in their instructors’ roles in using LMS. The responses are divided under three opinions: 1) Instructors are interacting in using LMS (59.0 per cent), 2) Instructors are not interacting in using LMS (35.9 per cent), and 3) Instructors need to improve their skills in using LMS (5.0 per cent).
Please add any further information/comments about your experience in LMS that you think might be of interest to this research

A total of 467 participants responded to this question. Table 46 below grouped the participants’ responses under two sections: 1) positive experience in using LMS (97.2 per cent) and 2) negative experience in using LMS (2.7 per cent).

Table 46 Participants' experience in using LMS

<table>
<thead>
<tr>
<th>Experience in using LMS</th>
<th>Frequency</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive experience in using LMS</td>
<td>350</td>
<td>18.9</td>
</tr>
<tr>
<td>Positive experience in using LMS but it needs some improvements to overcome some technical and other problems</td>
<td>58</td>
<td>3.1</td>
</tr>
<tr>
<td>Positive experiences in using LMS but instructors need to improve their skills to use it to its best advantage</td>
<td>26</td>
<td>1.4</td>
</tr>
<tr>
<td>Positive experiences in using LMS but as a student I face difficulties in using it</td>
<td>12</td>
<td>0.6</td>
</tr>
<tr>
<td>Positive experiences in using LMS but it is not as good as face-to-face learning</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>Negative experience in using LMS</td>
<td>9</td>
<td>0.5</td>
</tr>
<tr>
<td>Negative experiences in using LMS due to technical problems</td>
<td>4</td>
<td>0.2</td>
</tr>
</tbody>
</table>

The above were the students’ questionnaire findings. An analysis of these is presented in 5.5.
Appendix 13
Published papers abstracts

(1)

EARLY IMPLEMENTATION STAGES OF LEARNING MANAGEMENT SYSTEMS (LMSS) BY ACADEMICS: THE CASE OF SAUDI UNIVERSITIES

Alshammari\(^1\), M., Howley, R., Leigh, M., and Hall, R.

Centre for Computing and Social Responsibility, Faculty of Technology, De Montfort University, Leicester, UK

\( ^1 \)mailto:mohammed.alshammari@myemail.dmu.ac.uk

Abstract

This paper is drawn from PhD research currently in progress; it investigates the early adaptation stages of Learning Management Systems (LMS) in Saudi Universities by academics. The study argues that academics are the essence of any educational process and play a vital role in an educational environment, for this reason they are in the centre of the investigation. In the study, four areas are investigated, that is; 1) academics’ awareness of LMSs, 2) the level of LMS usage by academics, 3) the amount of training that academics undertake to support their use of LMSs and the use of its tools, and 4) academics’ expectations of LMSs in the future. These areas were investigated in three Saudi Universities, and data was gathered through both quantitative and qualitative methods. To commence the study, a literature review was undertaken followed by the development and implementation of an online questionnaire. The results show that the majority of academics participating in this research were not aware of LMSs’ objectives and functions, and have never used one. The results also show that most of the academic participants have not attended any LMS’ training; however, those who attended one or more LMS’ training course implemented some of the tools provided within LMSs more than those who did not attend any training. With regards to their view of the future; academics believe that LMSs will have positive contribution to make in the fields of Saudi Higher Education; nonetheless, they do not really have a clear understanding of where it is heading and what are the true objectives of adopting LMSs it in their universities. This study provides insight into the environment surrounding the early adaptation of LMSs in Saudi HE institutes, which can support a better approach towards implementing these systems in similar contexts.

Keywords: Academic staff, Learning Management System (LMS), training academics, Saudi Universities, Higher Education, E-Learning, Saudi Arabia.

Learning Management Systems in Saudi Universities: Training and Implementation through Academics

Alshammari, Mohammed Saleh and Howley, Richard Graham
Centre for Computing and Social Responsibility,
Faculty of Technology
De Montfort University
Leicester. UK

Abstract: This article is withdrawn from a PhD research in progress. It investigates the relation between the amount of training provided for academic staff to support their use of Learning Management Systems (LMS), and the use of LMSs’ tools. The relation is examined through quantitative data gathered from three Saudi Universities; 1) Princess Nora University (PNU), 2) Al-Imam University (AIU), and 3) University of Dammam (UOD). To commence the study, a literature review was undertaken followed by the development and implementation of an online questionnaire. The results show that the majority of participants have not attend any LMS’s training, however, those who attended one or more LMS’s training course implemented the tools provided within LMSs more than those who did not attend any training.

Keywords: Learning Management System (LMS), academic staff, training academics, Saudi Universities, Higher Education, e-learning, Saudi Arabia.

Empirical Implementation of Questionnaires in Grounded Theory Research^3

Alshammari, Mohammed Saleh and Howley, Richard Graham
Centre for Computing and Social Responsibility,
Faculty of Technology
De Montfort University
Leicester. UK

Abstract: Although literature on grounded theory (GT) research methodologies suggest that it can be based on either qualitative or quantitative data; the majority of studies are of a qualitative nature. Moreover, the methods and processes explained for GT research mainly focus on techniques used for collecting and analysing qualitative data, for example, although questionnaires are suggested as a data gathering method in GT research; hardly any details on the application of this technique can been allocated. Therefore, the objective of this article is to examine this gap in GT research methods by experimenting the use of questionnaires for gathering both quantitative and qualitative data in Information System research. This article is withdrawn from a PhD research in progress, questionnaires were employed as part of the data gathering techniques, the implementation method and outcomes are discussed along with the issues faced during the process, finally, recommendations towards employing questionnaires for gathering GT data in future studies are suggested.

Keywords:

1. Introduction
Grounded theory (GT) is a popular approach that has been used widely during recent decades. Glaser and Strauss developed it in 1967 through their book ‘The discovery of Grounded Theory’. It was initially created as a reaction to the ‘logic-deductive’ approach, which does not engage with the real world (Denscombe, 2010, p. 106,117). GT is described as “a strategy for handling data in research, providing modes of conceptualisations for describing and explaining” (Glaser and Strauss, 1967, p. 3). It follows an inductive approach that is used to generate theory rather than being based on a priori or self-evident suggestion.