



**Investigating the Success of E-Learning in Secondary
Schools: The Case of the Kingdom of Bahrain**

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

By

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Abstract

As a result of the advances in information and communication technology, E-Learning has been integrated as an essential element in educational settings. Despite its successful implementation, a significant number of E-Learning projects fail to achieve their goals. This has motivated researchers and practitioners to study the reasons for failure and success and the factors that impact E-Learning. This research attempts to investigate the factors that influence the implementation and development of E-Learning and the most appropriate framework for secondary schools in Bahrain. The research adopted a quantitative approach to examine both teachers' and students' perceptions of critical factors in secondary schools in the Kingdom of Bahrain. A total of 540 respondents completed the survey-based questionnaire. The results revealed that there are four sets of factors which influence the success of E-Learning in the school education sector. These are: students' characteristics (computers skills; motivation and attitudes); teachers' characteristics (attitudes; control of technology and pedagogy and teaching style); technology (quality of technology and effectiveness of infrastructure) and design and content (perceived ease of use and quality of content). In addition, the findings show that there are some differences in perceptions amongst teachers according to gender, specialization, teaching experience and E-Learning experience. Similarly, the findings show that there are some differences in perceptions amongst students according to gender, specialization and level of study (years in school). The main contribution of this research is that it addresses the success of E-Learning in the schools sector in Bahrain and in the Arab region as this area of research lacks theoretical and empirical studies. In addition, the research proposes a conceptual framework that integrates the critical factors and demographic variables. The proposed conceptual framework contributes to the knowledge of E-Learning success by creating a guide for educational institutions and governments for better development and implementation, serving as a planning tool for new E-Learning projects and as an assessment mode for the efficacy of existing projects.

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CHAPTER 1: Introduction

1.1 Introduction

The advances in information and communication technology have stimulated progress in various areas such as the economy, business, communication, health, training and education. Since its inception in 1990, E-Learning has grown rapidly and education has been motivated to adopt E-Learning to transform traditional learning environments and create more efficient and attractive learning experiences. E-Learning is a direct result of the amalgamation of technology and education, which enables the creation of innovative research and delivery mechanisms which is one of the features of modern learning, and the main focus of this research. The fields of learning and education have benefited from electronic delivery to overcome obstacles of time, space and geography providing learning opportunities for anyone, anytime, anywhere, and in any mode (Rajasingham, 2009). Therefore, E-Learning creates a platform to create knowledge-based communities as a source of education as well as to redesign the future of the nation and achieve educational security (UNESCO, 2005).

E-Learning provides a new generation of learning that could help educational settings to achieve a variety of objectives (Vrana et al., 2006). E-Learning stimulates the learning experience through collaboration by enabling the delivery of resource-rich educational content encouraging interaction between teachers and students (Zhang et al., 2004) and empowering learners to manage their learning modes and create meaningful learning environments. E-Learning assembles a new educational context, develops new roles for teachers, provides more options for students and constructs learning environments that promote and enhance the learning experience. According to Jethro et al. (2012) E-Learning provides new and creative ways of motivating and engaging learners to develop their interests based on their educational potential, allows learners to arrange the content and knowledge for their own needs and

learning styles, improves the quality of the learning experience and supports learning by offering differentiated learning.

Additionally, according to Al-Harbi (2010) E-Learning transcends temporal and geographical barriers by offering learning anytime and anywhere; students can access not only the course materials, but also a massive amount of information from the internet relevant to their studies at anytime and from anywhere. E-Learning can be scheduled to meet the needs of the learner and is the encouragement of lifelong learning. E-Learning has the ability to bring together two paradoxical concepts, independence and collaboration (Asiri et al., 2012). E-Learning also supports synchronous and asynchronous communications in various formats ranging from text, voice and video, which means connecting people in personal and public ways and so nurturing both independence and social interdependence simultaneously as well as developing students' understanding and enriching their educational experiences (Al-Harbi, 2010).

Although E-Learning is widely accepted as a learning and instruction approach, there are various definitions for it. Govindasamy (2002) defined E-Learning as an “instruction delivered via all electronic media including the internet, intranets, extranets, satellite broadcasts, audio/video tape, interactive TV, and CD-ROM”. Khan (2005) viewed E-Learning as an “innovative approach for delivering a well-designed, learner-centred, interactive, and facilitated learning environment to anyone, anyplace, anytime, by utilising the attributes and resources of various digital technologies along with other forms of learning materials suited for open and distributed learning environment”. In addition, Bhuasiri et al. (2012) defined E-Learning as an “innovative approach to education delivery via electronic forms of information that enhance the learner’s knowledge, skills, or other performance”. E-Learning is about delivering the learning and teaching process to enhance the quality of learning and to improve the performance of learners. It is the concept that enhances educational reform by creating a paradigm shift from teacher-centred and retention-based education to a student-centred education where students work collaboratively, construct their own knowledge, and enhance problem solving and higher-order thinking skills.

1.2 Problem Statement

E-Learning has been integrated into many educational institutions to reap the benefits of the rapid developments in technology that assist in improving the learning experience and increasing its efficacy. Significant progress has been made in E-Learning in the last couple of decades and the rate of adoption of E-Learning in educational institutions has exceeded 35% (Al-Marabeh and Mohammad, 2013; Sun et al., 2008; Levy 2007). E-Learning has increasingly been integrated into educational institutions. It has transformed the learning and teaching processes, created new opportunities for secondary school students and has had an impact on the development of a student's personality. It has improved students' interaction and communication skills and has enabled them to learn, work and prepare for competitive job requirements as well as university studies and to live successfully in a knowledge-based and global society (Newhouse, 2002; Vrana et al., 2006). However, although E-Learning has been successfully implemented in many educational settings, the implementation of E-Learning projects can face slow progress and many E-Learning initiatives are not sustained (Liaw, 2008; Neyland, 2011; Frimpon, 2012). The dropout rates in E-Learning particularly in the developed world are usually much higher than in traditional classroom based teaching (Ibrahim et al., 2007; Andersson, 2008). The percentage of dropouts from course units provided within an E-Learning environment ranges between 20 and 40% (Rostaminezhad et al., 2013; Kim and Park, 2011; Sun et al., 2008; Ibrahim et al., 2007; Levy, 2007).

It is documented in a significant number of articles that problems and major challenges to E-Learning projects face are related to institutions (administrative, academic affairs, and student services), management (maintenance of E-Learning environments and distribution of information), technology (infrastructure planning and hardware and software), pedagogy (teaching and learning), ethics (learner diversity; social, cultural, political, and geographical diversity; legal issues; and protocols), interface (the overall look and feel of E-Learning programmes), resource support (the support and resources needed to promote learning) and evaluation (judgements about the progress of learners and the effectiveness of the E-Learning environment) (Khan 2005; El-Gamal and Abd El- Aziz, 2011; Alkharang and Ghinea, 2013). Further research into the factors of E-Learning implementation would help to

eliminate obstacles and challenges that may hinder E-Learning projects from achieving their goals and benefits. It is asserted from the literature that E-Learning is a concept that has been implemented in higher education. However, taking into consideration the nature of learners in a knowledge-based economy and the learning societies as well as the nature of key players (students and teachers) in the digital era, E-Learning should also be considered an essential element in the school education sector (Vrana et al., 2006).

Identifying the successful implementation and development of E-Learning projects and examining critical success factors is one method of increasing the percentage of success and effectiveness and of minimising the percentage of failure in these projects. Such an approach is believed to overcome different types of obstacles and challenges when implementing and developing E-Learning such as focusing on the technological aspect of E-Learning and neglecting other dimensions of E-Learning such as human and individual characteristics, content and design and the administrative and guidance aspects, which include support and assistance. Therefore, the literature in the field of E-Learning has witnessed increasing academic and practical contributions to the subject.

A number of researchers have addressed the subject of enhancing E-Learning implementation success (Masoumi, 2006; Selim, 2007; Sun et al., 2008; Al-Harbi, 2010; Hammoud, 2010; Al-Fadhli 2011; Ali and Ahmad, 2011; Musa and Othman, 2012; Taha, 2013). These studies were developed within the context of higher education from the perceptions of either students or teachers. Conversely, the implementation and development of E-Learning in the school education sector suffers from a shortage of academic and practical literature compared to the situation in higher education. There is also a lack of academic and practical studies that involve both stakeholders (students and teachers) for a more comprehensive overview of the obstacles to the educational process.

In particular, there is little empirical research that has attempted to develop a conceptual framework to examine the success of E-Learning implementation (Sun et al., 2008). There is therefore a need for a conceptual framework that can be used to identify the factors that result

in the success of E-Learning (Al-Sabawy, 2011; Wagner et al, 2009). Furthermore, much of the research on the implementation of E-Learning has largely focused on higher education rather than the school sector, even though E-Learning implementation in the school sector faces many challenges and obstacles such as ICT infrastructure, school support human capacity teachers attitudes and learners readiness (Ajelabi and Agbatogun, 2010; Redempta and Elizabeth, 2012; Mulwa and Kyalo, 2013).

Moreover, the majority of the research has largely focused on students or teachers only, even though both students and teachers play a crucial role in E-Learning (Kituyi and Tusubira, 2013). Therefore, there is a need to investigate the perceptions of both students and teachers (Penna and Stara, 2008; Umrani-Khan and Iyer, 2009). Thus, this research focuses on both students and teachers. Understanding why the students and teachers adopt or reject E-Learning will help to create a more favourable learning environment for greater adoption and implementation, as well as help to develop a conceptual framework to promote its success and effectiveness (Al-Harbi, 2010). Predominantly, when a new system is introduced, a greater understanding of the factors affecting its implementation and development will lead to an improvement of development, deployment and implementation. Likewise, careful consideration of the factors affecting E-Learning implementation is important to avoid a failed of E-Learning projects (Salmon, 2005; Ozkan and Koseler, 2009; Al-Harbi, 2010; Shroff et al., 2011; Alsabawy et al. 2013).

Furthermore, the overwhelming majority of the studies have been conducted on E-Learning in developed countries. Only a few have been conducted in developing countries of the world especially in the Arab region (Abbad et al., 2009; AbuSneineh and Zairi, 2010; Al-Fadhli, 2008). However, there is no basis to conclude that findings from developed countries may be applicable to other regions (see Abouchdid and Eid, 2004), but given the advanced state of e-learning this research is considered in Section 2.5. According to “E-Learning and Globalization Report- 2013” in the Arab region, governments and institutions should consider three essential facets in E-Learning. These are as follows: firstly, the transfer to E-Learning has become a vital aspect practically in the Arab region because it provided learning

environments with technologies and a variety of educational opportunities for students, teachers as well as leaders in educational settings. Secondly, the Arab region should benefit from this global trend in the age of information revolution in order to create an Arabic capacity and experience which enhance transferring the traditional Arabic school environment to the E-Learning environment, which will improve students' outcomes. Thirdly, the transfer to E-Learning requires a redesign of the learning process and a change in the role of students from passive to active learners. In addition, it is very important to recognize the students' characteristics and build the capacity of teachers to ensure the success of E-Learning. Thus, the shift to E-Learning will be an effective element in achieving the educational reform and improvements.

Motivated by the features and benefits of E-Learning, Ministries of Education in different Arab countries implemented E-Learning either in higher education or the school sector. For example, the Ministry of Education in the Kingdom of Bahrain has deployed E-Learning projects in all secondary schools. Projects, like King Hamad's Schools of the Future Project (KHSFP), aim to empower future generations with essential skills necessary to transform the Kingdom of Bahrain into a knowledge-based economy and develop digital literacy (Ministry of Education in Bahrain, 2003). The major problems E-Learning projects in the Arab region are facing are related to a shortage in user awareness, attitudes and motivation, lack of a conceptual framework, absence of a clear vision and strategy, insufficient ICT infrastructure, lack of adequate internet connectivity, lack of technical and administrative support, and lack of E-Learning repositories that contain educational material and content in the Arabic language (Al-Ammary and Hamad, 2008; Al-Harbi, 2010; AL-Fadhli, 2011; Zewayed et al., 2011). Thus, there is a great need for more research in this context to better understand and implement E-Learning. In this view, the current study seeks to shed light on the success of E-Learning in the Kingdom of Bahrain and enrich the literature on E-Learning with studies from Arab countries. In addition, the current study creates a conceptual framework which identifies the factors that influence the success of E-Learning in secondary schools. It hoped that this research will provide significant information to promote the successful and effective implementation of E-Learning within Bahraini schools.

1.3 Aim and Objectives

Prior studies have emphasised the importance of E-Learning success, yet there is a lack of clarity about how E-Learning could be implemented successfully and effectively. Moreover, little systematic empirical research has been directed towards a thorough investigation and analysis of key factors that impact E-Learning success. The primary aim of this research is, therefore, to investigate the factors that influence the implementation and development of E-Learning and the most appropriate framework for secondary schools in Bahrain.

The above aim drives development of a conceptual framework that can be used as a frame of reference by government and school educational settings which seek to implement and develop E-Learning projects and initiatives in Bahrain. It is hoped that this conceptual framework will contribute to the field of E-Learning by helping to establish a better understanding in the field of E-Learning, and in particular the issues surrounding implementation and development in a Bahrain context. Further, it is proposed that this conceptual framework could serve as a decision-making framework for practitioners in their efforts to implement and develop E-Learning in the Kingdom of Bahrain and in the Arab region. The conceptual framework will integrate critical E-Learning factors and independent demographic variables for both teachers and students as a way to understand the successful implementation and development of E-Learning in school education. This research will contribute to the current knowledge about E-Learning success in general and the current situation of E-Learning in the school education sector. The importance of this research is generated from the absence of studies that focus on E-Learning frameworks and critical factors as a way to leverage the success rate and effectiveness of E-Learning projects in school education. Given this context, this thesis aims to answer the following questions as follows:

- What are the critical factors that influence the success of E-Learning?
- How do the teachers and students differ in their perceptions of critical E-Learning factors?

- How do the teachers differ in their perceptions of critical E-Learning factors based on selected demographics (e.g., gender, specialization, teaching experience and E-Learning experience)?
- How do the students differ in their perceptions of critical E-Learning factors based on selected demographics (e.g., gender, level of study (years in school) and specialization)?

To achieve the research aim, and attempt to answer the research questions, the following research objectives will be pursued:

- To critically analyse the literature on E-Learning.
- To identify critical factors that influence the success of E-Learning.
- To develop a conceptual framework that integrates critical E-Learning factors and demographic variables.
- To revise and modify the conceptual framework for the successful implementation of E-Learning in the educational sector.

1.4 Research Methodology

Since this study aims to investigate the factors that impact on the success of E-Learning, the research methodology chosen for the present study was a quantitative approach and the data was collected by survey. The quantitative research methods were originally developed within the natural sciences to study natural phenomena (Bryman and Bell, 2007). This approach of research mainly emphasises the use of measurement to describe objects and relationships under study (Saunders et al, 2009). Furthermore, quantitative researchers are often independent of the context of study and they aim for large numbers of context stripped data, and seek statistical significance. Therefore, the survey adopted is considered the most appropriate technique in this study. The questionnaire was developed using a Likert type scale, ranging from (1) strongly disagree to (5) strongly agree. A pre-testing of the questionnaire was conducted in order to ensure that there was no ambiguity in the questions and that the

respondents felt no difficulty in understanding them. Then the instrument was pilot tested for the assessment of the psychometric properties of the measurement items. However, among those questionnaires that were returned, 20 responses were discarded because six of them were returned completely blank, six respondents had put the same answers on all the Likert scale items, and six questionnaires were partially answered (i.e. some questions and / or some parts of the questionnaire such as demographic questions were left blank). Therefore, the remaining 540 questionnaires were used for further data analysis. All of these valid responses were coded into Statistical Package for the Social Sciences (SPSS) version 17.0 for statistical analysis and a significant level of $p < 0.05$ was adopted for the study. Descriptive analysis was performed using SPSS and Analysis of Variance (ANOVA) and T-test.

1.5 Thesis Plan

Chapter 1 outlines the background of the research and describes the aims and the objectives of the research. It also highlights the research methodology and then identifies the research plan. Chapter 2 focuses on the concept of E-Learning, its definitions, benefits and challenges. It also discusses and identifies the critical factors in E-Learning. Finally, it outlines the gaps in the literature that are to be filled by the research contributions. Chapter 3 reviews the theoretical E-Learning frameworks presented in previous studies. Hence the chapter develops and proposes a conceptual framework for E-Learning that integrates critical E-Learning factors, and demographic variables.

The development of the conceptual framework will go through the following steps: identifying the stakeholders (key players) in secondary school, both teachers and students, defining the critical E-Learning factors, and identifying the demographic variables of the teachers and students. Chapter 4 justifies the selection of the research approach, strategy and methodology. It then discusses the development of data collection instruments and the data analysis tools. Chapter 5 presents the results and findings obtained from quantitative data sources. Statistical software analysis using SPSS was applied to analyse the data. Chapter 6 discusses the research findings in the light of the problem identified in Chapter 1. Additionally, it revises the conceptual framework for E-Learning success. Chapter 7 presents the conclusion of this study,

including the contribution of the research, the recommendations and implications, and the limitations of the study as well as guidance for future research. The thesis plan is illustrated in Figure 1.1.

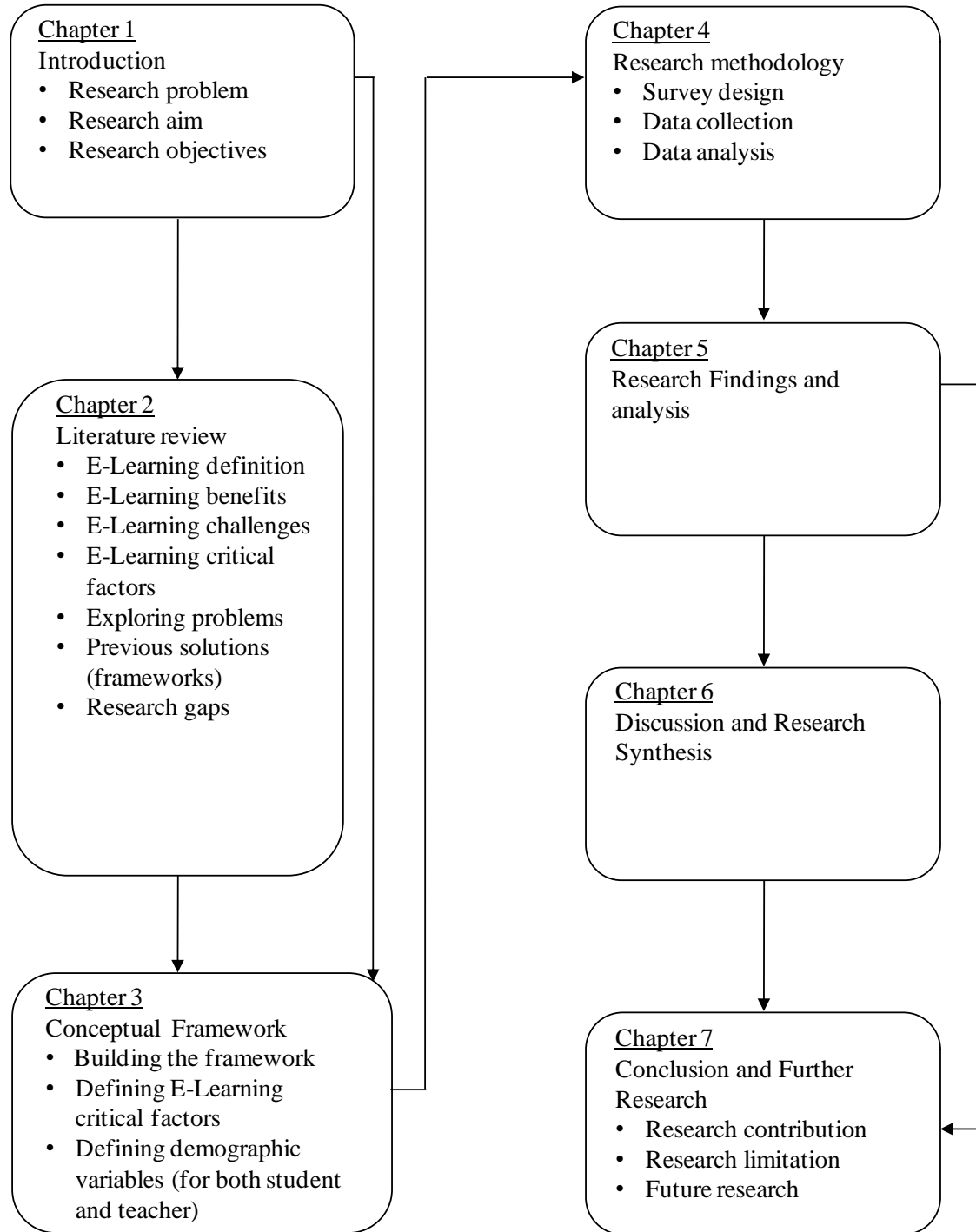


Figure 1.1: Thesis Plan

CHAPTER 2: Literature Review

2.1 Introduction

E-Learning has been integrated into many educational institutions to reap the benefits of the rapid developments in technology that assist in improving the learning experience and increasing its efficacy. As a result, many governments and educational institutions implement E-Learning in order to improve learners' performance. The Sloan consortium Report mentioned that over 6.1 million students in the United States have taken an online course during fall 2010 and over 65% of higher educational institutions regarded E-Learning as an essential element of their long-term strategy (Allen & Seaman, 2011). Significant progress has been made in E-Learning in the last couple of decades and the rate of adoption of E-Learning in educational institutions has exceeded 35% and 40% (Levy 2007; Sun et al., 2008; Frimpon, 2012; Al-Marabeh and Mohammad, 2013).

Although E-Learning has been successfully implemented in many educational settings, the implementation of E-Learning projects can face slow progress (Liaw, 2008; Neyland, 2011; Frimpon, 2012). The dropout rates of E-Learning education particularly in the developed world are usually much higher than of traditional classroom based teaching (Ibrahim et al., 2007; Andersson, 2008). The percentage of dropouts from course units provided within an E-Learning environment ranges between 20 and 40% (Rostaminezhad al., 2013; Kim and Park, 2011; Park and Choi, 2009; Sun et al., 2008; Ibrahim et al., 2007; Levy, 2007).

However, the misconception regarding the implementation process of and use of E-Learning has caused many these projects to fail by not reaching the full potential of E-Learning, or to witness halted progress in the educational process (Sela and Sivan, 2009; Frimpon, 2012). According to a Hackett Group report, E-Learning projects fail at an alarming rate of 30% and

the percentage of dropouts from course units provided within an E-Learning environment ranges between 20 and 40% (Levy 2007; Sela and Sivan, 2009; Frimpon, 2012).

Additionally, a study conducted by (Al-Shboul and Al-Smadi, 2010) about the adoption of E-Learning in Jordan indicated that the expectations in using E-Learning in higher education institutions are still below the international level. The high failure rate shows that, like many other technical systems, E-Learning is not an out-of-the-box solution and must be carefully planned prior to deployment to consider all major components to enhance strengths while identifying weaknesses to eliminate obstacles. The challenges facing E-Learning range between technological, administrative, organisational and human aspects of E-Learning. These challenges and their variables must be identified and controlled to eliminate undesired results and hindrances. Therefore, there is a need to identify critical elements that impact E-Learning to create a conceptual framework that includes major components and drivers of E-Learning, in order to plan a comprehensive solution to the challenges that face online learning environments.

The chapter is designed as follows: Section 2.2 discusses the various definitions of E-Learning in order to identify the scope of the E-Learning definition for this research as well as to provide an overview of E-Learning benefits, features and challenges. Section 2.3 discusses in detail the critical factors of E-Learning. Section 2.4 presents the demographics as moderator variables. Section 2.5 presents previous attempts to investigate the critical factors of E-Learning in developed countries. Section 2.6 presents previous attempts to investigate the critical factors of E-Learning in the Arab region. Finally, the conclusion of the chapter is presented in section 2.7.

2.2 E-Learning Overview

2.2.1 E-Learning Definitions

Since the inception of E-Learning in 1990, E-Learning has become a core element in the educational process, transforming traditional learning environments to integrate technology to create more efficient and attractive learning experiences. Before E-Learning was widely

adopted as the name for electronic learning, various other names were used and are references in the literature of other researchers: web-based learning (WBL), web-based instruction (WBI), web-based training (WBT), Internet-based training (IBT), distributed learning (DL), advanced distributed learning (ADL), distance learning (DL), online learning (OL), mobile learning (m-learning), nomadic learning, remote learning, off-site learning. It is necessary to define E-Learning to develop a clear understanding and vision of E-Learning for institutions and educational settings, while the shortage of such clear understanding is considered as a barrier to successfully implementing E-Learning. This is significant when considering the wide range of E-Learning definitions (Govindasamy, 2002; Khan, 2005; Masrom, 2007).

Many researchers and practitioners from the fields of information and communication technology, computer science, education and educational technology have contributed to defining the concept of E-Learning. E-Learning is claimed to be the new generation's mode of learning and education and also considered as a new pattern to deliver information in the educational field (Vrana et al., 2006; Malik, 2010; Bhuasiri et al., 2012; Odunaike et al., 2013). On the other hand information systems and computer science researchers such as: Berteau 2009; Selim, 2007; Al-Yaseen et al., 2012; Al-Homod and Shafi, 2013, have also tackled E-Learning definitions. The differences in perspectives in defining E-Learning could be a result of a new emergence of the concept into the different fields of study: information and communication technology, computer science, education and educational technology (Wagner et al., 2008; Ozkan and Koseler, 2009; Al-Homod and Shafi, 2013).

Govindasamy (2002) defined E-Learning as instruction delivered via all electronic media including the Internet, Intranets, extranets, satellite broadcasts, audio/video tape, interactive TV, and CD-ROM. In support of this point of view, Wagner et al. (2008) have referred to E-Learning as the use of the Internet, Intranet, extranet, audio- and videotape, satellite broadcast, interactive TV, and CD-ROM. In support of this view, Ozkan and Koseler (2009) have defined E-Learning as the use of electronic devices for learning, including the delivery of content via electronic media such as the internet, audio and video, satellite broadcast, interactive TV, and CD-ROM.

In addition, Al-Homod and Shafi (2013) have defined E-Learning as an educational system that delivers information using information technology resources such as the Internet, intranet, satellite broadcast and multimedia applications. The above mentioned examples of E-Learning definitions show a lack of consensus on E-Learning, which could lead to minimising or even neglecting other dimensions or facets of E-Learning such as content delivery and individuals' characteristics and interaction.

On the other hand, Khan (2005) has defined E-Learning as an innovative approach for delivering a well-designed, learner-centred, interactive, and facilitated learning environment to anyone, anywhere, anytime, by utilising the attributes and resources of various digital technologies along with other forms of learning materials suited for open and distributed learning environment. Agreeing with the previous view, Mbarek and Zaddem (2013) referred to E-Learning as an educational and learning instruction supported by the use of information communication technology (ICT), allowing learners to acquire new knowledge and skills delivered electronically any time and from any place. Additionally, Vrana et al. (2006) have defined E-Learning as interactive learning in which the learning content is available online and provides automatic feedback to the student's learning activities.

The definitions also differ depending on E-Learning perspectives as well as the goals of institutions and educational settings. Table 2.1 illustrates the different definitions of E-Learning found in the literature in order to explore the main E-Learning characteristics identified from those definitions.

Author(s)	Definition of E-Learning
Govindasamy (2002)	Includes instruction delivered via all electronic media including the Internet, intranets, extranets, satellite broadcasts, audio/video tape, interactive TV, and CD-ROM.
Khan (2005)	Innovative approach for delivering a well-designed, learner-centred, interactive, and facilitated learning environment to anyone, anywhere, anytime, by utilising the attributes and resources of various digital technologies along with other forms of learning materials suited for open and distributed learning environment.
Vrana et al. (2006)	Interactive learning in which the learning content is available online and provides automatic feedback to the student's learning activities.
Masrom (2007)	Any learning that is done using an Internet or intranet connection.

Author(s)	Definition of E-Learning
Wagner et al. (2008)	The use of the internet, intranets/extranets, audio- and videotape, satellite broadcast, interactive TV, and CD-ROM, not only for content delivery, but also for interaction among participants.
Okiki (2011)	The use of network technologies to create, foster, deliver and facilitate learning anytime and anywhere.
Bhuasiri et al. (2012)	An innovative approach to education delivery via electronic forms of information that enhance the learner's knowledge, skills, or other performance.
Mbarek and Zaddem (2013)	An educational and learning instruction supported by the use of the ICT, allowing learners to acquire new knowledge and skills delivered electronically without worrying about the space-time shift.

Table 2.1: Definitions of E-Learning

It is noted from reviewing the previous definitions, that some of the definitions focus on the use of ICT for delivering learning processes (technical perspective), while others focus on the role of technology to support learning and the process of learning, and the benefit of implementing E-Learning (learning perspective). In the context of this study, E-Learning can be defined as educational and learning instruction supported by the use of information communication technology tools and applications which allow learners to acquire new knowledge and skills, and support teaching and learning processes, deliver content and enhance interactive learning among students and teachers. In essence, E-Learning in this research refers to the use of the technology tools and applications as either a resource utilised by the students to aid their study or as a means for delivering learning courses and content. Our definition of E-Learning is thus very similar to that of Mbarek and Zaddem (2013) and Vrana et al. (2006).

2.2.2 E-Learning Benefits

It is important to cover briefly the major benefits of E-Learning in order to provide a context aimed at explaining why E-Learning is crucial for the development of the learning process and the reasons why E-Learning provides more efficient learning environments compared with the traditional learning experience. E-Learning is rapidly growing as an acceptable way of education. Remarkable progress has been made in E-Learning over the last few decades. E-Learning provides a wealth of benefits which serve the main educational stakeholders in the learning environment, namely students and teachers (Al-Harbi, 2010; Bhuasiri et al., 2012;

Alkharang and Ghinea, 2013; Al-Marabeh and Mohammad, 2013). These include an increased accessibility to information, better content delivery, personalized instruction, content standardization, accountability, on-demand availability, self-pacing, interactivity, confidence, and increased convenience. E-Learning reduces costs, enables a consistent delivery of content, and improves tracking. The benefits of E-Learning can be summarized in three advantages as follows:

- *Delivering Effective Learning*

E-Learning has the potential to create successful and meaningful learning environments that motivate the learners and offer powerful tools for interaction and communication. Al-Harbi, (2010) argues that in an E-Learning course, using stimulations created by software, such as Flash and Shockwave can support the cognitive work of analyzing data, manipulating models and exploring ideas and concepts (Khan, 2005). In addition, using multimedia enrichment resources develops the learners' understanding and enriches their educational experiences (Al-Harbi, 2010). E-Learning also creates an opportunity for learners to learn according to their individual learning styles and preferred cognitive style, be it visual, audio or text oriented, and allows learners to arrange the content and knowledge for their own needs and learning styles, and to improve the quality of learning experience and support learning by offering differentiated learning (Jethro et al., 2012). Ibrahim et al., (2007) report that the learner must be responsible for actively seeking solutions to problems contained within the course framework and through knowledge generation as students generate and construct their own knowledge in line with the guidance and help them receive from the instructor.

- *Enabling Interaction and Communication*

E-Learning has the potential to enhance the traditional communication patterns between students and teachers and students themselves by creating a new learning environment. Mahdizadeh et al., (2008) specified that the relationship between teachers and students is no longer a one-way relationship, but rather it is about creating more collaboration and interaction between students to increase their participation and involvement in the classroom. E-Learning can be more flexible and often involves technologies such as audio-chatting, video-

conferencing and online discussion, which provide learners the opportunity to interact with teachers and other students effectively and flexibly (Al-Adwan and Samedly, 2012). The literature highlights that the role of teachers and students is changing under the impact of the new learning environment (McGhee and Kozma, 2003). These changes have repercussions on the roles of both teachers as well as students. McGhee and Kozma, (2003) and Dargham et al., (2012) suggested that students play a vital role in collaborative learning environments as they participate in discussions among the whole class or within smaller groups, search for information and exchange opinions with their peers, where there is both shared and individual responsibility for their success in the learning process. They also pointed out that students work collaboratively with other students and with their teachers to achieve success, and that their role of team member is supported through the use of communication hardware and software.

Additionally, Dargham et al., (2012) suggested that teachers play a vital role in E-Learning as collaborators. Additionally, they explained that teachers work with other teachers to create a variety of activities and to improve the instruction process. They also work with students to achieve the same ends. Vrana et al., (2006) and Al-Homod and Shafi, (2013) argued that providing teachers and students with opportunities to interact, collaborate and use educational technologies improves students' participation in the educational process (Vrana et al., 2006; Ibrahim et al., 2007). This indicates that E-Learning creates real prospects for learners and teachers to get more involved in the learning process by allowing them to share their ideas and suggestions in different E-Learning modes (synchronous and asynchronous E-Learning). Moreover, E-Learning environments encourage students to construct knowledge and to communicate with the teacher to enhance learning experience and educational performance (Yongsheng et al., 2012).

- *Providing Flexibility in Learning Delivery*

One of the main potentials of E-Learning is flexibility. The literature indicates that educational settings have been found to share certain common beliefs about the practical benefits that E-Learning can provide in delivering flexible learning. As John Chambers, president and CEO of

Cisco Systems stated; "There are two fundamental equalizers in life: the Internet and Education. E-Learning eliminates the barriers of time and distance, creating universal, learning-on-demand opportunities for people, companies and countries." Al-Harbi (2010) supports the idea that E-Learning transcends time and geographical barriers and offers new learning environments. Alkharang and Ghinea, (2013) and Kwofie and Henten, (2011) also agree with this concept and mention that the key benefit of E-Learning is the provision of flexibility. In this context, many researchers support the fact that E-Learning projects provide flexibility and offer improved learning environments by focusing on learning without any bounded geographical location (Asiri et al., 2012; Odunaike et al., 2013; Al-Yaseen et al., 2012). Kwofie and Henten, (2011) suggested that the flexibility of E-Learning can be provided by the various forms of learning materials which allow the learner to select from a variety of options based on their needs and demands (Mapuva, 2009). Dargham et al., (2012) specified that the flexibility of E-Learning consist of different aspects relating to time, place and online feedback, as they increase the opportunities for life-long learning.

This indicates that E-Learning implementation and development can generate flexible learning environments, bring together different people from different locations and increase accessibility to information. Al-Adwan and Smedly (2012) supported some of the above benefits of E-Learning as they pointed out that E-Learning provides the opportunity to interact between teachers and students at any mode and from any source (Rajasingham, 2009).

2.2.3 E-Learning Challenges

While E-Learning provides several benefits to educational settings which enhance the quality of education and develop the learning environments, conversely there remain many challenges which hinder the exploration and utilization of its opportunities (Abdelraheem, 2006; Mapuva, 2009; Kwofie and Henten, 2011; Bhuasiri et al., 2012; Alkharang and Ghinea, 2013). The multidimensionality of E-Learning projects denotes the existence of an extensive multiplicity of challenges that hinder implementation and development (Andersson, 2008). For example, as reported by Kwofie and Henten (2011) E-Learning is costly, involves conflict priorities, and requires technical and academic confidence, social support and motivation, technical skill

and competency, and a stable technical infrastructure. Implementing E-Learning necessitates the examination of the following crucial factors: cost, time, technology, attitudes, management awareness and support and language (Alkharang and Ghinea, 2013). Furthermore, inherent issues of E-Learning include: ICT infrastructure, accessibility issues, quality and efficiency of E-Learning, usefulness of technology, and pedagogical consideration (Mapuva, 2009). Additionally, Bhuasiri et al. (2012) highlighted that the crucial factors of E-Learning include: learners' characteristics and motivation, instructors' characteristics, E-Learning environment, institution and service quality, infrastructure and system quality, and course and information quality.

The literature indicates that there are various challenges to E-Learning initiatives and projects. These can be categorized into the following groupings: human (individuals), technological, institutional and organizational, environmental, managerial and pedagogical, and ethical (Khan, 2005; Andersson and Gronlund, 2009). For example, Alkharang and Ghinea (2013) put forward their work on E-Learning barriers and challenges and grouped them into three categories: management (management awareness and support), technical (bandwidth, Internet speed technology infrastructure, computer and network security, privacy and data confidentiality) and language issues. Abdelraheem (2006) highlighted the challenges facing the implementation of E-Learning in the Arab Countries as follows: ICT infrastructure, culture, leadership and E-Learning strategy, local content, copyright issues and instructors and learners.

Literature indicates that there are various challenges to E-Learning initiatives and projects in general and in the Arab region in particular. Al-Adwan and Smedley (2012) support some of the previously mentioned challenges defined by Abdelraheem (2006) as they pointed out the following barriers to E-Learning implementation: lack of appropriate infrastructure for ICT development, culture, lack of support, lack of technical skills, and motivation. Other evidence supporting previous challenges and barriers is found in the work of Rhema and Miliszewska (2010) as follows: cultural differences and sensitivities of E-Learning users, language barriers, attitudes towards E-Learning, awareness and motivation which affect students' satisfaction

and capacity, technological challenges, and lack of management support, and curriculum development. Al-Tameem (2013) pointed out the challenges facing E-Learning as follows: lack of adequate ICT infrastructure, security of the system, lack of efficient support and lack of efficient access.

Furthermore, several governments and educational settings have set up E-Learning initiatives and projects both in higher education and in school education. For example, the Ministry of Education in the Kingdom of Bahrain has launched the King Hamad Future School Project. The Ministry of Education in Kuwait has launched a provision plan for broadband Internet access to schools. The Ministry of Education in the United Arab Emirates has launched the project of Smart Schools, and so have the Ministries of Education in the Kingdom of Saudi Arabia, Egypt and Jordan. All these projects and initiatives aim to improve the learning and teaching process and to achieve quality education. Al-Malki and Williams (2012) assert that many E-Learning efforts and projects have been obstructed by various challenges, in particular in the Arab region.

In addition, Al-Malki and Williams (2012) also reported that for E-Learning initiatives to be successful, teachers, school institutions have to be attended to. Andersson (2008) explained that the challenges of E-Learning in developing countries are categorized into eight domains, as follows: student, teacher, technology, institutions, cost, course, support and society. As a result, there is a need to investigate these different issues to overcome the challenges that E-Learning initiatives can encounter. However, to achieve the benefits and goals of E-Learning initiatives and consequently the success of E-Learning, it is essential to investigate the factors of E-Learning success in order to increase the effectiveness of E-Learning implementation within educational settings, and eventually improvements in the quality of E-Learning education.

The aforementioned elements highlight the obstacles and challenges of implementing E-Learning in the Arab region. Such obstacles should be resolved by focusing on success factors to create a conceptual framework for a successful implementation of E-Learning. Such an

approach is the main focus of this research. The aforementioned benefits and challenges of E-Learning provide a brief mention of the changes that E-Learning can provide for educational institutions. A critical issue for E-Learning, and a motivation for this study, is the ability to create a successful E-Learning environment to continue effectively and efficiently in the long run. One of the most prominent mechanisms to create successful systems, not only for E-Learning but for any system with complex components, is to examine the Critical Success Factors of the system and analyse each factor to yield the desired results, as will be examined in the following sections.

2.3 Critical Success Factors (CSFs)

2.3.1 Definition of a Critical Success Factor

To be able to assess E-Learning projects to identify strengths and weaknesses, the researcher utilised the concept of CSFs. CSFs provide insight into the relationship between factors with the greatest impact on the major components of any given system. Rockart (1982) identified the concept of CSFs as “the limited number of areas in which satisfactory results will ensure successful competitive performance for individual, department or organisation” and he added that CSFs are the few key areas where things must go right (Rockart 1982). Leidecker and Bruno (1984) and Boynton and Zmud (1984) affirmed that the CSFs are those few things, characteristics, conditions, or variables that when properly sustained, maintained, or managed can have a significant impact on the success of the system. In addition, Jafari et al., (2006) suggested that the CSFs are considered as a framework for strategic planning to direct stakeholders in determining those elements that must go right to succeed in achieving goals and objectives (Jafari et al., 2006). Frimpon (2011) considered CSFs as variables that are fundamental to the success of the implementation stage, and an organisation must handle CSFs well in order to have a successful implementation. It is evident from the previous definitions that CSFs are variables and features that must be considered carefully during the planning phase to ensure a robust execution of the project. Therefore, CSFs must be verifiable, controllable and measurable to dictate the success of the whole system.

2.3.2 Exploring Critical Factors Influencing E-Learning

In order to identify the critical factors that influence E-Learning, the researcher followed four steps: 1) A systematic analysis of the relevant studies in the E-learning literature were reviewed, which comprised a total of 33 studies that looked at E-Learning factors in both higher and further education; 2) Identify and calculate the frequency of the critical e-learning factors; 3) Categorize the factors according to the core components of the E-Learning environment, which are students, teachers and technology. The analysis of the study revealed an additional category of design and content; and 4) Categorised sub-factors under the main factors, which were renamed as follows: students' characteristics (computer skills, students' attitudes, and motivation), teachers' characteristics (teachers' attitudes, control of technology and pedagogy), technology (quality of technology, effectiveness of IT), and design and content (perceived ease of use and quality of content).

For example, with respect to step 1 -Selim, (2007) identified the following as E-Learning CSFs: students, teachers, information technology and institution support. Similarly, Frimpon, (2012) highlighted a number of success factors that influence E-Learning deployments as follows: student role, faculty role, technology role, and institution role. On the other hand, a number of studies such as Sun et al. (2008) concentrated on more technical factors or dimensions as requirements for E-Learning success: learner, instructors, course, technology, design and environment. Similarly, Malik, (2010) also identified the following factors: students, instructors, design, course and technical factors. In addition, Mosakhani and Jamporzmay (2010) identified the following as E-Learning CSFs: instructor characteristics, student characteristics, content quality, information technology quality, participant interaction, and educational institutes' support and knowledge management. Most of the studies stress the human aspect of E-Learning such as the student and faculty roles as being the most critical component for the success of E-Learning.

To summarise, previous studies have investigated the importance of critical factors in E-Learning implementation. For example, Selim (2007) identified students' characteristics as a major factor during the implementation and adoption of various integration technologies such

as E-Learning (Presley and Presley, 2009; Hammoud, 2010; Chokri, 2012; Taha, 2013). In addition, Al-Fadhli's (2008) study found that the teacher dimension is the most important factor in the E-Learning environment which directly influences the students' satisfaction (Sun et al., 2008; Chen et al., 2009; Wang and Wang, 2009; Owens and Price, 2010; Jan and Contreras, 2011; Musa and Othman, 2012). In terms of the technology factor Pituch and Lee (2006) showed that technology in general and the effectiveness of the technology employed is considered the most significant. These highly influence E-Learning acceptance. This finding is also supported by studies conducted by Volery and Lord, 2000; Masoumi, 2006; Selim, 2007; Abbad et al., 2009; AbuSneineh and Zairi, 2010; Al-Fadhli, 2011; and Musa and Othman, 2012, which indicated that technology plays an essential role in the successful implementation of E-Learning. The findings of the Masoumi (2006), Broadley (2007) and Selim (2007) studies revealed that the institutional support factor increased the use of E-Learning and enhanced the users' satisfaction and acceptance (Abdel-Wahab, 2008; Goi and Ng, 2009; Ahmed, 2010; Al-Harbi 2010; Mosakhani and Jamporzme, 2010).

Moreover, a study conducted by Al-Ammary and Hamad (2008) showed that the quality of the content factor had an effect on the use of E-Learning systems and has a direct influence on the satisfaction and success of E-Learning (Shee and Wang, 2008; Sun et al., 2008; Owens and Price, 2010 and Hassanzadeh et al., 2012). In term of perceived usefulness, Al-Harbi (2010) indicated that the perceived usefulness factor is positively associated with attitudes towards E-Learning. The finding implies that, in order to encourage favourable attitudes towards E-Learning, positive perceptions of the usefulness of E-Learning are crucial (Abdel-Wahab, 2008; Al-Ammary and Hamad, 2008). Al-Harbi (2010) also revealed that perceived ease of use significantly affects attitudes. The findings also showed that a user-friendly interface and features for E-Learning applications can maximise its implementation and use (Abdel-Wahab, 2008; Al-Ammary and Hamad, 2008; Johnson et al., 2008; Presley and Presley, 2009; Wang and Wang, 2009; Chen and Tseng, 2012). Previous studies indicated that interactive collaboration, which consists of class discussions and interaction, was the most important factor determining the acceptance of E-Learning (Selim, 2007; Johnson et al., 2008; Goi and Ng, 2009; Mosakhani and Jamporzme, 2010; and Musa and Othman, 2012). Similarity,

social presence, subjective norm, environment, assessment, community, knowledge management and perceived behavioural control are considered as influential factors that either directly or indirectly affect E-Learning implementation.

2.3.2.1 Student Characteristics

E-Learning is about using new technology to provide flexibility in learning to deliver and enable interaction and communication between students and teachers, and to deliver effective learning (Vrana et al., 2006; Ibrahim et al., 2007; Al-Harbi, 2010). Therefore, the progress and growth and implementation of E-Learning will greatly depend upon students' characteristics (Chen and Lin, 2002; Masoumi, 2006; Liaw et al., 2007; Al-Fadhli, 2009). A number of studies have examined the influence of the students' characteristics in E-Learning implementations. According to Selim (2007), the student factor is considered crucial to determine the acceptance of E-Learning technologies and tools. Also, the characteristics of students play an important role in the success of E-Learning implementation. One of the important factors that influence E-Learning is computer skills and competencies in order to be successful in the E-Learning era (Selim 2007). Students' characteristics commonly consist of computer skills, motivation and attitudes towards E-Learning (Selim 2007; Sun et al., 2008; Teo et al., 2011). Malik (2010) emphasises that the most critical skill for students is computer efficacy, which is necessary for engaging in online environments. A lack of computer skills leads to anxiety in the online experience and will result in the student's inability to reap the benefits of E-Learning (Selim, 2007).

Another factor that influences E-Learning implementation is students' attitudes towards E-Learning. Students' behaviour and attitude determine their satisfaction and acceptance of E-Learning; a more positive attitude towards a newly introduced technology enhances the experience and, ultimately, influences students' satisfaction rates (Malik, 2010; Friedrich and Horn, 2010; Zewayed et al., 2011). Fageeh (2011) also mentioned a strong correlation between a learner's attitude, enhanced communication and ease of technology. In addition, other researchers (Abdel-Wahab, 2008; Presley and Presley, 2009; Hammoud, 2010) also

concur that students' attitudes contribute significantly to the successful implementation of E-Learning. Moreover, Fageeh (2011) mentions other factors that determine the acceptance of technology by the learner: motivational and learner's control factors (Chen and Tseng, 2012). The following Table 2.2 shows the sub-factors related to students' characteristics that influence E-Learning.

Factor	Sub-factor	Resources
Students' Characteristics	Computer Skills	(Selim,2007;Al-Fadhli,2008;Zhu et al., 2009;Malik,2010; Musa and Othman,2012)
	Students' Attitude towards E-Learning	(Abdel-Wahab, 2008;Sun et al., 2008; Presley and Presley, 2009; Al-Harbi,2010; Hammoud,2010; MosakhaniandJampurazmey2010; Fageeh, 2011; Zewayed et al., 2011)
	Students' Motivation	(Selim, 2007; Sun et al., 2008; Zhu et al., 2009; Fageeh, 2011; Chen and Tseng, 2012;Zewayed et al., 2011)

Table 2.2: The Students' Characteristics Factor Influencing E-Learning

2.3.2.2 Teacher Characteristics

In an E-Learning environment, it is necessary for the instructor to acquire a new set of skills and roles since the latest technologies, and their rapid development, create challenges for adoption even though the same tools increase efficacy (Ali and Ahmad, 2011). In addition to students' characteristics, teachers' characteristics are also considered as an important factor that affects E-Learning. A number of studies investigated the influence of teacher's characteristics in E-Learning implementation. According to Chen et al. (2009) who investigated the students' perspective on Critical Success Factors in E-Learning, the participants who completed the questionnaire were 46 adult students selected from National Open University in Taiwan that attended a training program about distance learning. The results revealed that the instructor was the most important factor influencing E-Learning projects and the students believed that instructors must approach E-Learning in a friendly and energetic manner to create a positive E-Learning environment.

Other studies (Volery and Lord, 2000; Govindasamy, 2002; Bolliger and Martindale, 2004; Sun et al., 2008) suggested the significance of instructor's characteristics, attitude, and

teaching styles, as the instructors play a key role in learning activities in interaction between the students themselves, and between the students and the teachers, and in the traditional role of guiding the learning process. Ali and Ahmad (2011) mentioned that there is a relationship between student satisfaction and instructors' performance and student-instructor interaction in a distance learning environment. Ali and Ahmad's (2011) study results closely echo those of the previous results mentioned in this section: the instructor's conduct influenced the student-instructor interaction and the student's acceptance of and satisfaction with the learning experience.

Moreover, the study discussed the aspects of teachers' characteristics that influence E-Learning: teachers' availability for consultation and their readiness to provide feedback and answer questions (especially in distance education) is crucial for the success of the learning experience. Moreover, Chen et al. (2009) emphasised that the instructor was the most important factor influencing E-Learning projects and students believe that instructors must approach E-Learning in a friendly and energetic manner to create a positive E-Learning environment. However, these findings are in line with that of studies by Selim (2007) and McPherson and Nunest (2008), which indicated that the teaching style and methods applied during the instruction process, and collaboration and interaction during the instruction process also increased the students' motivation and attitudes towards E-Learning and improved the students' satisfaction.

These results are generally consistent with research on the impact of teachers' characteristics on E-Learning (Al-Fadhli 2009; Goi and Ng, 2009; Ferdousi, 2009; Friedrich and Hron, 2010; Malik, 2010), which concludes that teachers' characteristics are an important contributor to the success of E-Learning implementation. Furthermore, Mosakhani and Jamporzmay (2010); Teo (2011); FitzPatrick (2012) reviewed the teachers' characteristics that influence in E-Learning and concluded that in any E-Learning environment, teachers' characteristics can be assumed to be an important factor in E-Learning and must be taken into consideration when implementing and developing successful and effectiveness E-Learning. The following Table

2.3 shows the sub-factors of the teachers' characteristics factor that influence E-Learning. Moreover, Chapter 3 discusses these factors in more details.

Factor	Sub-factor	Resources
Teachers' Characteristics	Teachers' Attitude towards E-Learning	(Selim,2007;Al-Fadhli,2008;Zhu et al., 2009;Malik,2010; Musa and Othman,2012)
	Pedagogy and Teaching style	(Chen and Kon, 2004; Salmon, 2005; Masoumi, 2006; Liaw et al., 2007; Selim, 2007; Mahdizadeh et al., 2008; McPherson and Nunest, 2008; AbuSneineh and Zairi, 2010; Hammoud, 2010).
	Control of Technology	(Selim, 2007;Malik and Mubeen, 2009; Malik, 2010))

Table 2.3: The Teachers' Characteristics Factor Influencing E-Learning

2.3.2.3 Technology

Technology is the core enabler of E-Learning. To achieve a successful implementation of E-Learning the quality of technology and the effectiveness of Information Technology need to be considered (Malik, 2010). Pituch and Lee (2006) studied the influence of interaction on students' intentions to use E-Learning. The results revealed that the functionality of the system, perceived usefulness, and perceived ease of use had the strongest effects on E-Learning for supplementary learning purposes. The results also indicated that system functionality and use for supplementary learning was the most important factor and had the strongest effect on E-Learning. Ahmed (2010) found that the technology infrastructure had significantly affected learners' decisions to accept a hybrid E-Learning course and it could increase the successful introduction of E-Learning and impact the attitudes of both groups of users: students and teachers.

In addition, Malik (2010) and Selim (2007) have reported that the quality of technology and the efficiency of the infrastructure encouraged students and teachers to interact with the multimedia resource in E-Learning environments and increased the satisfaction of the users with regard to E-Learning implementation. Friedrich and Hron (2010) pointed to a positive significant effect of technical variables on the perceived usefulness which successfully predicts students' acceptance of the E-Learning system. Zewayad et al. (2011) showed that the

perceived ease of use of the technology was found to be an important determinant that influenced students' intention to use the E-Learning system because it did not require advanced computer skills and competency.

The following Table 2.4 shows the sub-factors of technology that influence E-Learning.

Factor	Sub-Factors	Resources
Technology	Quality of Technology	(Ahmed, 2010; Malik,2010; Salmon, 2005; Selim,2007; Sun et al.,2008)
	Effectiveness of IT	(Pitch and Lee, 2006; Selim, 2007)

Table 2.4: The Technology Factor Influencing E-Learning

2.3.2.4 Design and Content

In addition to students' characteristics, teachers' characteristics, technology, content is also considered as significant factors that affect E-Learning (Zewayed et al., 2011; FitzPatrick, 2012; Hassanzadeh et al., 2012; Musa and Othman, 2012). Content characteristics include the accuracy, authenticity, accessibility, the design and the appropriateness of outputs (Al-Ammary and Hamad, 2008; Hassanzadeh et al., 2012). Several studies have investigated content and its effect in the success of E-Learning and have found that the quality of content influenced the learning experience and students' satisfaction with the E-Learning environment. Al-Ammary and Hamad (2008), for example, investigated the content quality factor affecting the acceptance and use of the E-Learning system at the University of Bahrain. The results showed that the content quality affect the perceived ease of use and perceived usefulness which, ultimately, affect students' performance. Similarly, Sun et al. (2008) found that the course quality is the most significant element of an E-Learning environment and also suggested that a well-designed delivery process, with appropriate assistance to students for meeting their needs, can increase students' confidence when using E-Learning environments. According to Hassanzadeh et al. (2012) showed that there is a direct correlation between the quality of content and a higher satisfaction with learning systems. Additionally, they suggested that the higher satisfaction rates lead to a more positive attitude towards the E-Learning environment to achieve better results: a higher quality of content encourages the reuse of the E-Learning environment and leads to a higher adoption and acceptance rate.

The aforementioned studies suggested that a higher quality of content provided to students enables them to fully absorb the delivered knowledge to meet their needs and demands while increasing the students' satisfaction towards E-Learning. The studies show that the content indirectly affects other factors (mentioned in previous sections) and sub-factors and, therefore, this indirect relationship must be examined further to uncover the possible subtle effects of content on E-Learning environments. The following Table 2.5 shows the sub factor of design and content that influences E-Learning.

Factor	Sub-Factors	Resources
Design and Content	Perceived Ease of Use	(Chen and Kon,2004; Lee,2006; Masoumi,2006; Pitch and Lee, 2006; Abdel-Wahab, 2008;Hammoud et al., 2008;Mahdizadeh et al., 2008; Sun et al., 2008; Friedrich & Horn, 2010;Owen and price, 2010;Chen and Tseng,2012)
	Quality of Content	(Selim,2007; Al-Ammary and Hamad, 2008; Shee and Wang,2008; Sun et al., 2008; Goi and Ng, 2009; Owen and Price, 2010; Hassanzadeh et al., 2012)

Table 2.5: The Design and Content Factor Influencing E-Learning

2.4 Demographics as Moderators

Much research has argued that examining individual differences, dimensions or aspects is a significant research area in E-Learning (Agarwal and Prasad, 1999; Moore et al., 2011). The term individual differences refers to “traits such as personality and demographic variables, as well as situational variables that account for differences attributable to circumstances such as experience and training” (Agarwal and Prasad, 1999). Much research is dedicated to investigating the relationship between individual differences and E-Learning development and implementation (Agarwal and Prasad, 1999; Ong and Lai, 2006; Sun and Zhang, 2006; Al-Harbi, 2010). Examples of individual differences researched in the E-Learning literature include gender (Coldwell et al., 2008; Jung, 2012; Okazaki and dos Santos, 2012), age (Coldwell et al., 2008), level of education (Islam et al. 2011) experience (Agboola, 2008; Al-Balawi and Badawi, 2008), cultural background (Coldwell et al., 2008) and geographic location (Jung, 2012). These demographic variables have been found to play a direct, indirect

or moderating role in relations with variables such as perceptions of E-Learning, acceptance of technology, and satisfaction (Agboola, 2008; Al-Balawi and Badawi, 2008; Okazaki and dos Santos, 2012).

Despite the significant role of the individual different variables in explaining the perceptions of E-Learning, there is a shortage of attention in the success of E-Learning frameworks (Agarwal and Prasad, 1999; Sun and Zhang, 2006). Only a few frameworks have addressed the issue of the influence of the demographic perceptions of E-Learning or moderate the relationship between intention and perceptions and other variables (Sun and Zhang, 2006). According to Taylor and Todd (1995) researchers have mostly taken a static view of the effect of the variables in acceptance and perceptions of E-Learning frameworks and models. Thus this research attempts to examine the effects of certain demographics on the links between the direct factors in the research conceptual framework and the success of E-Learning. Some demographics for both teachers and students have been selected in this study as follows: for teachers (gender, area of specialization, teaching experience and E-Learning experience) and for students (gender, different area of specialization or streams and year in school or level of study). These demographic variables will be discussed in detail in Chapter 3.

2.5 Review of E-Learning Critical Factors in Developed Countries

Numerous studies on the implementation of E-Learning and critical success factors have been conducted in the context of developed western societies. For example, Salmon (2005) in Australia proposed a four-quadrant model as a framework for an E-Learning strategy in Universities. Firstly, implementing technologies in an E-Learning environment requires careful planning, development and support in staff and teachers, and excellent provision of ICT within university systems. They also require insightful planning mission, objectives, student requirements and the resources for the support and development of the technology. Secondly, many new technologies are appropriate for off-campus use for dynamic delivery of content and the support of distance learning. Therefore, new understanding of the use of knowledge creation, sharing and sources that can be deployed and developing appropriate E-Learning pedagogy through evaluation, feedback and research. Staff development and new

systems and processes will be necessary for successful deployment of E-Learning. Thirdly, according to the study, every student, regardless of location or mode of learning, should receive equivalent services and learning experiences. Fourthly, universities should allow new strategies to emerge to support an assessment of effective directions and the associated challenges.

Alsabawy et al (2013) have studied the role of IT infrastructure services that influence the success of E-Learning systems in the context of an Australian university. The study proposed a model to evaluate the success of E-Learning systems. According to the study, the factors that were essential elements of successful for E-Learning system implementation were as follows: infrastructure services, perceived usefulness, user satisfaction, customer value and organizational value. In addition, the research highlighted the infrastructure services construct, which was a foundation to achieve the success of E-Learning systems via its impact on the usefulness, user satisfaction, and enhancing customer value. Moreover, the study pointed out the value from using E-Learning systems to academic staff was inadequate. Academic staff sometimes are not able to use some functions of the E-Learning systems and do not fully understand the purpose of these functions. Therefore, the shortfalls in experiences of using all the functions of E-Learning systems can affect both the quantity and quality of the benefits achieved by staff from use of this system. As a solution for this issue, the research proposed training courses to provide academic staff with experiences of using E-Learning systems that could be useful in educating them on the benefits. Additionally, more attention should be paid to the role of IT infrastructure services in supporting students in different directions. For instance, consider the students' evaluation and feedback about ICT division performance, adapting more channels to enable students to contact with ICT staff such as using chat, and provide students with some online courses or educational videos and lectures about using the E-Learning systems and the main functions in these systems.

In their study on the evaluation of E-Learning systems in the UK, Ozkan and Koseler (2009) developed a comprehensive E-Learning assessment model. The study proposed a hexagonal E-Learning assessment model (HELAM) suggesting a multi-dimensional approach for learning

management systems evaluation. According to the study, the factors influencing learners' satisfaction were: system quality, service quality, content quality, learner perspective, instructor attitudes, and supportive issues. Additionally, the research highlighted the role of the model played as a guidance tool to better understand e-learner's perceived satisfaction and increased improved of the use of learning management systems.

In another UK study conducted by Abu-Al-Aish and Love (2013) the factors influencing university students' acceptance of m-learning were investigated. The study proposed a model based on the unified theory of acceptance and use of technology (UTAUT) to identify the factors that influence the acceptance of m-learning in higher education and to investigate if prior experience of mobile devices affects the acceptance of m-learning. According to the study the factors that were significant affect behavioural intention to use m-learning were: performance expectancy, effort expectancy, influence of faculties, quality of service, and personal innovativeness. In addition, it has been found that prior experience of mobile devices was also found to moderate the effect of these constructs on behavioural intention. Moreover, the study suggested that higher education institutes need to develop strategic plans and provide guidelines considering students' acceptance in order to include all critical success factors for the sustainable deployment of m-learning in higher education.

In another stud, McGill et al (2014) reviewed 74 studies (64 projects) all from developed countries (USA, Australia, Greece, Spain and UK) to understand the continuation of E-Learning in universities. According to the review, the factors that impact the sustainability of E-Learning system implementation were: the availability of ongoing financial support, maturity, appropriately and stability of technology, skills and sufficient training to teachers. Moreover, the study highlighted the importance for participants in local level E-Learning initiatives in developing an initiative that meets the needs of teachers and learners. In addition, plans for continuation need to include plans for financial and technological sustainability. Overall, there are many common factors for the development and implementation of E-Learning in developed countries. Primarily, quality of service, quality of content, effectiveness of technology and user satisfaction are key factors for the successful implementation of E-

Learning and can be considered in the context of related work in developing countries, discussed next.

2.6 Review of E-Learning Critical Factors Studies in Developing Countries (Arab Region)

In recent years, Arab countries implemented E-Learning in educational settings both in higher education and school education in order to meet the needs of students and to enhance the requirements of teachers. The research into critical factors of E-Learning in the Arab region is discussed in the following sections.

Abdel-Wahab (2008) has conducted a study to examine factors that can predict students' behavioural intentions (BI) to adopt E-Learning at an Egyptian University through exploring the university students' attitudes towards E-Learning, and the factors that can be used in predicting students' intentions to adopt E-Learning. According to the study the following factors were strong indicators of students' adoption of E-Learning: attitude towards E-Learning, usefulness of E-Learning, ease of use, resources availability and pressure to use.

In their study on critical factors of E-Learning in the Arab region, Abbad et al. (2009) investigated the key factors affecting students' adoption of an E-Learning system in the Arab Open University in Jordan and identified the relationship among the factors. For the purpose of this study an extended Technology Acceptance Model approach (TAM) was developed, which included subjective norm, experience of Internet, system interactivity, self-efficacy and technical support with relation to perceived usefulness, perceived ease to use and intention to use. According to the study, self-efficacy is an important factor of perceived ease of use. The research also revealed that self-efficacy had a strong direct effect on perceived ease of use. Additionally, the results indicated that students' prior Internet experience had a statistically significant influence towards perceived ease of use but not perceived usefulness. However, the results did not provide any evidence that system interactivity affects students' adoption of E-Learning. Moreover, the results indicated that perceptions of the level of technical support

available to users were found to have a direct effect on perceived usefulness and a reasonable indirect effect on intention to use. This research concluded as follows: firstly, the students who access the Internet frequently are more likely to use E-Learning systems. Secondly, the confidence of the students in their ability to use and benefit from the E-Learning system influences their adoption of the system. Thirdly, students are reassured by technical support availability. Finally, students considered the use of the E-Learning system when it is easy to use.

In another study that is associated with adoption of E-Learning in GCC countries, Al-Harbi (2010) investigated the factors that influence a students' intention to adopt E-Learning as a supplementary tool and for distance education within the Saudi higher education context. The researcher proposed a model based on the theory of Planned Behaviour in which the students' attitude Subjective Norm and Perceived Behavioural Control were determinants of the students' behavioural intention to adopt E-Learning. The research referred to Perceived Behavioural Control as the most significant factor influencing Saudi university students in E-Learning and distance education. Furthermore, the research indicated that for the adoption of E-Learning to supplement face-to-face study, subjective norm was the second important factor influencing students' decisions, followed by students' attitudes. On the other hand, in the context of adopting E-Learning for distance education, students' attitudes were more significant than the students' subjective norm.

Additionally, Ahmed (2010) conducted a study on implementing E-Learning in the United Arab Emirates University. The study examined the critical success factors that influence the hybrid E-Learning acceptance, which included instructor characteristics, information technology infrastructure and organizational and technical factors. The results found out that all the above-mentioned factors significantly and directly affected the learners' acceptance of a hybrid E-Learning course. The results also indicated that the information technology infrastructure and organizational and technical factors were considered as the most important and significant factor that affected the success and acceptance of E-Learning. In line with the findings of Al-Fadhli (2011) who carried out a study in Kuwait University, the research found

out that computer self-competency, technological factors, social environment and instructor characteristics were considered as important and significant factors that affect successful E-Learning implementation.

In their study on E-Learning in Bahrain, Al-Ammary and Hamad (2008) investigated the factors affecting the acceptance and use of the E-Learning system at the University of Bahrain. Based on the extension of the Technology Acceptance Model (TAM), four factors, including computer self-efficacy, content quality, and subjective norm and cultural which affect the intention to accept the E-Learning system, were examined. The results found that perceived usefulness and perceived ease of use have a great positive effect on the student's behavioural intention to use E-Learning systems in the University of Bahrain. The findings revealed that the quality of content and computer self-efficacy have a positive indirect effect on the behavioural intention to use E-Learning systems, through perceived usefulness and perceived ease of use. However, subjective norms have been considered as an important predictor for the behavioural intention to use the E-Learning system as it has shown a great direct and indirect effect on the behavioural intention through perceived usefulness.

In another study associated with acceptance of E-Learning in schools in Bahrain, Zewayed et al. (2011) investigated and measured students' acceptance of E-Learning in Bahrain's secondary schools. For the purpose of this study, an extended version of the Technology Acceptance Model (TAM) was adopted and beside the basic beliefs, "perceived usefulness and perceived ease of use" incorporated in the TAM, two other factors were introduced into the model. These factors were perceived enjoyment and subjective norm, and the roles of extrinsic and intrinsic motivational factors were also examined. According to the study, attitude is a critical factor of student acceptance of the E-Learning system. Additionally, the study showed that perceived enjoyment played an important role in students' acceptance of the E-Learning system. Moreover, after students' attitude and enjoyment, the perceived usefulness factor was found to be an important determinant that influenced students' intention to use the E-Learning system. This factor plays a significant role in the motivation of the students.

Moreover, the study also showed that intrinsic motivation factors have a greater influence on usage intentions than extrinsic factors.

In general, it can be identified that there is a shortage of studies on E-Learning implementation in school education in Arab countries and subsequently a lack of a conceptual framework to enhance the success of E-Learning when implemented or the adoption of E-Learning in educational settings, particularly in schools. Despite the shortage of a significant number of studies in Arab countries, it can be seen from the previous studies that there are some common challenges and issues for implementing and adopting E-Learning in educational settings, challenges such as the significant and the most important factors for successful implementation and adoption of E-Learning.

2.7 Summary

In this chapter, a review and analysis of existing literature and empirical findings have been presented to identify the factors that influence E-Learning. The CSFs have been discussed as characteristics of student, characteristics of teachers, technology, and content. The impact of each CSF has been shown through previous studies.

An aim of this research is to verify the significance of the CSFs identified in the context of E-Learning implementation in school education. Moreover, as highlighted in the literature gap discussed in the previous sections, the research aims to fill the gap with regard to providing insight into Arab and Bahraini school education, to obtain the perspective of teachers and students with regard to CSFs, and to create a conceptual framework that aims to overcome existing challenges faced by the implementation of E-Learning projects in the region. The lack of viewing CSFs from the perspective of teachers and students has been a motivation of this study, highlighted by Chen et al. (2009): “[The studies] need more research to investigate the thoughts of students and teachers about critical success factors of E-Learning in the future.”

CHAPTER 3: Development of the Proposed Conceptual Framework

3.1 Introduction

E-Learning is based on investing in the opportunities already available in learning environments in order to enrich the learning process and achieve a quality education. Although E-Learning has various advantages in the field of education, the failure percentage when implemented is still relatively high, and is something which is an increasing concern for educational institutions. As discussed in Chapter Two, many attempts have been made to overcome the problem of the failure of E-Learning implementation such as the shortage of an E-Learning framework. Consequently, an increasing number of frameworks have been implemented, theoretically and practically embedding concepts of E-Learning such as critical success factors (CSFs). To overcome the limitations of implementing conceptual E-Learning frameworks in the Arab region, for example the lack of a comprehensive E-Learning framework, this research intends to look into the field of developing an E-Learning conceptual framework that integrates E-Learning CSFs and demographical variables in order to test its validity in Bahrain as an Arab country.

Many studies suggested that the lack of an E-Learning framework could contribute to failure of E-Learning projects. Studies conducted by authors such as Khan (2001), Sun et al. (2008), Ozkan and Koseler (2009), AbuSneineh and Zairi (2010), Malik (2010), and Elameer and Idrus (2011) have contributed significantly to the effort of combining different dimensions of E-Learning success into frameworks for successful implementation of E-Learning projects. However, as discussed in Chapter 2, studies on E-Learning success fail to integrate crucial aspects of E-Learning such as E-Learning success factors, and demographic variables of key players or stakeholders in the learning process. Thus, in order to enhance the approach of utilising E-Learning frameworks, the aim of this chapter is to develop a conceptual framework

for the implementation and development of E-Learning projects that integrates the main aspects of E-Learning, namely: E-Learning success factors and demographic variables for both students and teachers.

This chapter is structured as follows: Section 3.2 presents previous attempts to provide frameworks for E-Learning implementation in order to investigate the existing E-Learning frameworks that comprise CSFs and their effect on E-Learning systems' components and to identify their limitation as well as their contribution to E-Learning success. Section 3.3 will discuss the building of the conceptual framework by describing the proposed conceptual framework and defining the stakeholders of E-Learning in school education, defining E-Learning success factors for this research, and then presenting demographic variables for both teachers and students and will present the hypotheses. Finally, the summary of the chapter is presented in Section 3.4.

3.2 Existing Theoretical E-Learning Frameworks

In a response to the need of addressing the success of E-Learning in educational settings, many researchers developed various frameworks for E-Learning which add a holistic view of E-Learning systems. The following is a discussion of some major contributions of different researchers with regard to E-Learning frameworks and a critique based on criteria such as the nature and focus of the framework, and its association with the success of E-Learning implementation. Table 3.1 shows a summary of the E-Learning frameworks.

Framework	Author	Focus
A Framework for E-Learning-Eight-component framework for E-Learning	Khan 2001 (Eight Components: institutional, pedagogical, technological, interface design, evaluation resource support, and ethical)	Factors and dimensions of E-Learning environment
A framework of dimensions and antecedents of perceived e-Learner satisfaction	Sun et al. 2008 (Six Components: learners, instructors, course, technology, design, and environment)	Critical success factors

Framework	Author	Focus
An evaluation framework for E-Learning	AbuSneineh and Zairi 2010 (Five Components: Student, instructor, design, course, technical)	Critical factors of E-Learning
A conceptual framework of factors that influence student satisfaction towards online education	Malik 2010 (Five Components: student, instructor, design, course, technical)	Factors that influence student satisfaction towards online education

Table 3.1: E-Learning Frameworks

Integrating CSFs within an E-Learning framework was an approach taken by a number of researchers as shown subsequently.

3.2.1 Framework for E-Learning-Eight-Component Framework for E-Learning

Khan (2001) developed an E-Learning framework called “A Framework for E-Learning – Eight-component framework for E-Learning”. The framework combined eight dimensions for the success of the E-Learning environment namely: institutional, pedagogical, technological, interface design, evaluation, management, resource support and ethical. According to the framework, an E-Learning system designer needs to address the eight dimensions of E-Learning to create a successful E-Learning experience. An important contribution of the framework is to provide guidance in the planning, design, development, delivery, evaluation and implementation of E-Learning environments. In addition, the framework also offered the logical base for all the E-Learning instructional designers to facilitate implementation of an effective E-Learning environment. Figure 3.1 shows Khan’s E-Learning framework.

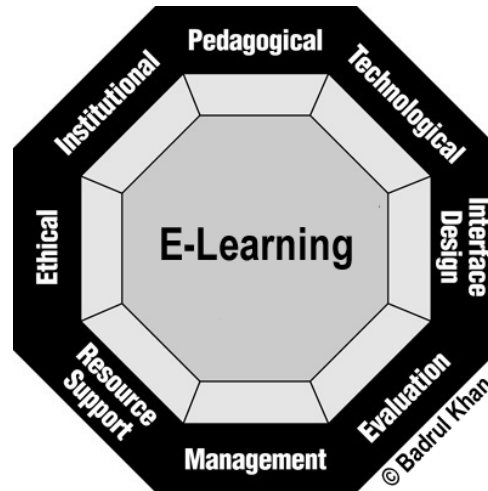


Figure 3.1: A Framework for E-Learning, Source: Khan (2001)

3.2.2 Framework of Dimensions and Antecedents of Perceived e-Learner Satisfaction

The framework e-Learner Satisfaction in E-Learning was proposed by Sun et al. (2008) as an integral framework for E-Learning. The framework is an attempt to broaden the understanding of E-Learning by identifying the critical factors affecting learners' satisfaction with E-Learning. To achieve the research objectives the researchers identified six dimensions: learners, instructors, course, technology, design, and environment. Figure 3.2 illustrates the research framework. The research developed its conceptual framework based on the six factors, which included thirteen indicators to ensure the successful E-Learning design and operation.

The framework brought the concept of (CFs) to the attention of institutions and provided details explaining the importance of the CFs in E-Learning and it also addressed the need of institutions to develop a comprehensive framework that integrated the critical factors in order to investigate the relationship between these factors. Sun et al' s framework emphasises the need to consider the course and content quality, flexibility and students' and teachers' attitudes as major key factors that influence the learners' satisfaction.

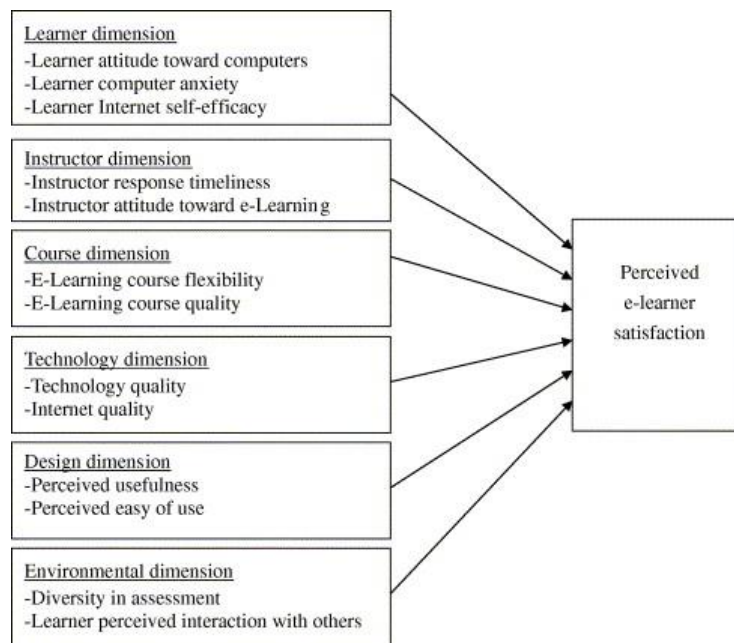


Figure 3.2: A Framework of Dimensions and Antecedents of Perceived e-Learners Satisfaction, Source: Sun et al., (2008)

The main contribution of this work was to emphasise the importance of the institutions in strengthening their E-Learning implementation and further improving learner satisfaction. In addition, the framework provided the factors that have an impact on e-Learner satisfaction.

3.2.3 An Evaluation Framework for E-Learning

The evaluation framework for E-Learning effectiveness was developed in the Arab world by AbuSneineh and Zairi (2010). It aimed at examining critical factors for evaluating the quality of E-Learning programs. The framework combined five dimensions namely: pedagogy, faculty, technology, learning support, and institution, as shown in Figure 3.3. The framework emphasised the interrelation between these dimensions in order to achieve the effectiveness of E-Learning.

Additionally, the framework focused on evaluating the quality of E-Learning programs and investigated certain factors from faculties' and learners' perspectives. The framework provided implications for exploring key factors that influence the quality of E-Learning

programs and institutions in the Arab world. The framework also provided the dimensions for the effective implementation of E-Learning programs. AbuSneineh and Zaire's framework emphasises the need to consider the role of pedagogy as a key factor that determines the effective implementation of E-Learning and focuses on the relationship between the pedagogy and the content of the course and the learning style in order to adjust the relevant learning to learners' needs and wants.

The framework addressed the need of institutions to achieve the requirement of implementing E-Learning by linking pedagogy, faculty and technology. In addition, the framework considered the need of institutions to search novel processes, methods and support systems to provide quality of education. An important contribution of the framework is to address the need for the evaluation of the existing factors and to define the requirements for E-Learning programme implementation.



Figure 3.3: An Evaluation Framework for E-Learning Programs, Source: AbuSneineh and Zairi (2010)

3.2.4 Conceptual Framework of Factors that Influence Student Satisfaction

Malik's (2010) approach was to consider the factors influencing student satisfaction towards online education as a base for developing a conceptual framework. The framework combined five factors: student, instructor, design, course and technical factors. The framework aimed to investigate the factors that play influential roles towards student web-based learning satisfaction, as shown in Figure 3.4. The framework focuses on the relationship between the student, teacher and technology factors to practically enhance the students' satisfaction.

Additionally, this work emphasised the relationship between teachers' and students' attitudes and satisfaction towards E-Learning. An important contribution of the framework is to address the need to identify the factors considered as the main barriers to E-Learning growth and development. In addition, the framework suggested that administration should consider the students' and instructors' attitudes towards technology, their computer efficacy, and the instructors' response, friendly interface of the online learning environment and proper facilitation of technical matters. It considered them as factors that influence student satisfaction with online education and which prevent failure and implementation loss.

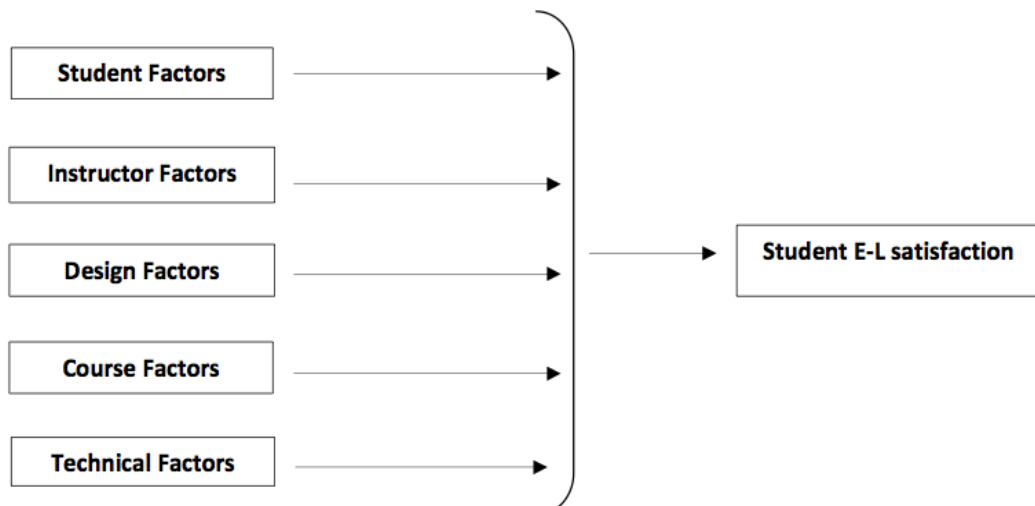


Figure 3.4: A Conceptual Framework for E-Learning, Source: Malik (2010)

To summarise, it is clear that all the above-mentioned efforts can be considered as useful guides to identify the major factors that affect E-Learning implementation and development in

educational settings. However, most E-Learning frameworks in the literature are based on the experiences of developed countries. Therefore, there is a need to develop a conceptual framework which places emphasis on E-Learning implementation within the environment of Arab countries. Given the significant differences in many key aspects of E-Learning between developed and Arab countries, E-Learning experiences from developed countries may not be directly applicable to Arab countries.

3.3 Building the Conceptual Framework

According to Kituyi and Tusubira (2013) a framework refers to the recommended arrangement of selected concepts that higher education institutions can apply to address the barriers to E-Learning integration in their institutions. The proposed conceptual framework for identifying successful implementation of E-Learning in secondary school education will be based on the following three stages: defining the stakeholders who will implement E-Learning projects and initiatives, identifying E-Learning success factors and defining the demographic variables for both teacher and student. Hence, the relationship between the constructs of the framework will be described. The building of the conceptual framework will also be based on reviewing related literature and will be guided by the research's aim.

3.3.1 The Conceptual Framework

This research is proposing a conceptual framework that aims to implement and develop successful E-Learning based on previous studies and experience. The conceptual framework is shown in Figure 3.5 and includes four main factors: Students, teachers, Technology, Design and Content along with associated sub-factors and demographic variables.

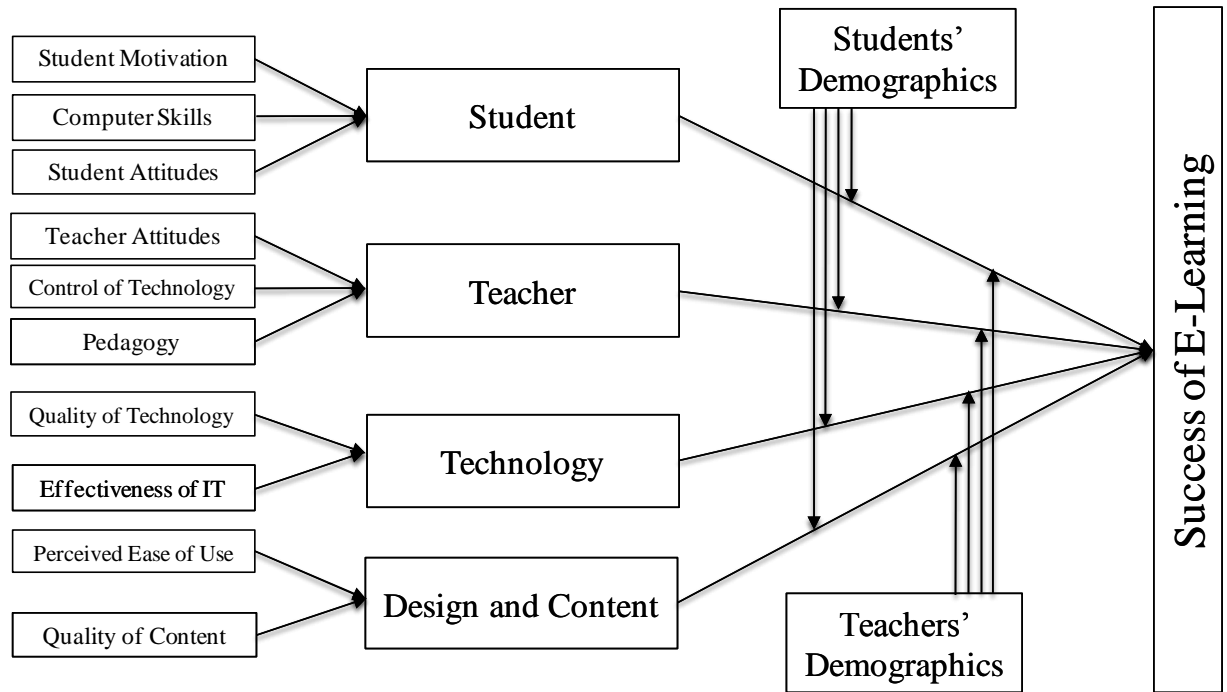


Figure 3.5: The Proposed Conceptual Framework

3.3.2 Stakeholders in the Implementation of E-Learning Projects

After the critical analysis of the literature presented in Chapter 2, the development and implementation of E-Learning projects depends on key players and stakeholders in education settings in both higher and school education. The stakeholders of E-Learning are those that are affected by it (Wagner et al., 2009). The most important stakeholders in school education are the teachers and students who are responsible for implementing E-Learning projects successfully in the learning process within school education. Clarity of roles among stakeholders when implementing E-Learning projects can lead to success and it is important to identify the key stakeholders and their roles for successful E-Learning implementation (Kituyi and Tusubira 2013). In order to implement E-Learning projects successfully, teacher and student stakeholders must understand their roles and responsibilities.

Firstly, the role of the teacher is to design and develop the learning resources and present the content on a digital source in an appropriate manner, to guide students to use the information provided by teachers and to organise and coordinate students' cooperative learning which will

lead to stimulated students and also create an environment which will lead to an effective relationship between the teachers and students (Wei and Yanyan, 2010). In an E-Learning environment the teacher's role becomes that of learning facilitator, providing guidance and coaching the learners in a learning environment and fostering collaboration and interaction between teachers and learners (Chang and Fisher, 2003).

Secondly, the role of the students is to possess the ability to acquire new knowledge independently and to build and produce the knowledge. In addition, the role of students is to identify different sources of information in applications such as electronic media or video, and to communicate and collaborate through groups and discussion. The students must also motivate themselves and take the initiative in the expansion of the learning. The responsibility of the students in an E-Learning environment is to become a self-directed learner, which requires them to be highly self-regulated, and responsible for organized and reflective learning (Craig et al., 2008).

3.3.3 Factors Affecting the Successful Implementation of E-Learning

3.3.3.1 Student's Characteristics

Students' characteristics issues are major concerns when implementing E-Learning projects (Volery and Lord, 200; Selim, 2007). Students' characteristics area set of characteristics which refer to the capabilities and the attributions which students possess, and these affect the level of student interaction in E-Learning (Soong et al., 2001; Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010). Selim (2007) identifies three constructs: student's motivation, attitudes towards E-Learning and computer skills and competency (Sun et al, 2008; Teo et al., 2011). Additionally, Malik (2010) claims that this construct can be significant in determining user satisfaction with E-Learning.

Computer skills

Computer skills and competency are defined as the judgment of one's information technology capabilities (Compeau and Higgins, 1995). Several researchers have provided evidence of the significant effect of computer skills on user satisfaction (Hong, 2002; Al-Fadhli, 2009; Malik,

2010; Musa and Othman, 2012). A significant impact of computer skills was also found in studies focused on the implementation of E-Learning. For example, Al-Fadhli (2009) investigated university students' acceptance of distance learning at the Arab Open University in Kuwait. The findings revealed that computer skills to be a significant determinant in the acceptance and satisfaction of distance learning, and computer competency plays an essential role in students' acceptance of distance learning. In a similar vein, Malik (2010) examined learners' satisfaction with E-Learning and reported that computer skills play an influential role towards students' web-base of learning satisfaction.

Similarly, Musa and Othman (2012) revealed that computer skills were the most important factors which affected the success of E-Learning and played an essential role in students' satisfaction and acceptance of E-Learning. However, Sun et al. (2008) in investigating university learners' satisfaction with E-Learning at public Universities in Taiwan, found that computer skills can no longer be considered as issues in the E-Learning environment. Similarly, Zhu et al. (2009) pointed out that student computer competency had no significant effect on students' performance and their satisfaction with E-Learning. Sun et al. (2008) argued that such inconsistency in the results relating to the computer skills factor may stem from computer literacy existing in students. As such, a computer skill is one dimension or sub-factor of students' characteristics that has an influence on the success of E-Learning.

Student Attitudes

Prior research has empirically shown that attitude towards E-Learning is a major determinant of successful implementation of E-Learning (Abdel-Wahab, 2008; Sun et al., 2008; Presley and Presley, 2009; Al-Harbi, 2010; Hammoud, 2010; Mosakhani and Jamporazmey 2010; Fageeh, 2011; and Zewayed et al., 2011). According to Sun et al. (2009), an attitude is the learners' impression of participating in E-Learning activities through computer usage. Prior research has demonstrated theoretical and empirical evidence of a significant impact of learner attitudes in the success of E-Learning. For example, Al-Harbi (2010) investigated the influence of factors on the adoption of E-Learning among 132 university students in Saudi Arabia. Attitude had a significant impact on the adoption of E-Learning. Additionally, Presley

and Presley (2009) examined 792 learners' acceptance of E-Learning by applying the Technology Acceptance Model (TAM) and found significance in attitude towards learner intention and usage of the E-Learning portal. It also mediates the effect of perceived usefulness and perceived ease of use. Attitude was also found as a significant determinant of behavioural intention to adopt E-Learning for Egyptian students (Abdel-Wahab, 2008).

In addition, Park (2009) found attitude as a significant determinant of behavioural intention to adopt E-Learning in Korea. Similarly, Zewayed et al. (2011) investigated students' acceptance of E-Learning among 926 secondary school students in Bahrain. Attitude is a critical factor of students' acceptance of the E-Learning system. It is also considered a significant factor in students' intention to use the E-Learning system. However, Sun et al. (2008) found that attitude is no longer being considered as an issue in the E-Learning environment; as such an attitude towards E-Learning is a prerequisite for its implementation and use (Liaw et al., 2007; Park, 2009).

Student Motivation

Previous research provides support for a significant association between motivation and the success of E-Learning. For example, Selim (2007) examined the critical factors influencing the success of E-Learning and found that student motivation was a significant predictor of successful E-Learning implementation. Similarly, Zhu et al. (2009) investigated university students' perceptions of a collaborative E-Learning environment and the factors that affect their online performance and academic achievement in China. Motivation is a significant factor that impacts on the successful implementation of E-Learning environment. In the view of Fageeh (2011), Learner motivation is an important factor that significantly affects E-Learning. Students' motivation was found as a significant determinant of the successful implementation of E-Learning for Bahraini secondary school students who are similar to the students in this study (Zewayed et al., 2011). Empirically, the relationship between motivation and the use of E-Learning has also been shown in prior research (Pituch and Lee, 2006; Ahmed, 2010; and Chen and Tseng, 2012). Additionally, Ushida (2005) investigated the role of student motivation and attitudes in an online language course context, and found that

student motivation and attitudes toward learning language in an online course study were relatively positive and stable during the course.

3.3.3.2 Teacher's Characteristics

The teachers' characteristics are the second factor that contributes towards student satisfaction and successful implementation and development of E-Learning. The successful implementation of E-Learning is purely based on the teacher's characteristics. It refers to a key set of characteristics which makes every teacher unique in the teaching and learning process (Babic, 2012). The teacher's characteristics refers to the capabilities and the attribution which teachers possess and is associated with the management of E-Learning activities (Volery and Lord, 2000; Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010). Selim, (2007) identifies three constructs: teacher's attitude towards E-Learning; pedagogy and style of teaching; and the teacher's capability to control the technology (Ozkan and Koseler, 2009; Malik, 2010).

Teachers' Attitudes

Several researchers have provided evidence of the significant effect of teachers' attitudes on the success of E-Learning (Selim, 2007; Al-Fadhli, 2008; Zhu et al., 2009; Malik, 2010; Musa and Othman, 2012). For example, Liaw et al. (2007) conducted a study on teachers' attitudes towards E-Learning usage. The study used a questionnaire to collect data from 50 teachers in a university. The study revealed that teachers' positive attitude towards E-Learning was an important determinant to the successful usage of E-Learning. Similarly, Teo (2008) investigated pre-service teachers' attitudes towards computer use in Singapore. He found that teachers were more positive about their attitude towards computers and intention to use computers than their perceptions of the usefulness of the computer and their control of the computer.

Buabeng-Andoh (2010) argued that attitudes influence teachers' use of ICT in teaching. Empirically, Ferdousi (2009) found that attitudes towards E-Learning systems affect teachers' intention to use an E-Learning system. Teachers' attitudes towards technology also influence

teachers' acceptance of the usefulness of technology and its integration into teaching. The result revealed that if teachers' attitudes toward the use of educational technology are positive then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes. Mahdizadeh et al. (2008) found teachers' opinions about computer-assisted learning and web-based activities were effective in shaping their attitude toward E-Learning environments. In an echo of Selim's work (2007), Chen et al. (2009) indicated that teachers' attitudes were considered as a significant factor that affects the success of E-Learning.

Pedagogy and Teaching Style

Prior research has empirically shown that teaching style and pedagogy is another significant determinant of user acceptance which has a positive effect on the successful usage and implementation of E-Learning. Mumtaz (2000) on the relationship between pedagogy and the E-Learning environment suggests that the role of pedagogy and teachers' beliefs about teaching and learning with ICT are vital to the integration of E-Learning within the learning environment. Masoumi (2006) examined the quality and effectiveness of the E-Learning environment and the critical factors for a successful E-Learning environment. Pedagogy was considered as a significant determinant of successful E-Learning. In addition, Chin and Kon (2004) studied the impact of different factors on the success of E-Learning among university students, faculty, IT support and management. Pedagogy is considered as a significant factor which is required for effective E-Learning implementation. Selim (2007) found that teaching style has a significant effect on the students' attitudes towards E-Learning and on the acceptance of E-Learning. Similarly, Hammoud (2010) indicated that the way of using WebCT affects the attitude and performance of the students.

In the context of using E-Learning as teaching and learning tools, Mahdizadeh et al. (2008) examined 178 university teachers and found pedagogy shaped the teachers' opinion about the E-Learning environment. In investigating the critical factors affecting E-Learning, Musa and Othman (2012) found that teachers' pedagogy and participation in discussion within learning environment are important factors of E-Learning. Teachers' pedagogy and teaching style was

also a significant predictor of E-Learning. In the context of the Arab world, AbuSneineh and Zairi (2010) evaluated the quality of E-Learning programs and also investigated the factors affecting E-Learning and found that pedagogy is a significant factor that impact on the quality of E-Learning. As such, pedagogy and teaching style are the most important factors in E-Learning (Liaw et al. 2007; Puri, 2012).

Control of Technology

Several researchers have provided evidence of the significant impact of the control of technology on the use and implementation of E-Learning, which is linked to pedagogy in the learning process. For example, Soong et al (2001) found that adequate time and effort in using and controlling technology must be invested into the resources by the instructor, which affects the usefulness of the E-Learning environment. Control of technology was found to be a significant determinant of E-Learning implementation for UAE university students (Selim, 2007). Malik (2009) investigated the factors that influence learner satisfaction towards E-Learning and reported that learner satisfaction is positively influenced by instructor response, and control of the technology in the E-Learning environment. In examining the relationship between students' expectations and their satisfaction with E-Learning, Lemos and Pedro (2013) found the quality of teachers in using technology is essential in any educational initiatives and contributes to a significant approach to student achievement and satisfaction in online courses. According to Malik and Mubeen (2009) and Taha (2012), instructor response and control of technology are the factors that influence student satisfaction with E-Learning.

3.3.3.3 Technology

The technology is the third factor that contributes towards student satisfaction and successful implementation and development of E-Learning. Technology is an important factor or requirement for E-Learning implementation. Technology refers to the effectiveness and quality of hardware and software and ICT tools available in the E-Learning environment (Volery and Lord, 2000; Selim, 2007; Menchaca and Bekele, 2008; Al-Fadhli, 2009). Technology comprises quality of technology and effectiveness of IT (Selim, 2007).

Quality of Technology

Prior research has empirically shown that quality of technology is a key determinant of successful implementation of E-Learning. Liu et al. (2010) suggested that a system with better quality such as better response time, reliability, and accuracy can deliver better services. For example, AbuSneineh and Zairi (2010) found that the reliability of the technology was among the most important factors that impact on quality of E-Learning. Pituch and Lee (2006) proposed and tested alternative models that seek to explain student intention to use an E-Learning system among 259 postsecondary students in Taiwan, when the system is used as a supplementary learning tool within a traditional class or a stand-alone distance education method. System functionality had the greatest impact on intention to implement the E-Learning system. Technology infrastructure was also found to be a significant factor in acceptance of hybrid E-Learning among university students. Additionally, Hassanzadeh et al. (2012) investigated the success of E-Learning system implementation in a university. Quality of technology influences the use of E-Learning by indirectly affecting the users' satisfaction.

Effectiveness of IT

The main advances in E-Learning would come from technology that allowed increased learner interaction. Two types of interaction would be provided by a web-based learning system: instructor-to-student and student-to-student interactions (Abbad, 2010).

Previous research provides support for significant influence on effectiveness of IT success in E-Learning. For example, Selim (2007) mentioned that the efficient and effective use of IT in delivering a course or program is of critical importance to the success and student acceptance of E-Learning. Additionally, Abbad (2010) examined the key factors that influence E-Learning adoption. System interactivity had a significant impact on intention to implement the E-Learning system. Pituch and Lee (2006) found that system functionality was the most important factor of E-Learning. In addition, AbuSneineh and Zairi (2010) found that the accessibility of technology was among the most important factors that impact on quality of E-Learning.

Similarly, Al-Fadhli (2008) studied the impact of different factors on the acceptance of E-Learning courses among university students in Kuwait. Accessibility of the technology is considered as a significant determinant of E-Learning and a relationship was seen between technology aspects and culture of Arab countries in general and in Kuwait in particular. However, the technology factor is considered as one among other factors which also influence the success of the E-Learning environment. This is also reported in a number of studies that examine the factors influencing E-Learning (Sun et al., 2008; Goi and Ng, 2009; Keramati et al., 2011; Taha, 2012). The explanation for the inconsistent influence of technology factors in the success of E-Learning research is users' familiarity with E-Learning technologies and tools (Sun et al., 2008; Taha, 2012).

3.3.3.4 Design and Content

The design and content is another major factor that contributes towards students' satisfaction and successful implementation and development of E-Learning. The most important factor in the E-Learning environment is design and content, which measure the quality level of the course. In particular, the content of the course can affect the learning outcomes of students and their attitude towards E-Learning. Moreover, the design of interactions and the presentation of the course are important factors in motivating students to increase their engagement and improve their satisfaction in accepting E-Learning. Content refers to the degree of ease of use and good design and the quality of material content (Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010).

Perceived Ease of Use

David (1989) defined perceived ease of use as "the degree to which a person believes that using a particular system would be free of effort". Prior research has empirically shown that perceived ease of use (PEOU) is a major determinant of user acceptance which has a positive effect on E-Learning implementation (Chen and Kon, 2004; Lee, 2006; Masoumi, 2006). Perceptions of the ease of use of a system have been shown as an important factor that impact on the success of E-Learning, either directly or indirectly (Abdel-Wahab, 2008; Owen and Price, 2010). Empirical research has supported this proposition (Pitch and Lee, 2006; Abdel-

Wahab, 2008; Hammoud et al., 2008; Mahdizadeh et al., 2008; Sun et al., 2008; Friedrich & Horn, 2010; Owen and Price, 2010; Chen and Tseng, 2012). Selim (2007) found that perceived ease of use is a significant determinant of E-Learning acceptance and satisfaction (Sun et al., 2008). Other studies have found that perceived ease of use has a significant effect on attitude towards the E-Learning environment (Ke et al., 2012; Mahdizadeh et al., 2008, Ngai et al., 2007). As Selim (2007) argued, if the technology is perceived as easy to use, positive attitudes will be formulated by the potential user. Technologies that are easy to use will be accepted and used more than those that are complex. Similarly, if E-Learning system designs are easy to use, they are more likely to be successful.

Quality of content

Several researchers have provided theoretical and empirical evidence of the significant effect of quality of content in the success of E-Learning. For example Sun et al. (2008) proved that quality of content is the most important factor which influences the satisfaction of the learner. Sun et al., (2008) argued that the quality of content such as overall course design, teaching material, and interactive discussion arrangement, is a significant factor in E-Learning environment. Similarly, Al-Ammary and Hamad (2008) investigated the factors affecting the acceptance of an E-Learning system among 155 university students in Bahrain by applying the Technology Acceptance Model and found that quality of content has a positive indirect effect on the students' behavioural intention to use the E-Learning system. Additionally, Wang and Wang (2009) found that quality, accurate information and conciseness of material is considered as an important factor that influences E-Learning. Hassanzadeh et al. (2012) and Danesh et al. (2012) found that quality of content had the most direct effect on user satisfaction. Hassanzadeh et al. (2012) argued that wherever quality of content and information is more, users are more satisfied with the use of information systems. User satisfaction leads to achievement of the personal and educational goals of the users.

3.3.4 Demographic Variables

According to the demographic variables and focus of this study, some variables have been included in the conceptual framework for both teacher (gender, specialization, experience and

using E-Learning) and student (gender, field of study and level of study) and they were hypothesised to impact on the implementation of E-Learning. This thesis suggests that the variables are central to the understanding of E-Learning implementation. Therefore, the demographic variables are discussed as follows:

3.3.4.1 Gender

A number of researchers have investigated the difference between gender perceptions in E-Learning factors (Astleitner and Steinberg 2005; Volman et al., 2005; Ong and Lai, 2006; Chen and Tsai, 2007; Arenas-Gaitan et al., 2010; Gonzalez-Gomez et al., 2011; Raman, 2011). Previous studies have revealed that gender has an important effect when considering the factors of E-Learning. Existing research has reported differences between males and females in their adoption, perceptions, and patterns of use of E-Learning (Zhou and Xu, 2007). Okazaki and Santos (2012) found a relationship between gender differences in E-Learning adoption. The researchers indicated that males were both more strongly influenced by perceived usefulness than by attitude and more influenced by perceived ease of use than by perceived usefulness, than females. In line with Okazaki and Santos (2012), Al-Harbi (2010) showed gender differences in their intention to adopt E-Learning for distance education. The male students showed greater interest in adopting E-Learning for distance education than female students did.

In an attempt to explore the gender differences influencing E-Learning, Jung (2012) found a relationship between gender differences in the perceptions of dimensional impact on the quality of E-Learning. The researcher indicated that females had perceived all quality domains and dimensions as being more important in evaluating the quality of E-Learning than males. Keller et al. (2007) also found gender to influence acceptance and in line with Jung's study (2012), females experienced a higher degree of performance expectancy than males did. Gonzalez-Gomez et al. (2011) found significant differences in E-Learning satisfaction between male and female students. The researchers indicated that female students achieve higher scores in E-Learning courses than male students. Moreover, female students assign more importance to teaching methods and planning than male students.

Sometimes, the issue is different from what is described above. Some studies have revealed no significant differences between males and females in their perceptions and acceptance of E-Learning. For example, Tasi and Lin (2004) investigated Taiwanese students' attitudes towards the Internet and found no significant differences in the acceptance and behaviour of using the Internet between the sexes. This result was also echoed by Chen and Lin (2002) who found that gender had no obvious influence on E-Learning achievement. Similarly, Al-Harbi (2010) found that both male and female students showed equal interest to adopt E-Learning as a supplementary tool.

To explain differences between male and female teachers and male and female students perceptions, the author proposes the following hypotheses:

H₀1a, There is no significant difference in male and female teachers' perceptions of factors that impact on E-Learning.

H₀2a, There is no significant difference in male and female students' perceptions of factors that impact on E-Learning

3.3.4.2 *Area of Specialization*

Previous research has shown different areas of specialization such as science, commerce, and humanities and arts which can be associated with perceptions, satisfaction and acceptance of various technological tools and applications in an E-Learning context (Agboola, 2006; Ramayah and Leeb 2012). For instance, Al-Balawi and Badawi (2008) investigated the relationship between faculty members from different areas of specialization and perceptions of E-Learning. The results indicated that there was a significant difference among faculty from different areas of specialization and E-Learning perceptions. Faculty of computer science, education, Arabic and engineering specialization were more positive than the faculty of other specializations.

In addition, Islam et al. (2011) investigated the effect of demographic factors on the effectiveness of the E-Learning system in a higher institution in Malaysia. The researchers indicated that different areas of specialization had a significant effect on the effectiveness of

E-Learning. Similarly, Kavaliauskiene et al. (2012) examined the correlation between students' different specializations and E-Learning perceptions, and found a direct relationship. This result was also echoed by Kavaliauskiene and Valunas (2012) who found a direct relationship. The findings suggested that the students who study visual communication and administration have positive responses towards various aspects of E-Learning while students who study business management and law have negative responses.

However, Agboola (2006) examined the relationship between different areas of specialization and E-Learning adoption. The researcher revealed that the area of specialization had no influence on the confidence in using E-Learning tools and E-Learning adoption. In line with Agboola, (2006) Karimi and Ahmed (2013) found that there was no statistically significant difference among three different groups of specialist teachers' perceptions of learning and satisfaction in blended learning in the University of Malaysia. These findings indicated that the subject matter is not an important issue in blended learning environments. Thus, the researcher proposes the following hypotheses:

H_{01b}: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers of different specializations.

H_{02b}: There is no significant difference in the perceptions of factors that impact on E-Learning between students of different specializations.

3.3.4.3 Level of Study (Years in School)

Previous research has investigated the relationship between students' level of study and E-Learning. For example, research on level of study differences indicated that first or second year students tend to be more in favour of perceived learning, learning application, and learning involvement than third and fourth students (Lim and Morris, 2009). Furthermore, in a study of perception towards the use of E-Learning, Zainon (2008) suggested that the first year students in university tend to be more willing to use E-Learning than the other groups of students and there is a difference between the use of E-Learning and the level of study in favour of the first year students whose use of E-Learning is more significant than that of other groups of students. Zainon et al. (2008) found similar effects, while the study conducted by

Sharma and Hardia (2013) did not find a significant correlation between student level and use of and satisfaction with E-Learning.

Furthermore, Jorge et al (2003) and Hernandez Jorge et al (2010) indicated that the student's year group is less closely related to technology use. Only a few differences are established. For example, those in the second year are the first to have become familiar with technology, which may be an effect of age - they are older and therefore have obtained it first. In addition, there is the differential use of technology between the younger (first year) and older (second year) students. First-year students use the Internet more for playing games and chatting, while second-year students use it more for e-mail. On the other hand, there are no extreme differences in the perception of university students regarding the uses, advantages and difficulties of E-Learning between the students due to their year group. Some differences are established with regard to the students' year group. First-year students mention uses and advantages related to more internal aspects of the learning process. They point out that E-Learning would help them to have information complementary to their degree course, which may indicate some degree of autonomy in learning. They also feel that E-Learning would increase the quality of learning and students' motivation. To explain differences between perceptions of factors that impact on E-Learning between the students of different levels of study (Years in School), the researcher proposes the following hypothesis:

H₀2c: There is no significant difference in the perceptions of factors that impact on E-Learning between the students of different levels of study (Years in School).

3.3.4.4 Teaching and E-Learning Experience

According to Sun and Zhang (2006) experience is measured by the number of years a user has computers and technology in general and refers to their familiarity with and knowledge about technology. In addition, the expertise of a user in using a variety of computer tools includes web searching, webpage development, course management systems, database, spreadsheets, presentation software, drawing or photo programs in the learning environment and elsewhere (Zhou and Xu, 2007).

Previous research has shown that experience is a key determinant in E-Learning acceptance and perception (Sun and Zhang, 2006; Liao and Lu, 2008; Chiu et al., 2009; Zhu et al., 2009; Islam et al., 2011; Giannakos and Vlamos, 2013). For example, Liaw (2008) found that experience with the Internet is significantly correlated with intention to use it as a learning tool. Mahdizadeh et al (2008) found that the more experience teachers have with the E-Learning environment, the more highly positive their intention to use and their perception of the added value of E-Learning (Mahdizadeh et al., 2008). Mundy et al. (2012) found that the more ability to use technology and the more experience teachers have in using E-Learning, the greater their intention to use an E-Learning environment, while Zhou and Xu (2007) found that experience of technology and computers is not significantly correlated with using computers in the learning environment. To explain differences between perceptions of factors that impact on E-Learning between the teachers of different Teaching and E-Learning experience, the researcher proposes the following hypotheses:

H₀1c: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers with different teaching experience.

H₀1d: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers of different E-Learning experience.

Based on the aforementioned discussion the following hypotheses are proposed for investigation in this study:

H₀1: There is no significant difference between teachers' perceptions of factors that impact on E-Learning based on selected demographics.

H₀1a: There is no significant difference in male and female teachers' perceptions of factors that impact on E-Learning

H₀1b: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers of different specializations.

H₀1c: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers with different teaching experience.

H₀1d: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers of different E-Learning experience.

H₀2: There is no significant difference between students' perceptions of factors that impact on E-Learning based on selected demographics.

H₀2a: There is no significant difference in male and female students' perceptions of factors that impact on E-Learning.

H₀2b: There is no significant difference in the perceptions of factors that impact on E-Learning between the students of different areas of study (Specializations).

H₀2c: There is no significant difference in the perceptions of factors that impact on E-Learning between the students of different levels of study (Years in School).

3.4 Summary

This chapter has developed a conceptual framework for the research based on integrating the following components: defining the stakeholders of E-Learning in school education, identifying the E-Learning success factors and defining demographical variables. This conceptual framework offers the main frame of reference and potential lines of investigation for the analysis and survey that will be carried out in this thesis to explore the factors influencing E-Learning implementation in school education. The proposed conceptual framework is novel because it combines the stakeholders and E-Learning success factors that were identified in previous studies, with the demographical variables for both students and teachers in secondary school education. To the researcher's knowledge, no previous studies exist that have attempted to combine the stakeholders of E-Learning, factors influencing E-Learning implementation and development and the demographical variables of key players and stakeholders in secondary school. The proposed conceptual framework could be used as a frame of reference by government and educational institutions that seek to implement and develop E-Learning projects. Further, it could serve as a decision-making tool to support government educational institutions in their effort to implement and develop E-Learning projects. This conceptual framework can also be used by researchers and scholars in the field of E-Learning to analyse and understand the implementation and development of E-Learning projects.

CHAPTER 4: Research Methodology

4.1 Introduction

This chapter identifies and discusses the nature of the research methodology within which the research process will be conducted. The goal of this chapter is to suggest a research framework that will ensure that the research problem is addressed, and is suitable to achieve the research aim and objectives and verify the hypotheses. Therefore, this chapter firstly reviews the different research philosophies, approaches, and strategies available and selects and justifies the most appropriate ones for this research. Secondly, the chapter includes a review and discussion of the available research methods and a selection of the appropriate method that was applied in this research.

This chapter is structured as follows: Section 4.2 presents the research methodology, describes research philosophies available, and discusses and justifies the choice of this research philosophy. Section 4.3 illustrates the literature perspective of the quantitative and qualitative approach and justifies the choice of this research approach. Section 4.4 shows the research strategy. Section 4.5 presents the research methodologies adopted by this thesis, such as design of data collection, and describes the development of the research questionnaire, research population and research sample. The data analysis approach is illustrated in Section 4.6 and, finally, the chapter is summarised in the conclusion in Section 4.7.

4.2 Research Philosophy

There are various research philosophies that enhance the researcher's way of viewing the phenomena, and these philosophies reflect the research strategies and methods which need to be considered in order to achieve the research objectives appropriately (Saunders et al., 2007). The most suitable philosophies are those labelled as epistemology assumption (Myers, 2009). Epistemology is further diverted into two main paradigms: positivistic and phenomenological

or interpretive (Saunders et al., 2007). The positivism philosophy is based on the approach used in the natural sciences, which assumes that social reality is independent of human perception, existing regardless of our awareness of it. This approach holds the belief that there are facts about the social world that can be collected and analysed to obtain the facts required (Saunders et al., 2007). Another aspect of the positivism philosophy is that the social world exists externally and that objective methods should be employed to measure the positivist properties (Saunders et al., 2007).

Moreover, positivism research generally assumes that reality is objectively given and can be described by measurable properties, which are independent of the researcher, and his or her instruments. Saunders et al. (2007) also mentioned that the researcher acts as an objective analyst who interprets data in an apparently value-free manner. Accordingly, a positivist paradigm is about numbers, accuracy, neutrality, and severity (Jupp, 2006). Positivism philosophy seeks to quantify variables of interest and the quality of research is commonly assessed in terms of statistical measures of reliability and validity and through the rigour with which quantitative analyses are conducted including sampling considerations, researchers' objectivity and the correctness with which statistical techniques are applied (Bryman and Bell, 2011).

As a result, this study is mainly influenced by aspects of philosophical assumptions and positivism is selected as a suitable research philosophy to examine the factors that influence E-Learning. The justification behind this selection is as follows:

- The main principle of positivism is the ability to create hypotheses that could be tested through data collecting.
- The selection of positivism in this thesis is for the neutrality of factors in E-Learning, separated from the researcher's mind. Critical factors, and demographic variables have been measured statistically, using different sets of techniques: for example, frequencies, and t-test, which will help to see if the collected data supports the research hypotheses.

- The technique for data collection in this study is a questionnaire survey. Based on the above review, this study adopts the positivism philosophy.

The abovementioned identify the justifications for selection of positivism as an appropriate philosophy. With the understanding of the philosophical assumption reviewed above and the methodology employed in this research, it argues that the philosophy of positivism is more appropriate for this study.

4.3 Research Methodology

Research methods are broadly classified into two methods of research, namely quantitative and qualitative (Bryman and Bell, 2007). According to Harwell, (2011) the key facet of the quantitative research method is considered to maximise objectivity, replicability and generalizability of the research findings and the quantitative research, independent of the phenomenon studied in the research. Another facet of quantitative research is that it is associated with formulating and testing a hypothesis so as to reduce the phenomena to their simplest elements (Remenyi et al., 2003).

Moreover, quantitative research can be defined as a research strategy that emphasises quantification in the data collection and analysis (Bryman and Bell 2011). In fact, within the quantitative approach, conceptual constructs or variables are measured by means of instruments and the emerged numerical data are analysed by applying statistical tests. In addition, as this research systematically tries to study phenomena through mathematical calculation so as to confirm the findings made by theory without any intervention from the researcher, it has purposefully adopted the quantitative research method. Accordingly, the choice of a particular quantitative research method depends on the research question to be addressed, and based on the abovementioned discussion, the descriptive approach adopted in this research aims to construct an accurate representation of people, events, situations and conditions, and ultimately to create a holistic view of the phenomena under study (Saunders et al., 2007). Additionally, the quantitative research method encompasses survey, modelling and statistical analysis (Nyame-Asiamah and Patel, 2009). Unlike the quantitative method, the

qualitative method, which includes action research, case studies, interviews and focus groups, believes in the existence of multiple truths that are socially constructed (Lincoln and Guba, 1985) and that understand the experiences of participants in the research as well as their perspectives and thoughts (Hiatt 1986). Hiatt (1986) also argues that qualitative research explores meaning, purpose or reality. The qualitative research method tends to understand personal perception as the observation being the first step in theory building. Likewise, researchers who adopt the qualitative research method believe in the existence of multiple truths that are socially constructed (Lincoln and Guba, 1985).

As a result, the quantitative is selected as a suitable research method. The justification behind this selection is as follows:

- In the quantitative approach, data is obtained from numbers and calculation.
- In the quantitative approach, researchers and subjects are separated.
- In the quantitative approach, the findings are based on well-known theory.

4.4 Research Strategy

The research strategy that is based on survey strategy has been proven to provide a good mechanism for collecting a large amount of data from a sizeable population efficiently in an economical way which allows for more control over the research process (Saunders et al, 2007). The survey strategy depends upon the collection of the data in order to answer the research questions or support the research arguments (Jankowicz, 1995). According to Gable (1994), “the survey approach refers to a group of methods which emphasize quantitative analysis, where data for a large number of organizations are collected through methods such as mail questionnaires, telephone interviews, or from published statistics, and these data are analyzed using statistical techniques.” In addition, the survey strategy allows for generalizable findings since the drawn sample is a representative sample of population (Gable, 1994).

The survey strategy aims to answer the various research questions by comparing different features with each other and revealing the relationship between various characteristics and

categories (Remenyi et al., 2003; Saunders et al., 2007). It allows facts to be obtained for one or more purposes such as explanatory, descriptive or hypothesis testing. The survey is the most appropriate method for obtaining personal, self-reported information that is not accessible elsewhere and if generalisation of results to a wider population is wanted (Rea and Parker, 2005). According to Remenyi et al., (2003) survey based questionnaires are used as measuring instruments for collecting large amounts of data and answering the research questions. They provide true and concrete opportunities for obtaining facts. In essence, the reason for choosing questionnaires as a specific survey strategy is basically due to the association of this strategy with the deductive approach (Saunders et al., 2007). The rationale for using a survey emerges from the nature of the research which aims at investigating critical factors that influence E-Learning. A survey design is the only method that can be used to describe the characteristics of a large population (Weisberg et al., 1996). In addition, the survey strategy is appropriate for examining a large number of variables as they occur in their realistic settings without the need to manipulate them as in experiments (Kothari, 2004).

In light of the previous review of survey strategy and its distinguishing characteristics, this research chose a survey strategy to be applied as the research methodology. The reason behind the decision of applying this type of methodology can be justified based on the type of research questions in this study such as what is the status of E-Learning implementation in the educational sector, and what are the factors that influence the success of E-Learning, and what conceptual framework should be addressed in regard to the factors influencing E-Learning implementation. Additionally, the types of participants for this research are the teachers and the students in the school sector, and the best methodology to investigate their perceptions regarding the factors related to E-Learning is the survey strategy and questionnaire method as the sample of study depends on the number of participants. Many studies in E-Learning have used the survey strategy as the methodology for data collection (Ali and Ahmad, 2011; Islam et al., 2011). Therefore, this research follows the same approach for data collection.

4.5 Methodological Approach

This thesis is based on a quantitative research approach. The aim of this study is to investigate the factors that influence E-Learning from the teachers and students' point of view. Therefore, the quantitative approach has been used for collecting valid data in order to help meet the main objectives of this study. Figure 4.1 illustrates the methodological research approach conducted in this study.

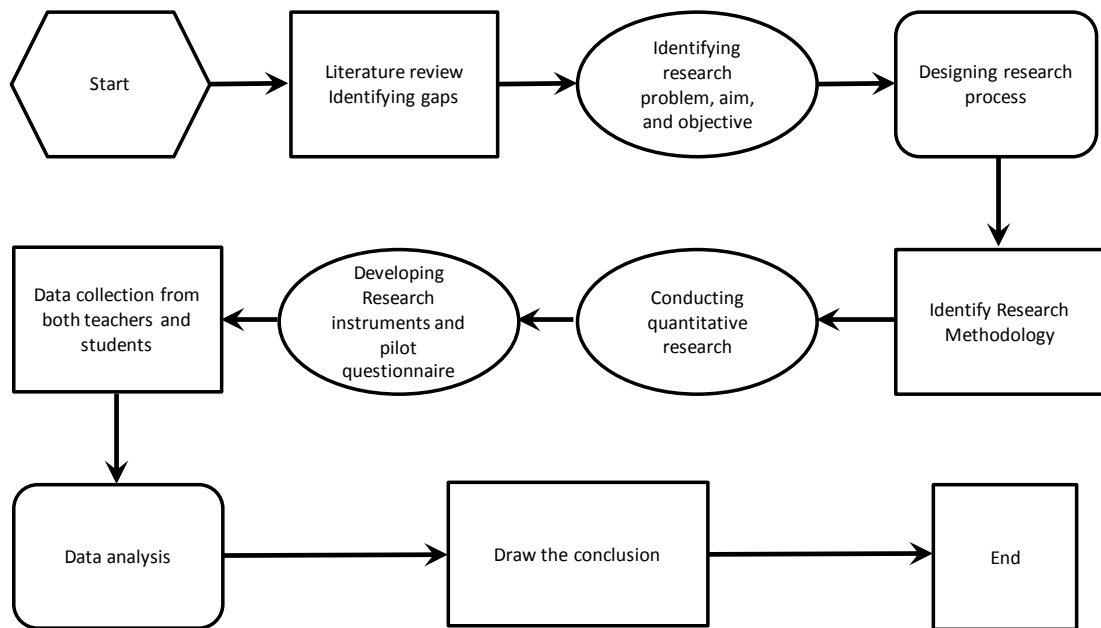


Figure 4.1: Stages of the Research Process

The data can be gathered from different sources; primary and secondary sources. In primary data, collection methods have multiple procedures such as documentation, interviews, observation and questionnaires. The questionnaire survey is the main tool for collecting data and drawing conclusions in this study, in addition to the review of the documentation regarding E-Learning implementation in the school sector in order to develop the conceptual framework of factors of E-Learning.

4.5.1 Questionnaire Design

The questionnaire is one of the basic research techniques for gathering structured information from individuals and is also a product of quantitative research. The quality of the research related to the designing of the questionnaire is important for it leads to collecting precise data in order to answer the research questions and attain the research objectives (Saunders et al., 2003). Usually questionnaires are constructed for a specific research topic and tend to gather various kinds of data such as current opinions or patterns of behaviour.

This study tests the conceptual framework with a larger sample. In other words, the purpose of the questionnaire is to support or refute theoretical propositions. This subsection explains the procedures that were followed in order to develop the questionnaire. It focuses on the scale development, and the questionnaire. The following will cover each one of these:

- *Scale Development*

As shown in Table 4.1, the scale has, in total, 27 questions (The English version of the questionnaire is found in Appendix C-D and the Arabic version is provided in Appendix E-F). These questions were constructed to measure the variables of interest. In constructing these questions, a Likert scale was developed to assess these variables. The following points provide a description of the measurement scales.

- a. *Students' Characteristics*: Nine items were included in the questionnaire to measure participants' perceptions in relation to the students' characteristics. Three items (No.1-3) were used to measure the student motivation, one item (No. 4) was used to measure the computer skills and five items (No. 5-9) were used to measure student attitudes. The scale that was used in this item was an interval scale. In particular, the respondents were asked to rate on a 5-point Likert scale their perceptions and opinions with respect to the statements, with 1= strongly disagree and 5= strongly agree.

For example:

The use of E-Learning is more encouraging than the traditional method

The use of E-Learning is more exciting than the traditional method

The use of E-Learning facilitates learning more than the traditional method

- b. *Teachers' Characteristics*: Nine items were included in the questionnaire to measure participants' perceptions in relation to the teachers' characteristics. Five items (No.1-5) were used to measure the teachers' attitudes towards E-Learning, one item (No. 6) was used to measure the control of technology and three items (No. 7-9) were used to measure teaching style and pedagogy. The scale that was used in this item was an interval scale. In particular, the respondents were asked to rate on a 5-point Likert scale their perceptions and opinions with respect to those statements, with 1= strongly disagree and 5= strongly agree.
- c. *Technology*: Five items were included in the questionnaire to measure participants' perceptions in relation to the technology. Two items (No.1-2) were used to measure the quality of technology and three items (No. 3-5) were used to measure the effectiveness of IT. The scale that was used in this item was an interval scale. In particular, the respondents were asked to rate on a 5-point Likert scale their perceptions and opinions with respect to the statements, with 1= strongly disagree and 5= strongly agree.
- d. *Design and Content*: Four items were included in the questionnaire to measure participants' perceptions in relation to the design and content. Three items (No.1-3) were used to measure the perceived ease of use and one item (No. 4) was used to measure the quality of content. The scale that was used in this item was an interval scale. The items were measured on a five-point Likert scale anchored by strongly disagree =1 and strongly agree = 5 (For more details see Table 4.1 and Appendices C and D).

Factors	Sub-Factors	Definition	Item Code	Items
Students' Characteristics (Soong et al., 2001; Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010)	Student Motivation	In this research, students' characteristics refer to the capabilities and the attribution which students possess and which impact the level of students' interaction with E-Learning.	SC1	The use of E-Learning is more encouraging than the traditional method
			SC2	The use of E-Learning is more exciting than the traditional method
			SC3	The use of E-Learning facilitates learning more than the traditional method
	Computer Skills		SC4	The use of E-Learning enables students to complete tasks more easily than the traditional method
			SC5	The use of E-Learning provides a more attractive learning environment than the traditional method
			SC6	The use of E-Learning provides more opportunities to participate in activities than the traditional method
	Student Attitudes		SC7	The use of E-Learning is more satisfactory than the traditional method
			SC8	The use of E-Learning improves the learning performance
			SC9	The use of E-Learning is more enjoyable than the traditional method
Teachers' Characteristics (Volery and Lord, 2000; Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010)	Teacher Attitudes	In this research, teachers' characteristics refers to the capabilities and the attribution which teachers possess of E-Learning activities.	TC1	The use of E-Learning method is better in the learning and teaching process
			TC2	The use of E-Learning is more beneficial than the traditional method
			TC3	The use of E-Learning is more advantageous than the traditional method
	Control of Technology		TC4	The use of E-Learning is more enjoyable and satisfactory than the traditional method
			TC5	The use of E-Learning provides more control over the learning and teaching process than the traditional method
			TC6	The use of E-Learning is more encouraging and motivating for interaction than the traditional method
	Pedagogy and Teaching Style		TC7	The use of E-Learning is more effective and efficient than the traditional method
			TC8	The use of E-Learning is more productive than the traditional method
			TC9	The use of E-Learning improves the quality of learning and teaching process more than the traditional method
Technology (Volery and Lord, 2000; Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010)	Quality of Technology	The capability and quality of hardware and software available in E-Learning	T1	E-Learning is more difficult to use in the learning and teaching process
			T2	Having E-Learning materials online 24/7 is practical for learning and teaching process
	Effectiveness of IT		T3	E-Learning environment provides me with the opportunity of participating in E-Classes
			T4	Usually I need assistance or training when using an E-Learning system for the first time
			T5	Overall, the E-Learning environment infrastructure is effective and efficient
Design and Content (Selim, 2007; Menchaca and Bekele, 2008; Sun et al., 2008; Malik, 2010)	Perceived Ease of Use	The degree to which a person believes that using a particular system would be free of effort. and the quality of material (content)	C1	The E-Learning environment is easy to integrate with the learning and teaching process
			C2	It is easy to manage and update my e-content
	Quality of Content		C3	In E-Learning the student is more engaged with the content than in the traditional method
			C4	Overall, the E-Learning environment improves the quality of content, learning and teaching process

Table 4.1: Items from other Research in Factors of E-Learning

The layout of the questionnaire may have an impact on the interest level of the respondents and the amount of time they are willing to devote to filling it in. The questionnaire layout included the following:

- a. *Covering Letter*: The questionnaire was accompanied by a cover letter (a sample of the English and Arabic versions of this letter are found in Appendix F). In this letter, the identity of the researcher was disclosed as a student from Brunel and Ahlia University studying for her PhD. In addition, the letter indicated the purpose of the study, assuring moreover the confidentiality of the information provided by to the respondents. This letter ended with an expression of thanks the respondents for taking the time to respond to the questionnaire and for their kind co-operation.
- b. *Page Layout*: The questions were numbered and preceded the responses. Moreover, instructions were offered on how to fill the questionnaire to aid the respondents in answering the questions without difficulty (e.g. the majority were simply: Circle the suitable answer). In order to separate the questions, white spaces were used between them. Page numbers were provided at the bottom of each page to help the researcher.
- c. *Structure of the questionnaire*: The questions of the questionnaire were organised in such a way as to make sense to the respondents and to reduce their need to page back and forth. In other words, the questions were organised logically through dividing the questionnaire into three sections as described briefly below:

Section One: This section was developed to gain background information about the students and teachers surveyed. This information includes (for the teacher) the field of teaching, gender, age, teaching experience, the size of the class, access to a computer, familiarity with the E-Learning environment, the E-Learning experience and (for student) the field of study, gender, age, level of study, access to a computer, access to the Internet and the familiarity with the E-Learning environment.

Section Two: This section of the questionnaire was developed to explore the respondents' perceptions with regards to four main factors. The first factor attempts to investigate the

participants' perceptions with respect to students' characteristics (students' motivation, computer skills and students' attitudes) that might influence the success of E-Learning. The second factor involves exploring the perception of participants regarding the influence of teachers' characteristics (teachers' attitudes, control of technology and teaching style and pedagogy) in the success of E-Learning. The third factor deals with exploring the potential perception of participants regarding technology that might impact on the success of E-Learning. The fourth factor explores the design and content that might impact on the success of E-Learning.

Section Three: This section was about the respondents' comments.

Before proceeding to explain how the questionnaire of this study was piloted, it is worth highlighting the steps that were followed in order to ensure the sound translation of the questionnaire. This objective will be the aim of the next section.

4.5.2 Questionnaire Translation

As the questionnaire was designed in English (Appendix C-D) and the targeted research context is in an Arabic country (Kingdom of Bahrain), this study converted the questionnaire into Arabic (Appendix E-F) and validated the translation by giving and sending the questionnaire translation to three educators who revised its initial forms in terms of clarity, accuracy of language and fluency and verbal structures to ensure the accuracy of the translation and to check the Arabic terminology.

4.5.3 Questionnaire and Piloting

Pre-testing and piloting are necessary and important steps in the development of the questionnaire (Remenyi et al., 1998). In the case of the questionnaire, the pre-testing and piloting are utilised to refine its design through detecting fallacies, hidden problems etc., thus ensuring the suitability of the questions (Remenyi et al., 1998; Fowler, 2000). In order to achieve this, piloting is conducted prior to the actual data collection. The following subsections include details about the pre-pilot and pilot study that were used in this research.

- *Questionnaire Pre-Piloting*

The pre-test is the informal approach to test the survey instrument (Remenyi et al., 1998). Pre-testing includes a set of procedures used to determine whether the questionnaire works

in the manner intended by the research (Fowler, 2000). In particular, it is utilised to ensure clarity and precision in the design of the questionnaire (Remenyi et al., 1998). In other words, it assesses the decisions, assumptions and judgements that were made by the researcher in the first draft of the survey questions about what respondents will know, what words they will understand, what sort of information they can and will provide, and what response tasks they can perform (Fowler, 2000).

The purposes of pre-piloting the questionnaire of this thesis include, among others, the following: an assessment of individual questions and their sequence, determining the degree of accuracy in question and response wording, discovering difficulties with understanding instructions or layout, and increasing the ease of analysis. The following points highlight how the pre-pilot process was conducted and offer the results of this test.

- a. *Conducting the Pre-pilot:* The process of pre-piloting the questionnaire was carried out in two phases. In the first phase, a copy of the covering letter and the questionnaire were sent to some teachers and students in secondary schools. In the second phase, a copy of the revised version of the questionnaire with the covering letter was sent to 6 staff in the curriculum directorate and Bahrain Teachers College.
- b. *The Results of Pre-pilot:* Useful comments and suggestions resulted from the first pre-testing process. These comments and suggestions were used to refine the questionnaire in order to prepare the questionnaire for the pilot study. Table 4.2 shows these comments and suggestions and the action that was taken as a result.

Factor	Comments and suggestions	Action taken
Students Characteristics	<ul style="list-style-type: none"> • The statement “The use of E-Learning requires more help with applications than the traditional method” should be deleted. • The word easily should be changed. 	<ul style="list-style-type: none"> • It was deleted • It was changed
Teachers Characteristics	<ul style="list-style-type: none"> • The statement “The use of E-Learning required more time and effort than the traditional method” should be deleted. • The word beneficial should be changed. 	<ul style="list-style-type: none"> • It was deleted • It was changed
Technology	<ul style="list-style-type: none"> • The word constraints should be changed. 	<ul style="list-style-type: none"> • It was changed
Design and Content	<ul style="list-style-type: none"> • The statement “The use of E-Learning content and materials is time consuming and a waste of efforts” should be deleted. 	<ul style="list-style-type: none"> • It was deleted

Table 4.2: Results of the Questionnaire Pre-piloting

- Questionnaire Piloting

When the questionnaire had been pre-piloted, it was ready for the pilot study. In a pilot study, the questionnaire is tested using a sample from the targeted population and also using the same procedures that will be used in the main study. In short, it is a small scale version of the main study and, in turn, it covers some aspects of the data collection process that pre-piloting alone may not address (Remenyi et al., 1998). The aim of performing the pilot study in this research includes the following: gaining confidence that no essential issues have been missed, predicting the response rate, determining the best follow-up strategy, ensuring the reliability and validity of the measures used to measure the variables of interest, and getting feedback regarding the wording and general appearance of the questionnaire.

The following subsections explain the method that was used to perform the pilot study and the results that were gained from it. The pilot study was performed in the same way that was to be used in the main study. In particular, the final draft of the questionnaire was distributed to sixty- four participants, which included teachers and students in secondary schools. Most of the comments from the pilot study revealed that the questionnaire was easy to understand and answer. Furthermore, the respondents considered that all questions related directly to the topic.

Before the final survey distribution, reliability testing was carried out to ensure that each factor used obtained the desired level of internal consistency. In this regards, Hinton et al., (2004) suggest four different points of reliability: excellent range (0.90 and above), high (0.70 - 0.90), high moderate (0.50 -0.70) and low (0.50 and below). Table 4.3 shows the reliability for this study. Thus, this study is considered to reveal the appropriate level of internal consistency.

No.	Factor	No. of Statements	Alpha Cronbach Coefficient
1	Students' characteristics	9	0.886
2	Teachers' characteristics	9	0.908
3	Technology	5	0.723
4	Design and Content	4	0.727
	Total	27	0.945

Table 4.3: The Alpha Cronbach Coefficient Values for each Factor

The construct validity was also carried out to ensure that each factor as well as the whole questionnaire measured what it was intended to measure and each factor was valid for its purpose. Table 4.4 shows the construct validity for this study. Hence, this study is considered to reveal the appropriate level of construct validity and the survey is valid for its intended goal and is valid when measured.

No.	Factor	Correlation Values	Sig. Level
1	Students' characteristics	0.919	0.000
2	Teachers' characteristics	0.905	0.000
3	Technology	0.784	0.000
4	Design and Content	0.882	0.000

Table 4.4: The Correlation Coefficient Values for each Factor

4.5.4 Implementation of the Questionnaire

After the verification of the reliability and the validity of the questionnaire, the final version of the questionnaire was developed. In order to administer the survey to the research study sample, the following procedure was undertaken: A letter from Ahlia University was addressed to the Ministry of Education in order to apply the questionnaire to the research study sample, male teachers, female teachers, male students and female students in the secondary schools selected for this research (AppendixG1). This letter explained the purpose of this survey, requested the cooperation of the respondents, promising confidentiality of the data collected and requested their responses to the scientific research. In addition, a letter from the Ministry of Education was addressed to the secondary schools in order to apply the questionnaire to the research study sample, male and female teachers, male and female students in the secondary schools selected for this research (Appendix G2).

The research study sample was selected randomly from research population which included 600 participants (200 teachers and 400 students). A hard copy of the questionnaire was distributed and submitted to the research study sample and administered by the senior teachers in the selected schools. The cover letter explained the purpose of this survey, requesting the cooperation of the respondents in regard to the scientific research. The questionnaires were collected from the respondents. The number of questionnaires collected was 580 out of the total 600 questionnaires distributed. The returned questionnaires were numerically coded; excluding invalid questionnaires. The valid

questionnaires were 540 and comprised 180 teachers 33.3% while 360 of the respondents (66.7%) were students. The questionnaires were entered into the statistical software package SPSS 17.0. The statistical treatment of the data was obtained in order to get the results and the findings of this research study.

4.5.5 Research Population and Sample

The essential purpose of any research is to be able to generalize research findings and there are two basic types of generalization. The first is, statistical generalization, when a probability theory is used to assume that the finding from a small sample will yield the same results in a larger population. It depends on the survey research for a representative sample that allows for generalization. The secondly is replication, an experimental method that is not based on a statistically representative sample and uses different participants in different circumstances until the findings are replicated (De Vaus, 2002).

In any event, the goal of the sample is to mirror the population it is intended to represent. Oakshott, (2006) defines simple random sampling as “every member of the target population has an equal chance of being selected”. Accordingly, this research employed a simple random sample. The simple random sample occurs when the procedures of the selection allow all items or objects in the universe or population to have the same chance of being drawn (Stone and Desmond, 2007). Therefore, the study sample was selected randomly from those schools and the study sample consisted of six secondary schools which included three schools for boys and another three for girls, selected from the thirty secondary schools in the Kingdom of Bahrain. The sampling fraction equation is as follows:

Sampling Fraction = Actual Sample Size / Population

Sampling Fraction = $6/30 = 1/5$, which means 20% in terms of the secondary schools which represent the research population.

The random sample was selected from the teachers and students of these schools as illustrated in the following Table 4.5. In this study, the population for the secondary schools was the entire number of secondary schools, 30 schools located on five governorates in the Kingdom of Bahrain during the academic year 2010-2011.

Type of school	Name of School	No. of Teachers	No. of Students
Boys Secondary Schools:	Al Hidaiya Al Khalifia	35	65
	East Riffa	35	65
	Hamad Town	30	70
Girls Secondary Schools:	Khawla	35	65
	West Riffa	35	65
	Hamad Town	30	70
Total	6 schools	200 teachers	400 students

Table 4.5: Distribution of the Research Sample in the Schools

As shown in Table 4.5, 200 questionnaires were distributed to the teachers and 400 to the students. The completed questionnaires were reviewed and some of them were excluded for incomplete responses and some others were not collected.

4.5.6 Documentation

To develop the E-Learning conceptual framework and to explore the factors influencing the success of E-Learning implementation, the researcher reviewed official reports and literature from King Hamad's Schools of the Future Project that are related to the implementation of E-Learning in secondary school settings. The data collection via documentation consisted of official information reports and studies which were published by the MoE. Thus, these publications and reports provide an overall illustration of the benefits and challenges of E-Learning implementation in order to identify the dimensions of the E-Learning conceptual framework considered in this study.

4.6 Data Analysis

After the data had been collected, the descriptive statistics (percentages and tables) were conducted using SPSS (version 17.0). Descriptive data analysis provides the reader with an appreciation of the actual numbers and values, and hence the scale that the researchers are dealing with. Therefore, this research study was employed and the frequency and percentage measures were used to analyse the numerical data that were obtained from the questionnaires. The mean scores and the standard deviation were calculated. The Alpha Cronbach Coefficient, the reliability test, was applied to both pilot and main survey in order to assess the validity and the reliability of the instruments employed. In addition, the Pearson Correlation Coefficient, the measure of correlation between each factor and its sub-factors was also applied.

With the purpose of examining demographic variables (gender, field of teaching, and period of using E-Learning in the teaching process; field of study, level of study, computer experience, availability of Internet) an estimate of the response percentages and frequencies was made. Furthermore, to test the demographic variables differences of the teachers and students, the paired t-test was used for the independent sample to compare and measure the difference between the means of two independent samples. Additionally, ANOVA (One Way Analysis Of Variance) was used which represents a powerful parametric means of analysing the differences between the mean scores of three or more groups or conditions. The level of significance was set at $p < 0.05$ (as recommended by previous studies). However, the Least Significant Difference Test was carried out, as a post hoc analysis to identify the direction of the differences between three groups or more.

4.7 Summary

This chapter was carried out to identify a suitable methodology for this thesis. It has been argued that the quantitative method was found to be an appropriate research method that answers the questions highlighted by this thesis. The research methodology was designed to determine the influence of factors on E-Learning implementation.

The quantitative method was appropriate due the nature of this research, as few studies were found that had investigated the factors of E-Learning in the school sector and in the Arab context. The decision to focus on this was based on the need to examine the critical success factors influencing E-Learning in secondary schools in the Kingdom of Bahrain.

CHAPTER 5: Research Findings and Analysis

5.1 Introduction

The previous chapter discussed the research methodology and described the procedures followed for data collection. This chapter presents the findings of the analysis of the research surveys, as well as answers to the research questions concerning the factors influencing E-Learning.

The chapter is divided into eight sections, including the introduction. Section 5.2 presents the historical background of ICT and E-Learning in the Ministry of Education in the Kingdom of Bahrain. Section 5.3 describes the demographic profiles of the respondents. Section 5.4 provides ranking of critical factors influencing the success of E-Learning. Section 5.5 presents the differences between teachers' and students' perceptions on the surveyed factors. Section 5.6 describes the differences among teachers' perceptions. Section 5.7 provides the differences among students' perceptions. Lastly, section 5.8 provides a brief summary of the chapter.

5.2 Exploring the Historical Background of ICT and E-Learning in Kingdom of Bahrain

The Ministry of Education (MoE) in the Kingdom of Bahrain has shown an interest in introducing Information and Communication Technology (ICT) in secondary education since the 1980s. ICT is one of the new trends in the field of education, and an essential requirement of the comprehensive development strategy within the MoE to achieve the goals of education. The introduction of computers, ICT and E-Learning in schools has been applied through several phases as follows:

Phase 1: Computers as a Course Unit in Secondary Schools

The project of introducing computers in secondary schools was adopted by the MoE in 1985 and was deployed within commercial schools. ICT was initially implemented in

Bahrain in 1985 as an elective course unit in secondary schools; it has been changed to a compulsory course unit. This can be marked as the first stage of implementing ICT in the state run schools (Al Baloshi, 2002). The MoE provided computer labs equipped with the required ICT tools. Moreover, the MoE facilitated each school's learning resources centre with at least three computers with internet connection. It also supplied teachers' staff rooms with computers and connected them to the Internet and also supplied schools with educational software (Slaise, 2005).

In 1989, the project was introduced to all secondary schools. Teacher training courses and computer laboratories in secondary schools accompanied this introduction. In 1997, the MoE planned the introduction of ICT on a wide scale in the education sector, in order to fulfil its mission to prepare the citizens of tomorrow to participate efficiently and effectively in the overall development process (Taha, 2000). In this context, a technical committee on the introduction of the Internet in schools was formed to plan the deployment of the project in secondary schools. The Internet was used for educational purposes in two pilot secondary schools. The project is being implemented gradually in all secondary schools, and the Internet infrastructure has been established in the ministerial directories and secondary schools concerned.

Phase 2: Towards a Virtual Learning Environment

In 2001 the Ministry of Education decided to have a clear vision and a strategic plan to implement ICT at all stages: from computer course units to Virtual Learning Environment (VLE). The reason for this was to face national development needs and to make use of the opportunities that technology gives in this field supported by widespread Internet adoption. In addition, ICT offers activities in the context of whole-life learning, social integration and personal development (Slaise, 2005).

Therefore, the MoE sought the cooperation of UNESCO to establish an international seminar in Science, Technology and Innovation (STI) with ICT as one of the main topics on the agenda. Therefore, UNESCO ICT experts produced a comprehensive report "ICT in Education and Learning". This report included successful ICT experiences, which were considered as the outline for implementing ICT in education in Bahrain (Slaise, 2005). It was suggested that ICT should cover all the subjects taught in schools, the development of

curricula, teacher training and the usage of home resources. In addition, teacher training was also covered and suggested in the report as it is widely recognized as part of any ICT development process and it is vital to increase knowledge. This stage is the corner stone of moving a step further in the path of implementing ICT through the King Hamad Schools of the Future project.

Phase 3: E-Learning Future Schools Project

To launch the E-Learning Future Schools Project in secondary schools which represents Phase 3 of implementing ICT and E-Learning in school education, the MoE carried out the following procedures:

- The establishment of an educational system for E-Learning which included a learning management system called the “EDUWAVE” portal (MoE, 2004), the provision of an electronic system and its software installation and operation in all secondary schools, which included learning management systems, school management systems, digital content, authoring systems, design modules, and systems support. In parallel an "Education Forum" was developed, the idea of this forum being to activate the role of modern technologies in the process of communication and optimization of infrastructure and equipment provided by the project in schools.
- The development of the individual by providing students at secondary school with the essential competencies and skills through the introduction of ICT course units as a core course with four credit hours. In addition, eight credit-hour Enrichment courses are compulsory at a rate of two hours per week. The teachers have been trained in order to develop their capacity, and to keep up with the rapidly developing ICTs, the teachers have joined the International Computer Driving License program (ICDL) (MoE, 2007). The teacher training courses also included the use of smart boards in classrooms to familiarize teachers with the equipment found in the classroom to adapt to a new environment. In addition, the teachers trained on the advanced Eduwave which provides the teachers with specific tools such as the professional development Toolkit, creates question features and records the attendance and marks of the students.

- The development of content and textbooks, in which conversion of all secondary students textbooks in all subjects to the electronic version is to be made available on the educational system, and the user can access, and prepare multimedia enrichments in all subjects.
- Providing the infrastructure in which there are 3-4 networked computer laboratories internally, used primarily in teaching computer subjects, and every laboratory has an average of 19 computers which means 1 computer (PC): 6 students (International Telecommunication Union, 2010). All the teachers are also equipped with computers to use for teaching and learning purposes. In addition, it also provided networking of all schools to the Internet for educational operation. Most of the secondary schools have an electronic classroom, which is used in teaching the course units and as a teacher-training centre.

5.3 Respondents' Profiles

This section provides a description of the demographic profiles of the 540 respondents who participated in this study. As shown in Table 5.1, out of the 540 respondents who participated in this study, 180 (33.3%) were teachers while 360 (66.7%) were students. This high rate of students was probably due to the number of students in schools compared with the number of teachers. In terms of gender, there were 270 (50.0%) males and 270 (50.0%) females.

Respondents	Frequency	Percentage %
Teachers	180	33.3
Students	360	66.7
Total	540	100
Gender	Frequency	Percentage %
Male	270	50.0
Female	270	50.0
Total	540	100

Table 5.1: Demographics of the Respondents to the Questionnaire

5.3.1 Teachers' Profiles

The teachers' characteristics are shown in Table 5.2, including their gender, area of specialization, teaching experience and E-Learning experience. Table 5.2 shows that in terms of gender, there were 90 (50%) male teachers and 90 (50%) female teachers. In terms of the areas of specialization, 30% of the participants were Maths and Science

teachers, 21.7% were arts teachers, 21.7% were teachers of commercial subjects, and 26.6% were teachers of various other subjects.

Moreover, with regard to teaching experience, just over half (50.6%) had 5-10years, 25% had more than 15 years and 24.4% had 11-15 years of experience. In addition, based on the teachers' responses, it was found that 61.1% of the sampled teachers had between 0 – 5 years E-Learning experience and 38.9% of them had used it for more than 5 years. It is thus not surprising that of these 180 respondents, 38.9% had more than 5 years experience.

Item	Frequency	Percentage %
Gender		
Male	90	50.0
Female	90	50.0
Total	180	100
Area of Specialization		
Math and Science	54	30.0
Arts	39	21.7
Commercial	39	21.7
Others	48	26.6
Total	180	100
Years of Teaching Experience		
5-10	91	50.6
11-15	44	24.4
>15	45	25.0
Total	180	100
Years of E-Learning Experience		
0-5	110	61.1
> 5	70	38.9
Total	180	100

Table 5.2: Demographics of the Teacher Respondents of the Questionnaire

5.3.2 Students' Profiles

Table 5.3 shows the student characteristics including their gender, year in school (level of study) and area of study (streams). Table 5.3 shows in terms of gender, 50% of the students were males and 50% were females. With regard to the year in school (level of study), just over half (50.8%) were in level 2 secondary, 45.8% were in level 1 secondary and 3.3% were in level 3 secondary. In addition, the majority of respondents were from Mathematics & Science specialization, while 30% were from the Arts and Commercial specializations.

Item	Frequency	Percentage %
Gender		
Male	180	50.0
Female	180	50.0
Total	360	100
Level of study (Years in School)		
Level 1	165	45.8
Level 2	183	50.8
Level 3	12	3.3
Total	360	100
Area of Study (Specialization)		
Maths and Science	252	70.0
Arts and Commercial	108	30.0
Total	360	100

Table 5.3: Demographics of the Student Respondents to the Questionnaire

5.4 Ranking of Critical Factors of E-Learning

In order to answer the following research question “What are the Key factors that influence the successful implementation of E-Learning?” and in order to identify which of the indicated factors are perceived to be crucial for the success of E-Learning implementation in Bahrain’s secondary schools, the level of agreement and the mean were used. In the following sections, the researcher discusses and determines the ranking for each factor (students’ characteristics, teachers’ characteristics, technology and design and content).

5.4.1 The Ranking of Students’ Characteristics Factors

The respondents (teachers and students) were asked to indicate their opinions or perceptions on the students’ characteristics factor in E-Learning. Nine items or statements on a five point Likert scale ranging from strongly disagree (1) to strongly agree (5) were used to measure this factor. The results of the respondents’ ratings for each of the items are reported in Table 5.4. The mean scores ranged from 3.85 to 4.43.

Sub-Factors	Statements	Level of agreement						Mean	
		N / %	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Students' Characteristics Student Motivation	1. The use of E-Learning is more encouraging than the traditional method	n	0	9	45	259	227	4.30	Agree
		%	0	1.7	8.3	48	42		
	2. The use of E-Learning is more exciting than the traditional method	n	3	10	35	283	209	4.27	Agree
		%	0.6	1.9	6.5	52.4	38.7		
	3. The use of E-Learning facilitates learning more than the traditional method	n	8	16	46	277	193	4.17	Agree
		%	1.5	3	8.5	51.3	35.7		
Student Computer Skills	4. The use of E-Learning enables students to complete tasks more easily than the traditional method	n	3	23	42	224	248	4.28	Agree
		%	0.6	4.3	7.8	41.5	45.9		
Student Attitudes	5. The use of E-Learning provides a more attractive learning environment than the traditional method	n	4	6	34	260	236	4.33	Agree
		%	0.7	1.1	6.3	48.1	43.7		
	6. The use of E-Learning provides more opportunities to participate in activities than the traditional method	n	12	62	80	227	159	3.85	Agree
		%	2.2	11.5	14.8	42	29.4		
	7. The use of E-Learning is more satisfactory than the traditional method	n	10	13	120	211	186	4.02	Agree
		%	1.9	2.4	22.2	39.1	34.4		
	8. The use of E-Learning improves the learning performance	n	6	30	98	250	156	3.96	Agree
		%	1.1	5.6	18.1	46.3	28.9		
	9. The use of E-Learning is more enjoyable than the traditional method	n	3	3	25	237	272	4.43	Agree
%		0.6	0.6	4.6	43.9	50.4			
	Total							37.61	Agree

Table 5.4: Descriptive Statistics of the Survey Items of Students' Characteristics

The results reveal that 83.48% of the teachers surveyed and 63.62% of the students surveyed agreed that the students' characteristics are critical factors of E-Learning. The findings revealed that the participants' view came to confirm that students' characteristics are important factors for the success of E-Learning. As shown in Table 5.5, Students'

attitudes came in first place among the other students' characteristics factors, with the mean score of 4.38. As for students' motivation and computer skills factors, they came in second and third place respectively, with 4.29 and 4.28, respectively. The average ratings for the all the sub-items of this factor was 37.61. The results indicated that participants agreed with the survey statements.

Rank	Students' Characteristics	Mean Scores
1	Students' Attitudes	4.38
2	Students' Motivation	4.29
3	Computer Skills	4.28

Table 5.5: Ranking of Students' Characteristics Factors

In the next sections, the same analysis using mean ranking which implemented on the students' characteristics will be implemented on the teachers' characteristics, technology and design and content.

5.4.2 The Ranking of Teachers' Characteristics Factors

In this section, the researcher has analysed and ranked the teachers' characteristics for E-Learning implementation in the context of Bahraini secondary schools. There are three factors for the teachers' characteristics, seen in Table 5.6 below. The respondents' perceptions of teachers' characteristics were measured by three sub-factors using a five point Likert scale ranging from strongly disagree (1) to strongly agree (5). Table 5.6 reports the descriptive statistics of surveyed sub-factors of teachers' characteristics. The mean of the teachers' characteristics factor survey items ranged from 3.62 to 4.24.

Sub-Factors	Statements	Level of agreement						Mean	
		N / %	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Teachers' Characteristics	1. The use of E-Learning method is better in the learning and teaching process	n	19	20	136	252	113	3.78	Agree
		%	3.5	3.7	25.2	46.7	20.9		
	2. The use of E-Learning is more beneficial than the traditional method	n	10	58	111	270	91	3.69	Agree
		%	1.9	10.7	20.6	50	16.9		
	3. The use of E-Learning is more advantageous than the traditional method	n	12	14	22	278	214	4.24	Agree
		%	2.2	2.6	4.1	51.5	39.6		
4. The use of E-Learning is more enjoyable and satisfactory than the traditional method	n	18	44	152	233	93	3.63	Agree	
	%	3.3	8.1	28.1	43.1	17.2			
5. The use of E-Learning provides more control over learning and teaching process than the traditional method	n	6	63	158	214	99	3.62	Agree	
	%	1.1	11.7	29.3	39.6	18.3			
Control of Technology	6. The use of E-Learning is more encouraging and motivating for interaction than the traditional method	n	0	7	68	282	183	4.19	Agree
		%	0	1.3	12.6	52.2	33.9		
Pedagogy and Teaching Style	7. The use of E-Learning is more effective and efficient than the traditional method	n	6	43	110	257	124	3.83	Agree
		%	1.1	8	20.4	47.6	23		
	8. The use of E-Learning is more productive than the traditional method	n	16	36	126	242	120	3.77	Agree
		%	3	6.7	23.3	44.8	22.2		
	9. The use of E-Learning improves the quality of learning and teaching process more than the traditional method	n	0	46	92	223	179	3.99	Agree
		%	0	8.5	17	41.3	33.1		
Total								34.74	Agree

Table 5.6: Descriptive Statistics of the Survey Items of Teachers' Characteristics

The results show that 78.97% of the teachers' sample surveyed and 76.31% of the students' sample surveyed agreed that the teachers' characteristics factor is important for E-

Learning. As shown in the Table 5.7, the mean ranks of all Teachers' characteristics factors range from the control of technology factor, with a mean score of 4.19, and in the second place pedagogy and teaching style, with a mean score of 3.80, to teachers' attitudes, with a mean score of 3.79. The total average score of the teachers' characteristics factor items was 34.74, reflecting that respondents agree with the items as shown in Table 5.7.

Rank	Teachers' Characteristics	Mean Scores
1	Control of Technology	4.19
2	Pedagogy and Teaching Style	3.80
3	Teachers Attitudes	3.79

Table 5.7: Ranking of Teachers' Characteristics Factors

5.4.3 The Ranking of Technology Factors

This section presents the results of the analysis related to the technology factors for E-Learning implementation. In this dimension, there are two technological factors and five statements which can be seen in Table 5.8 below.

Sub-Factors	Statements	Level of agreement					Mean		
		N / %	Strongly disagree	Disagree	Neutral	Agree			Strongly agree
Technology Quality of Technology	1. E-Learning is more difficult to use in the learning and teaching process	n	49	52	140	187	112	3.48	Agree
	%	9.1	9.6	25.9	34.6	20.7			
	2. Having E-Learning materials online 24/7 is practical for the learning and teaching process	n	22	51	91	226	150	3.80	Agree
	%	4.1	9.4	16.9	41.9	27.8			
Effectiveness of IT	3. E-Learning environment provides me with the opportunity of participating in E-Classes	n	12	26	27	268	207	4.17	Agree
	%	2.2	4.8	5	49.6	38.3			
	4. Usually I need assistance or training when using an E-Learning system for the first time	n	4	19	69	226	222	4.19	Agree
	%	0.7	3.5	12.8	41.9	41.1			
	5. Overall, E-Learning environment infrastructure is effective and efficient	n	18	54	102	227	139	3.77	Agree
	%	3.3	10	18.9	42	25.7			
Total								19.41	Agree

Table 5.8: Descriptive Statistics of the Survey Items of Technology

The results indicate that 82.28 % of the teachers' sample surveyed and 75.32% of the students' sample surveyed gave responses of agreement with the technology factor. In Table 5.9 below, the mean ranking of all technology factors ranges from quality of technology with a mean score of 3.64 (first place), to effectiveness of IT with a mean score of 2.79 (second and last place). The mean score of the technology factor items was 19.41, reflecting that respondents agree with the factors.

Rank	Technology	Mean Scores
1	Quality of Technology	3.64
2	Effectiveness of IT	2.79

Table 5.9: Ranking of Technology Factors

5.4.4 The Ranking of Design and Content Factors

In this section, the researcher has analysed and ranked the design and content factors for E-Learning implementation in the context of Bahraini secondary schools. There are two factors for the design and content, seen in Table 5.10 below. The means of the Design and Content sub-factor were between 3.74 and 4.15.

Sub-Factors	Statements	Level of agreement						Mean	
		N / %	Strongly disagree	Disagree	Neutral	Agree	Strongly agree		
Design & Content Perceived Ease of Use	1. E-Learning environment is easy to integrate with the learning and teaching process	n	20	36	137	218	129	3.74	Agree
		%	3.7	6.7	25.4	40.4	23.9		
	2. It is easy to manage and update my e-content	n	0	51	85	249	155	3.94	Agree
		%	0	9.4	15.7	46.1	28.7		
	3. In E-Learning the student is more engaged with the content than in the traditional method	n	8	33	86	254	159	3.97	Agree
		%	1.5	6.1	15.9	47	29.4		
Quality of Content	4. Overall, the E-Learning environment improves the quality of content, learning and teaching process	n	3	7	79	270	181	4.15	Agree
		%	0.6	1.3	14.6	50	33.5		
Total							15.80	Agree	

Table 5.10: Descriptive Statistics of the Survey Items of Design and Content

The results indicate that 82.15 % of the teachers' sample surveyed and 77.4% of the students' sample surveyed agreed with the statements in relation to the design and content factor. However, the ranking of the statements relating to the design and content are as follows: statement 4 came in first place with a mean of 4.15, followed by statement 3 with a mean of 3.97, then statement 2 with a mean of 3.94, followed by statement 1 with a mean of 3.74. The results indicate that participants agreed on the factor items. From Table 5.11, quality of content came in first place among the other design and content factors, with the mean score of 4.15. Perceived ease of use came in the second and last place, with the mean score of 3.8.

Rank	Design and Content	Mean Scores
1	Quality of Content	3.64
2	Perceived Ease of Use	2.79

Table 5.11: Ranking of Design and Content Factors

5.5 Teachers' and Students' Perceptions of E-Learning Factors

In order to determine the difference between teachers' and students' perceptions of factors that impact on E-Learning implementation, the following question was posed:

How do the teachers and students differ in their perceptions of critical E-Learning factors?

In order to determine the difference between teachers' and students' perceptions of factors, the t-test was used.

Factors	Group	N	M	S.D	t	Sig. level
1. Student Characteristics	Students	360	37.63	3.91	0.159	0.873
	Teachers	180	37.57	5.7		
2. Teacher Characteristics	Students	360	34.34	4.687	-2.493	0.010
	Teachers	180	35.54	5.791		
3. Technology	Students	360	18.83	2.647	-6.902	0.000
	Teachers	180	20.57	2.949		
4. Design and Content	Students	360	15.48	2.364	-4.512	0.000
	Teachers	180	16.43	2.23		

Table 5.12: Results of t-test for Differences among Teachers' and Students' Perceptions in E-Learning Factors

As shown in Table 5.12, there is no significant difference between teachers and students in their perception with regard to students' characteristics. The mean score of the students' characteristics factors for teachers (M= 37.57, SD= 5.7) was very close to the mean score

of students ($M= 37.63$, $SD= 3.91$). As Table 5.12 shows, the t-statistics is $t (0.159)$, $P < .05$ (two-tailed), and this difference is non-significant. However, the mean score of the teachers' characteristics factors for teachers ($M= 35.54$, $SD= 5.79$) was higher than those of students ($M= 34.34$, $SD= 4.68$). As Table 5.12 shows, the t-statistics is $t (-2.493)$, $P < .05$ (two-tailed). Hence, a significant difference was found in teachers' characteristics factors between teachers and students.

Additionally, the mean score of the technology factors for teachers ($M= 20.57$, $SD= 2.94$) was higher than those of students ($M= 18.83$, $SD= 2.64$). As Table 5.12 shows, the t-statistics is $t (-6.902)$, $P < .05$ (two-tailed). Thus, a significant difference was found in the technology factor between teachers and students. Moreover, the mean score of the design and content factors for teachers ($M= 16.43$, $SD= 2.23$) was higher than those of students ($M= 15.48$, $SD= 2.36$). As Table 5.12 shows, the t-statistics is $t (-4.512)$, $P < .05$ (two-tailed). Hence, a significant difference was found in the design and content factor between teachers and students.

The results showed no significant differences in the teachers and students with regard to the student characteristics, but there is a significant difference for teachers and students with regard to the teacher characteristics, technology and design and content. The difference in the survey responses was in favour of the teachers: teachers tended to highlight teachers' characteristics, technology and design and content factors as most important for a successful E-Learning deployment. Thus, this hypothesis was partially supported.

5.6 Teachers' Perceptions of E-Learning Factors

This research sought to uncover differences between the teachers in their perceptions of the factors of E-Learning success based on selected demographic variables:

How do the teachers differ in their perceptions of critical E-Learning factors based on selected demographics?

The demographic variables for teachers which were investigated in this study were gender, area of specialization, teaching experience and E-Learning experience.

In answering this question, a number of null hypotheses were tested. In order to test the hypotheses, t-test, and a one-way ANOVA test were used. The selection of the appropriate statistics was based on the distribution of the dependent variable as well as on the number of the groups being compared.

5.6.1 Gender (Teachers)

H_{01a}: There is no significant difference in male and female teachers' perceptions of factors that impact on E-Learning.

For this null hypothesis, the t-test was used. The results are shown in Table 5.13.

Factors	Group	N	M	S.D	t	Sig. level
1. Student Characteristics	Male	90	38.99	5.709	3.448	0.001
	Female	90	36.14	5.354		
2. Teacher Characteristics	Male	90	36.24	6.196	1.642	0.102
	Female	90	34.83	5.296		
3. Technology	Male	90	20.71	3.558	0.656	0.513
	Female	90	20.42	2.188		
4. Design and Content	Male	90	16.66	2.1	1.340	0.182
	Female	90	16.21	2.344		

Table 5.13: Results of t-test for Gender Differences in Teachers' Perceptions on Critical Factors of E-Learning

The results of the t-tests revealed no statistically significant differences among the male and female teachers with regard to the teachers' characteristics, technology and design and content factors. The observed mean scores for male and female teachers on teachers' characteristics were 36.24 and 34.83 respectively, and with regard to technology were 20.71 and 20.42 respectively. However, with regard to the design and content factor, they were 16.66 and 16.21 respectively. Thus, male teachers agree with female teachers on the teachers' characteristics, technology and content and design factors and male and female teachers held similar view in relation to teachers' characteristics, technology and content and design factors. Hence, this difference was found to be non-significant. Thus, the null hypothesis was supported with regard to those factors.

The observed mean scores of students' characteristics for male teachers (M= 38.99, SD= 5.709) were higher than those of female teachers (M=36.18, SD= 5.354). As Table 5.13 shows, the t-statistics is t (3.448), P< .05 (two-tailed). Hence, a significant difference was found in students' characteristics factors between male and female teachers. Thus, the null hypothesis was not supported with regard to this factor.

Therefore, there were no gender differences in relation to teachers' characteristics, technology and content and design factors, whereas, there was a gender difference found in relation to students' characteristics in favour of male teachers rather than female teachers, and the null hypothesis was partially supported.

5.6.2 Area of Specialization

H_{01b}: There is no difference in the perceptions of factors that impact on E-Learning between teachers of different specializations.

To test this null hypothesis, the one-way between-groups ANOVA test was conducted. The results are shown in Table 5.14.

Factors	Source of Variation	Sum of Squares (SS)	df (Welch F)	Mean Square (MS)	F	Sig. level
1. Student Characteristics	Between Groups	1082.4	3	360.8	13.414	0.000
	Within Groups	4733.8	176	26.897		
	Total	5816.2	179			
2. Teacher Characteristics	Between Groups	1292.877	3	430.959	16.104	0.000
	Within Groups	4709.851	176	26.761		
	Total	6002.728	179			
3. Technology	Between Groups	130.349	3	43.45	5.363	0.001
	Within Groups	1425.851	176	8.101		
	Total	1556.2	179			
4. Design and Content	Between Groups	81.016	3	27.005	5.874	0.001
	Within Groups	809.184	176	4.598		
	Total	890.200	179			

Table 5.14: Results of ANOVA Test for Teachers' Specializations Differences in Perceptions of Critical Factors of E-Learning

Table 5.14 indicates that the F values were significant with regard to all factors (students characteristics = 13.414, teachers characteristics = 16.104, technology = 5.363 and design and content = 5.874) and there was a significant difference between the teachers of the different specializations regarding all factors. This means that there are differences of perceptions among teachers with different specializations. Thus, the null hypothesis was not supported. Therefore, in order to find out where that significant difference was, the Post-hoc comparisons using the LSD test (Least Significant Difference) were used.

The results revealed that there was a significant difference between the teachers from commercial specialization and those from science and mathematics, languages and social

studies with regard to students' characteristics, teachers' characteristics, and design and content in favour of commercial teachers. In addition, in term of technology factors, there was a significant difference between the teachers from languages and social studies and those from commercial and science and mathematics in favour of languages and social studies. Further, there was a significant difference between the teachers from different specialization groups. Thus, the null hypothesis was not supported.

5.6.3 Teaching Experience

H_{01c}: There is no difference in the perceptions of factors that impact on E-Learning between teachers with different teaching experience.

In order to test this null hypothesis, a one-way between-groups ANOVA was performed. The results are shown in Table 5.15.

Factors	Source of Variation	Sum of Squares (SS)	df (Welch F)	Mean Square (ms)	F	Sig.
1.Student Characteristics	Between Groups	100.586	2	50.293	1.557	0.214
	Within Groups	5715.614	177	32.292		
	Total	5816.2	179			
2.Teacher Characteristics	Between Groups	25.405	2	12.702	0.376	0.687
	Within Groups	5977.323	177	33.77		
	Total	6002.728	179			
3.Technology	Between Groups	89.955	2	44.978	5.340	0.005
	Within Groups	1466.245	177	8.284		
	Total	1556.2	179			
4.Design and Content	Between Groups	5.404	2	2.702	0.540	0.583
	Within Groups	884.796	177	4.999		
	Total	890.2	179			

Table 5.15: Results of ANOVA Test for Differences in Perceptions of Critical Factors of E-Learning in Teachers' with Different Teaching Experience

The results in Table 5.15 show that there was no significant difference between the teachers who have 11-15 years of experience and those who have 5-10 years of experience or more than 15 years of experience in relation to the students' characteristics, teachers' characteristics and design and content factors. However, the results also indicated that there was a significant difference in relation to the technology factor found between teachers with different teaching experience. In order to find out where that significant difference was, the Post-hoc comparisons using the LSD test (Least Significant Difference) was used. The results revealed that there was a significant difference between the teachers who have 11-15 years of experience and those who have 5-10 years of experience or more

than 15 years of experience in relation to the technology factor. Therefore, the null hypothesis was partially supported.

5.6.4 E-Learning Experience

H₀1d: There is no difference in the perceptions of factors that impact on E-Learning between teachers of different E-Learning experience.

For this null hypothesis, at-test was performed to determine the significant differences among the mean scores of the independent groups. Results are shown in Table 5.16.

Factors	Years using E-Learning	N	M	SD	t	Sig. level
1. Student Characteristics	0-5 years	110	36.84	5.342	-2.177	0.031
	More than 5 years	70	38.71	6.084		
2. Teacher Characteristics	0-5 years	110	35.27	5.068	-0.772	0.441
	More than 5 years	70	35.96	6.792		
3. Technology	0-5 years	110	20.57	2.586	0.034	0.973
	More than 5 years	70	20.56	3.463		
4. Design and Content	0-5 years	110	16.33	2.164	-0.799	0.425
	More than 5 years	70	16.6	2.337		

Table 5.16: Results of t-test for Teachers with Different E-Learning Experience in Perceptions on Critical Factors of E-Learning

As shown in Table 5.16, there was no significant difference in relation to teachers' characteristics, technology and design and content factors between teachers with different E-Learning experience. [$t = -0.772, 0.034$ and -0.799 respectively, $P < .05$ (two-tailed)]. However, there was a significant difference found in relation to the students' characteristics between teachers with different E-Learning experience. [$t = -2.177, P < .05$ (two-tailed)]. Therefore, the null hypothesis was partially supported.

5.7 Students' Perceptions of E-Learning Factors

This research required to find out differences between the students in their perceptions of the factors of E-Learning success based on selected demographic variables:

How do the students differ in their perceptions of critical E-Learning factors based on selected demographics?

The demographic variables for students investigated in this study were gender, Area of Study (Students' Specializations) and Level of Study (Years in School). In answering this question, a number of null hypotheses were tested. In order to test the hypotheses, t-test,

and one-way ANOVA test were used. The selection of the appropriate statistics was based on the distribution of the dependent variable as well as on the number of groups being compared.

5.7.1 Gender (Students)

H_{02a}: There is no difference in male and female students' perceptions of factors that impact on E-Learning.

For this null hypothesis, the t-test was performed to identify the differences between the two independent groups. The results are shown in Table 5.17.

Factors	Group	N	M	S.D	t	Sig. level
1. Student Characteristics	Male	180	37.52	4.243	-0.539	0.590
	Female	180	37.74	3.553		
2. Teacher Characteristics	Male	180	35.08	5.843	3.161	0.002
	Female	180	33.43	3.859		
3. Technology	Male	180	18.62	3.082	-1.140	0.255
	Female	180	18.96	2.529		
4. Design and Content	Male	180	15.53	2.553	0.633	0.527
	Female	180	15.36	2.438		

Table 5.17: Results of t-test for Gender Differences in Students' Perceptions of Factors of E-Learning

The mean scores of the male students and female students in terms of students' characteristics were 37.52 and 37.74 respectively, in terms of technology were 18.62 and 18.96 respectively and in terms of design and content were 15.53 and 15.39 respectively. The mean score for males was very close to the mean score of females. Table 5.17 shows this difference to be non-significant. [$t = -0.539, -1.140$ and 0.633 respectively, $P < .05$ (two-tailed)]. However, the mean score of the male students ($M = 35.08, SD = 5.843$) with regard to teachers' characteristics was higher than those of female students ($M = 33.43, SD = 3.859$). As Table 5.17 shows, the t -statistics is $t = 3.161, P < .05$ (two-tailed). Hence, a significant difference was found in the teachers' characteristics factor between male and female students and the null hypothesis was partially supported.

5.7.2 Area of Study (Students' Specialization)

H_{02b}: There is no difference in the perceptions of factors that impact on E-Learning between students of different areas of study (specialization).

To test this null hypothesis, at-test was carried out to examine the differences among the means of the two independent groups. Results are shown in Table 5.18.

Fields	Group	N	M	S.D	t	Sig. level
1. Student Characteristics	Math and science	252	37.42	4.204	-1.580	0.115
	Commercial and language	108	38.13	3.079		
2. Teacher Characteristics	Math and science	252	34.06	4.969	-1.150	0.251
	Commercial and language	108	34.72	5.108		
3. Technology	Math and science	252	18.83	2.691	0.428	0.669
	Commercial and language	108	18.69	3.113		
4. Design and Content	Math and science	252	15.23	2.435	-2.556	0.011
	Commercial and language	108	15.95	2.566		

Table 5.18: Results of t-test for Students' Specialization Differences on Critical Factors of E-Learning

Table 5.18 indicates that there is no difference in perceptions of students' characteristics, teachers' characteristics, and technology factors between students from the different specializations. As Table 5.18 shows, there is a significant difference found in design and content factor [$t = -2.556$, $P < .05$ (two-tailed)] between Maths and Science students ($M = 15.23$, $SD = 2.435$) and Commercial and Language students ($M = 15.95$, $SD = 2.566$). As a result, the null hypothesis was partially supported. Commercial and Language students seemed to show higher perceptions of the design and content factor that influence E-Learning.

5.7.3 Level of Study (Years in School)

H_{02c}: There is no difference in the perceptions of factors that impact on E-Learning between students of the different levels of study (Years in School).

As Level 3 students were only represented by a few students, it was decided to recode the Level of Study variable into a dichotomous variable. The first category of this variable was Level 1 and it included the students in year one in school. The second category was Level 2 and it included the students in year two in school.

In order to test this null hypothesis, a t-test was performed to identify the differences among the two independent groups. Results are shown in Table 5.19.

Fields	Group	N	M	S.D	t	Sig. level
1. Student Characteristics	Level 1	165	38.09	4.018	2.525	0.012
	Level 2	183	37.04	3.718		
2. Teacher Characteristics	Level 1	165	35.3	5.209	3.994	0.000
	Level 2	183	33.25	4.338		
3. Technology	Level 1	165	18.48	2.751	-2.573	0.010
	Level 2	183	19.23	2.724		
4. Design and Content	Level 1	165	15.7	2.357	2.108	0.036
	Level 2	183	15.14	2.578		

Table 5.19: Results of t-test for Level of Study Differences in Critical Factors of E-Learning

Table 5.19 indicates that there is a significant difference found in relation to the students' characteristics, teachers' characteristics, technology and design and content factors between the students from the different levels of study. In relation to the students' characteristics, teachers' characteristics and design and content, the mean score of the Level 1 students ($M = 38.09$, $SD = 4.018$, $M = 35.3$, $SD = 5.209$ and $M = 15.7$, $SD = 2.357$ respectively) was higher than those of level 2 students ($M = 37.04$, $SD = 3.718$, $M = 33.25$, $SD = 4.338$ and $M = 15.14$, $SD = 2.578$ respectively).

As Table 5.19 shows, in relation to the students' characteristics, teachers' characteristics and design and content the t -statistics is t [(2.525, 3.994 and 2.108 respectively, $P < .05$ (two-tailed))] and in relation to the technology factor the t -statistics is t [- 2.573, $P < .05$ (two-tailed)]. Hence, a significant difference was found in relation to the students' characteristics, teachers' characteristics, technology and design and content factors between the students from the different levels of study and the null hypothesis was not supported.

5.8 Summary

In this chapter, the results of the study were described. First, the history of E-Learning in Bahrain context was presented. Second, the research sample was described. Third, the chapter provided answers to the research questions. The first question was concerned with factors influencing E-Learning. The second question was concerned with the difference between the teachers and the students in their perceptions of factors that influence the success of E-Learning. The third question concerned the difference between the teachers in their perceptions of factors that influence the success of E-Learning based on selected demographics. Finally, the chapter describing the results of the fourth question concerned the difference between the students in their perceptions of factors that influence the success of E-Learning based on selected demographics. The next chapter will discuss the research results in light of the extant research.

CHAPTER 6: Discussion and Research Synthesis

6.1 Introduction

The corpus of literature presented in Chapters 2 and 3 demonstrates an absence of studies of conceptual frameworks concerning E-Learning implementation and development; this includes the in-depth understanding of students' characteristics, teachers' characteristics, technology, and design and content influencing E-Learning implementation and development. This study has investigated these concerns in order to contribute towards providing a better understanding of E-Learning implementation and development in a Bahraini context. Chapter 5 provided the data to assess the conceptual framework that was presented in Chapter 3, and to accomplish the aim of this study. This chapter seeks to synthesise the exploratory findings with the literature and revise the conceptual framework proposed in Chapter 3, based on the factors found to most influence E-Learning implementation and development in a Bahraini context. As a result, in this chapter, a revised conceptual framework for E-Learning implementation and development will be proposed. Such a conceptual framework can be used as a tool for decision-making when implementing and developing projects.

6.2 Research Findings on Critical Factors of E-Learning

The critical factors that influence E-Learning were particularly discussed in Chapters 2 and 3. The empirical research that was carried out in this thesis showed that while some of these factors were prominent in a Bahraini context, others were less obvious. This section offers a discussion of these factors under the same broad factors of students' characteristics, teachers' characteristics, technology and design and content.

6.2.1 The Role of Students' Characteristics

The Students' Characteristics factor was classified into three main sub-factors in Chapters 2 and 3: students' motivation, computer skills and competence, and students' attitudes. These factors and their impact on the implementation of E-Learning are discussed in the light of the literature.

6.2.1.1 *Students' Motivation*

In the literature, several authors such as Sun et al., (2008), Zhu et al, (2009), Fageeh (2011), Zewayed et al., (2011), Chen and Tseng, (2012), Chokri (2012), and Taha (2013) identified students' motivation as a major factor during the implementation and development of E-Learning. The research findings indicated this issue as one of the key factors that must be considered and planned for before the implementation of E-Learning in Bahrain. This may be due to four reasons. Firstly, the era in which we live is characterised by the rapid and increasing progress in information and communications technology which has led to the wide use of technologies and a variety of their applications and tools. These allow and enhance access and use in various aspects to broaden the sphere of knowledge, perform certain learning tasks, and enjoy entertainment or social networking, which contributes to creating and forming students' positive attitudes and motivation towards technology.

Secondly, technology and its applications have also stimulated and raised students' motivation towards learning in general as they create greater enthusiasm for learning among students. Thirdly, the effective use of E-Learning provides more opportunities to implement some of the basic ideas brought about by the constructivist approach, where teachers can design a simulated and individualised learning environment which facilitates the assimilation of knowledge and skills by encouraging more responsibility and productivity. Finally, in the first phase, the vision of the E-Learning project "King Hamad's Schools of the Future Project in the Kingdom of Bahrain" highlighted the technology tools and applications in the school settings rather than the characteristics of the students and needs. This study concluded that in Bahrain secondary schools there is a need to enhance the students' encouragement and motivation. Moreover, this study concluded that the E-Learning project needs the enhancement and improvement of students' motivation to utilise E-Learning, and the current efforts made are not enough in this regard.

6.2.1.2 *Students' Computer Skills*

The survey findings indicated that computer skills are one of the influential factors in the implementation of E-Learning. The literature (e.g. Zhu et al. 2009; Al-Fadhli, 2008; Sun et al., 2008) also pointed out that students' computer skills competency had no significant effect on students' performance and satisfaction in an E-Learning environment. The

possible explanations for this finding might be two. Firstly, Information and Communications Technology plays a very important role in secondary school students' lives through the transition from studying information and communications technology as a separate subject to the introduction and integration of E-Learning within all secondary schools and all subjects following the implementation of King Hamad's Schools of the Future Project in the Kingdom of Bahrain, which aims to increase the students' ability to deal with new developments in the world of technology, respond to the requirements of comprehensive sustainable development and prepare for their future careers and social life.

Secondly, students are equipped with the basic skills to deal with ICT during their basic education and because they are exposed to different forms of ICT in their everyday life interactions, the "Net Generation" or "Digital Natives" are highly motivated to learn more about ICT and improve their skills and competencies to deal with technology and its various forms. They have developed very positive attitudes towards E-Learning as a mode of living, learning, thinking and interacting with the whole world. Finally, the Ministry of Education in Bahrain dedicates considerable care towards students since they are one of the core elements in the educational and learning process as well as within E-Learning. Students are prepared for the transition from traditional learning to E-Learning through training and education to develop computer competence and skills. The Ministry of Education has created course units for Information Technology and Communication dedicated to developing the required skills to be taught for all fields of study. These course units enable students to master the necessary skills to be able to use the available technology. Furthermore, a similar course unit was later introduced to the elementary and intermediate levels of study, which enables the development of computer skills at an early stage.

This study concluded that students' computer skills and competency mature in the secondary school sector and the students have the essential computer skills that enable them to deal with the E-Learning environment. Thus, students' computer skills are no longer being considered as an issue in E-Learning implementation, as such computer skills are a prerequisite for its implementation and use.

6.2.1.3 Students' Attitudes

The survey findings revealed that students' attitudes are an important factor in the successful implementation of E-Learning and this mirrors prior research (see Abdel-Wahab, 2008; Presley and Presley, 2009; Al-Harbi, 2010; Hammoud, 2010; Mosakhani and Jamporazmey 2010; Fageeh, 2011; and Zewayed et al., 2011). Fageeh (2011) points out that student' attitudes are an important and significant factor which influences the successful implementation of E-Learning in the teaching and learning process and also that an understanding of the students' attitudes towards E-Learning determines users' readiness for accepting E-Learning as a mode of learning.

The survey findings told a similar story, and they show that the successful implementation of E-Learning is influenced by the students' attitudes towards E-Learning. The possible explanation for this finding might be that E-Learning is a new learning mode which offers another approach to enhance the teaching and learning process, and one of the significant changes in E-Learning is the shift from teacher-centred to student-centred education. This has provided greater opportunities for students to learn according to their individual needs and preferred learning style. As a matter of fact, E-Learning encourages and increases the ability of the students to interact during the learning process by encouraging them to learn and enjoy their learning experience and enhance their attitudes towards E-Learning. It can therefore be implied from this finding that students' attitudes affect respondents' perceptions towards E-Learning.

In summary, the students' characteristics in this research consisted of three sub-factors (students' motivation, computer skill and attitudes). The results obtained from the research study revealed that students' motivation and attitudes were a significant influence in the successful implementation of E-Learning. The students' attitudes showed a significant, and the most important factor and then students' motivation. These findings suggest that the role of students' characteristics would help users and decision maker to implement and develop successful E-Learning. Therefore, it can reasonably be concluded that successful implementation of E-Learning is influenced by the students' characteristics and the students' attitudes; motivations are of prime importance for E-Learning success.

6.2.2 The Role of Social Interaction

This is a new factor derived from the analysis of survey data, and refers to the relation between students and teachers. In the literature, this has been considered important in E-Learning implementation (Malik, 2010; Mbarek and Zaddem, 2013). The analysis of the survey findings shows that teachers and students were fully aware of the importance of social interaction in facilitating successful E-Learning implementation. Most teachers shared the same perceptions of the students' characteristics factor and viewed it as a key factor of E-Learning implementation. In addition, most students shared the same perceptions of the teachers' characteristics factor and viewed it as a key factor influencing E-Learning effectiveness (shown in Section 6.6, Figure 6.1).

6.2.3 The Role of Teachers' Characteristics

The impacts of teachers' characteristics on E-Learning implementation were largely influenced by the teachers' attitudes, control of technology in the learning environment and teaching style and pedagogy. The key influencing factors are described in the following section.

6.2.3.1 Teachers' Attitudes

Ferdousi (2009) found that attitudes towards E-Learning systems affect teachers' intention to use an E-Learning system. Teachers' attitudes towards technology also influence teachers' acceptance of the usefulness of technology and its integration into teaching. She also found that if teachers' attitudes are positive toward the use of educational technology then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes.

The survey data shows that teachers' attitudes are considered as the most important and significant factors of E-Learning implementation. The majority of the participants agreed that the teachers' attitude factor is one of the most significant issues during E-Learning implementation. One possible explanation of this finding is as follows: teachers are key players in the learning process. They play a vital role in the learning process in general and in E-Learning in particular. The more enthusiastic teachers are about E-Learning, the more they will adopt it as a cornerstone in all their educational practices. In fact, the effective application and implementation of E-Learning depends on the teachers' experience and attitudes towards this new paradigm or mode.

Many research studies have confirmed the importance of constructivist learning which invests in the huge opportunities provided by ICT to promote the teachers' roles of helping students through continuous support, advice, facilitation and coaching rather than merely transmitting knowledge. In an E-Learning environment, teachers are encouraged to create real, meaningful and authentic learning environments which contribute to meeting learners' needs and providing real opportunities for students to interact and build knowledge. These findings confirm the literature findings of Selim (2007), Al-Fadhli (2008); Zhu et al., (2009); Malik (2010); and Musa and Othman (2012), who suggest that improved teachers' attitudes towards E-Learning usage and implementation will enhance the successful implementation of E-Learning in educational settings.

6.2.3.2 Control of Technology

An analysis of the survey data indicates the need for teachers to control technology and organize E-Learning tools and applications in the learning environment. The findings indicate that the participants recognized the importance of a control of technology for successful implementation of E-Learning in secondary schools. Many survey participants agreed that the capability of the teachers to control and organize the technology tools and applications has affected the implementation of E-Learning in their schools. The possible explanation could be the fact that the secondary school teachers should possess the ability to deal with the new technology applications, tools and multimedia, and the Ministry of Education has provided training through the King Hamad's Schools of the Future Project. They have acquired the necessary skills to effectively implement ICT during the learning and teaching process, to raise the standards of E-Learning success and provide equal opportunities for all students to learn, grow and excel. The literature (Selim, 2007, Malik and Mubeen, 2009, Lemos and Pedro, 2013) has highlighted the importance of teachers' control of technology in previous studies.

6.2.3.3 Pedagogy and Teaching Style

The survey findings in chapter 5 also identified the needs for teaching style and pedagogy to be addressed to achieve the successful implementation of E-Learning. The findings show that teaching style and pedagogy are important factors that affect the implementation of E-Learning in secondary schools. Additionally, in the Literature, teaching style and pedagogy is considered important in the implementation and development of E-Learning

projects, especially when doing so in educational settings in both higher education and the schools sector (Salmon, 2005; Selim, 2007; Mahdizadeh et al., 2008, McPherson and Nunest, 2008; Taha, 2013). This might be due to the following. Firstly, success of E-Learning does not only depend on the provision of technologies and multimedia in the classroom, but it also depends on the ability of the teacher to employ them in the learning process to increase the effectiveness of learner participation and interaction in order to improve the quality of learning. E-Learning is not just about having access to information; it is more about using ICT effectively in classrooms.

Secondly, in the context of the Bahrain, MoE, prior to the introduction of the Future Schools Project into Bahraini public schools, the MoE provided training for teachers through the International Certificate Driver Licence (ICDL) certificate, which provides comprehensive training, aimed towards computer competency. The ICDL training was initially provided for computer course unit teachers in the secondary level of education, then provided for most teachers within the same level of education, followed by teachers in the elementary and intermediate levels of education. The training covered many practical aspects that teachers need to master in the classroom: the use of smart-boards, the preparation of electronic presentations, providing laptops for all teachers to plan classes and, possibly, create educational websites.

However, overall, the findings revealed that all sub-factors relating to this factor were rated high by the respondents which suggest that the sample agreed with the importance of teachers' characteristics in the successful implementation of E-Learning. The participants might have compared the role of teachers in the E-Learning environment with the conventional method of learning. Thus, this research concluded that the implementation of E-Learning in the teaching and learning process depends mainly on the teachers' characteristics, attitudes and capability to develop learning through the integration of different technologies and multimedia available in the learning environment. This research suggests the understanding of teachers' attitudes, control of technology and teaching style and pedagogy increase the rate of the success of E-Learning. Hence, the teachers' characteristics play a key role in encouraging students and increasing their motivation towards learning.

6.2.4 The Role of Technology

The technology factor of E-Learning was classified into two main sub-factors in Chapters 2 and 3: quality of technology and effectiveness of IT standards. These factors and their impact on the implementation and development of E-Learning are discussed in the light of the literature.

6.2.4.1 *Quality of Technology*

In the literature, several authors such as Salmon, 2005, Selim (2007), Al-Fadhli, (2009), and Abbad et al.,(2009) identified quality of technology as a significant factor influencing the implementation of E-Learning. This research finding shows that the quality of technology represents an important factor during the implementation of E-Learning. This was confirmed in this research finding where many teacher participants agreed that the quality of technology factor has a great influence on the implementation of E-Learning.

However, the support provided by the Ministry of Education in the Kingdom of Bahrain through the King Hamad's Schools of the Future Project, which has made a wide range of technologies and multimedia available within all Bahraini schools, has helped teachers to positively employ E-Learning successfully. Both teachers and students are aware of the value of providing these technological tools so as to improve the quality of educational services and manage to achieve the desired outcomes and objectives. These research findings reveal that the quality of technology needs to be improved to meet teachers' and students' needs and demands. It can therefore be implied from these findings that the quality of technology in the learning environment affects the teachers' pedagogy and their capability to introduce the E-Learning effectively.

6.2.4.2 *Effectiveness of IT*

Pituch and Lee (2006) report that E-Learning implementation is influenced by effectiveness of IT and the effectiveness of the technologies and systems employed is considered the most significant factor which influences E-Learning. This research finding shows that the effectiveness of IT is an important factor that impacts on the increase of use of E-Learning tools and applications. Many teacher participants in the survey supported the effectiveness of IT as a significant factor for the implementation of E-Learning. The literature (Volery and Lord, 2000; Masoumi, 2006; Selim; 2007; Abbad et al., 2009;

AbuSneineh and Zairi, 2010; Al-Fadhli, 2011; and Musa and Othman, 2012) has also highlighted the importance of the effectiveness of IT in previous studies.

The possible explanation of this finding is as follows: the effective use of ICT plays, in general, a vital role in the success of the learning process and in creating a positive learning environment which provides real opportunities for all learners to learn and succeed. There are several applications, multimedia tools and materials which are available in the learning environment. These resources satisfy to a large extent the needs of all students. They provide real opportunities for all learners to develop and improve their knowledge and skills by emphasising the central role of learners in the whole learning process and by taking into consideration their various interests, levels, needs and backgrounds. However, it is not technology which makes the learning process challenging and appealing; it is rather the use of technology and its implementation which determines and ensures the quality of the learning services offered. Teachers must realise and understand that the use of technology is only a means to an end.

In brief, this research study suggests that quality of technology and effectiveness of IT significantly affect the successful implementation of E-Learning. The educational settings and the government should improve the availability, reliability and accuracy of the technology and provide the technology that is accessible to the user. This will help the educational settings and the government to reinforce users' attitudes towards E-Learning and capability to use it, which will contribute to the effectiveness of E-Learning and subsequently increase satisfaction and E-Learning success.

6.2.5 The Role of Design and Content

The survey findings show that there are many design and content issues that need to be addressed and require considerable attention from the E-Learning developer and implementer. The design and content that have been investigated in this research include perceived ease of use and quality of content. The research findings also reveal that content issues are not being treated as an important factor in practice and this mirrors prior research (see Piccoli et al., 2001; Abdel-Wahab, 2008; Al-Ammary and Hamad, 2008; Johnson et al., 2008; and Shee and Wang, 2008). The research also showed that more emphasis should be placed on quality of content. Sun et al., (2008), point out that identifying content issues

affects the acceptance of, and satisfaction with E-Learning. The survey findings in Chapter 5 showed that 82.15 % of the teachers' respondents and 77.4 % of the students respondents agree that the design and content factor is significant for the success of E-Learning. The finding also indicates that this factor represents a very influential factor for the successful implementation of E-Learning.

6.2.5.1 Perceived Ease of Use

The analysis of the data indicated, in the case of E-Learning, the need for user-friendly design during E-Learning implementation. This is for several reasons. For example, the ease of interface use encourages and increases students' motivation and attitudes towards learning due to the opportunities and enrichment of materials which they provide. These promote interaction among students and teachers and provide support during the teaching and learning process by developing learning skills and broadening the scope of learning experiences.

In addition, the transition from the teaching age to the learning age and from teacher-centred to learner-centred has created new learning environments that foster cooperation and encourage interaction by developing and consolidating the roles of both teachers and students. So teachers have to make sure that the interface is easy to use and the content is of high quality to establish real opportunities for students to become productive individuals and responsible learners. In the literature, the ease of use of design has been considered as a significant factor impacting on the implementation of E-Learning (Salmon, 2005, Hammoud et al., 2008, Goi and Ng, 2009; Owens and Price, 2010). This was confirmed in the findings of this research where many respondents agreed that the ease of use has a significant influence in development and plays an important role in successful implementation of E-Learning. This suggests that there is a need to build and develop a suitable interface design for the users.

6.2.5.2 Quality of Content

The survey findings show that the quality of the content factor represents the most important aspect during the implementation of E-Learning. The Literature findings of Hammoud et al., (2008), Goi and Ng (2009), and Owens and Price (2010) also support the importance of quality of content in E-Learning implementation as an important element in

the success of E-Learning projects. As discussed in Chapter 5, the students showed that the successful implementation of E-Learning depends on suitable material and appropriate multimedia enrichments which should be worthy of and meet the needs and demands of students and teachers. One possible explanation may be due to the fact that the rapid growth of software design, the unprecedented amount of digital educational content and the great flexibility in the use of such resources and materials have revolutionised educational services by making them more appealing, more interesting and especially more effective in achieving the targeted outcomes and objectives.

In fact, from the research sample perspective, teachers and students believe that the educational content quality and the interface used contribute significantly to the success of E-Learning within the school setting. Another explanation is that the MoE in Bahrain has dedicated efforts towards the transformation of books into electronic formats. Multimedia formats have also been provided to enrich the learning experience, adding a necessary edge to the traditional paper content. Moreover, the digital formats of books and multimedia are included on CDs enabling easy access and ease of transferring large volumes of content.

Additionally, in the context of Bahrain, the implementation of King Hamad's Schools of the Future Project has provided a comprehensive educational network that has contributed to the development of e-content and expanded the quantity of e-material. All these e-resources have helped teachers introduce and establish various learning situations that take into account students' multiple intelligences and varied learning styles. This has validated the implication and quality of the content factor in E-Learning implementations.

In short, this research study suggests that perceived ease of use and quality of material and content increase users' attitudes and motivation, which will subsequently affect the success of E-Learning. The designer and developer teams of E-Learning have to make sure that they develop systems which are easy to use and perceived to be useful, and also that the material and content is valuable. By doing so, they (the designer and developer teams) will be able to increase the opportunities for the success of E-Learning.

6.3 Differences between Teachers

This section discusses the results of the differences between teachers in their perceptions of E-Learning success based on selected demographics.

6.3.1 Gender (Teachers)

The findings of this study revealed that both male and female teachers showed equal awareness and views regarding the teachers' characteristics, technology and design and content factors that influence the successful implementation of E-Learning. This outcome is in agreement with previous research, which revealed a non-significant difference between males and females in their perceptions and behaviour regarding E-Learning (Tsai and Lin, 2004; Lau, 2007; Al-Harbi, 2010). Nevertheless, the study results also revealed a significant difference between male and female teachers when it examined the students' characteristics. In the current research, men showed greater perceptions of the students' characteristics factor than women did. The existing literature has revealed that women have a greater regard for others' perceptions compared to men, and are therefore more likely to be influenced by others (Sun and Zhang, 2006).

Within the Bahraini context, both male and female teachers are exposed to the same E-Learning experience, as they all participate in the same training sessions, enjoy the same professional development and follow up services and are provided with the same interface design and content. Moreover, male teachers insist that their students (male students) need more practice and training to develop ICT skills so that they can utilise them with ease and confidence during the learning process and simultaneously increase their motivation and attitudes towards this kind of learning.

6.3.2 Area of Specialization

When the teachers of different areas of specializations were compared in relation to their perceptions of the success of E-Learning, the findings showed that there was a difference between them in their perceptions of the factors that influence the successful implementation of E-Learning. In particular, teachers from commercial, languages and social studies specialization showed greater perceptions of all factors (students' characteristics, teachers' characteristics, technology and design and content) of E-Learning compared with the teachers from Maths and Science. The topics of Commercial,

Languages and Social Studies are more theory-oriented subjects that do not require practical applications, and hence can be presented easily via E-Learning. In contrast, E-Learning represents a different educational experience to the conventional method. For scientific and practical subjects, such as Mathematics, Physics and Chemistry, experimenting and direct hands-on activities are principal. Thus E-Learning can be less suitable for such purposes.

6.3.3 E-Learning Experience

In this study, the findings revealed that teachers with different levels of E-Learning experience hold the same views in relation to teachers' characteristics, technology and design and content. This may be due to the fact that teachers with different levels of E-Learning experience agree on the value and importance of teachers' characteristics, technology, design and content factors as necessary and essential conditions for the success of E-Learning.

On the other hand, the findings showed that teachers with different levels of E-Learning experience differed in their perceptions in regard to the students' characteristics factor. Teachers with high E-Learning experience (more than five years' experience), showed greater perceptions (more favour) insights into of the students' characteristics factor than those with less than 5 years' experience. The possible explanation might be the teachers' use of E-Learning for more than 5 years. They have been dealing with students within the E-Learning environment for a fairly long time, which has helped them identify and explore their students' skills, motivation and attitudes. They point out that the students' characteristics factor greatly influences E-Learning, an idea which is opposed by teachers who have been using E-Learning for 0-5 years. The teachers who have been using E-Learning for more than 5 years view the students' characteristics factor as a priority factor. This is consistent with prior research that showed that levels of E-Learning experience are correlated with perceptions of E-Learning factors (Sun and Zhang, 2006; Liao and Lu, 2008; Chiu et al., 2009; Zhu et al., 2009; Islam et al., 2011; Giannakos and Vlamos, 2013).

6.3.4 Teaching Experience

With regard to teaching experience, the teachers sampled with different teaching experience differ in their perception towards the technology factor. The teachers of the

sample showed that quality of technology and effectiveness of IT factors is necessary to successful implementation of E-Learning. On the other hand, teachers with different teaching experience did not differ in their perception towards students' characteristics, teachers' characteristics and design and content. This outcome is in agreement with previous research, which revealed that teaching experience is correlated with perceptions of E-Learning factors (Islam et al., 2011; Zhu et al., 2009).

The possible explanation of this might be that teachers with more teaching experience saw that the availability, quality and effectiveness of technology in the learning environment are more important for them than for new teachers who have more skills and who have already attended training courses through professional development such as the International Computer Driving License (ICDL). However, teachers with more than 15 years of experience are reluctant and hesitant to utilise and employ technology and its various applications. Hence, they prefer conventional classroom teaching methods. In fact, they are resistant to change and they have no interest in using technology to facilitate and enrich the learning environment because they lack the necessary educational experience with the digital learning environment. Unlike others, teachers with 11-15 years of experience consider that the technology factor is important for the success of E-Learning. They all agree on the importance of these three factors as necessary and essential for the success of E-Learning.

6.4 Differences between Students

6.4.1 Gender (Students)

The findings of this study revealed a non-significant difference between male and female students in their perceptions regarding the students' characteristics, technology and design and content factors that influence the successful implementation of E-Learning. This result is in agreement with previous research, which revealed that both males and females showed equal awareness of successful implementation of E-Learning (Volman et al., 2005; Zhu et al., 2009; Vrieling, 2007).

On the other hand, the study results also revealed a significant difference between male and female students when they examined the teachers' characteristics. This result in earlier studies (Al-Harbi, 2010; Al-Fadhli, 2008) noted that, although the fast changing of E-

Learning users has undermined several earlier demographic indicators, nonetheless, gender differences still exist. This may be due to the fact that the male students need to develop their “E-Learning literacy” skills and competencies to make E-Learning activities more effective within their classrooms. Female students indicate that their female teachers utilise E-Learning appropriately and have the essential characteristics, competencies and skills to use it to consolidate the learning process and multiply opportunities within the learning environment. Moreover, both male and female students have the same opportunities in the schools and in society regarding the E-Learning environment.

6.4.2 Level of Study (Years in School)

The findings of this study revealed that the students from different years in school or different levels differ in their perception towards the critical factors E-Learning. However, the results revealed that students from Level 1 gave greater importance to students’ characteristics, teachers’ characteristics and design and content factors, while students from Level 2 felt that the technology factor was more important. This implies that both groups of students in the sample differ in their assessment of E-Learning factors. Students from Level 1 may have considered that their teachers need more training and preparation to utilize E-Learning during the learning process and pedagogy. Additionally, students from Level 1 considered the quality of content met their needs and abilities and learning style. Moreover, the students’ perceptions of the effectiveness and quality of technology, which provide opportunities to learn and encourage the students’ learning, could provide another explanation for the importance given to technology by students from Level 2. This was also reported by Lim and Morris (2009) and Zainon et al. (2008). (As described previously, there are three years (levels of study) in secondary schools: Level 1, Level 2 and Level 3).

6.4.3 Area of Study (Students’ Specialization)

In this study, the findings revealed that there was no difference between students with different specializations in their perceptions of students’ characteristic, teachers’ characteristic and technology factors. This shows that the students’ characteristic, teachers’ characteristic and technology factors that influence the successful implementation of E-Learning are considered to be equal by the students of the sample in Mathematics and Science, Commercial and Languages. This outcome supports earlier research (Agboola, 2006 and Karimi and Ahmed, 2013).

Nevertheless, the study results also revealed a significant difference between students from different specializations in their perceptions when it came to the design and content factor. In the current research, Commercial and Languages students considered content and design the most important factors that influence the success of E-Learning more than Mathematics and Science students did. This is consistent with prior research that showed the different specializations are correlated directly with the students' perceptions regarding the critical factors of E-Learning (Islam et al., 2011; Kavaliauskiene et al., 2012; Kavaliauskiene and Valunas, 2012).

6.5 Lessons Learned From the Research Survey Data Findings

Based on the findings in Chapters 5 and 6, a number of issues were identified as follows:

- *Create National E-Learning Plans (Vision and Strategy)*: The Bahraini Ministry of Education has established a vision for the E-Learning project which is to “empower future generations with the basic skills necessary to transform the Kingdom of Bahrain into a knowledge-based economy”. It has been perceived that vision is one of the critical factors for E-Learning and should be considered before any E-Learning project development and implementation. According to the literature, vision can provide a road map for future direction, and generate enthusiasm about that future. Furthermore, the vision keeps the leader moving, despite the various forces of failure. Therefore, communicating the vision of E-Learning to all stakeholders should be part of the implementation process, even establishing a communications strategy to ensure that people understand the vision. This vision has to be established within each government institution to enable stakeholders to work towards understanding and achieving the goals and objectives. Additionally, any project that involves change should develop a specific plan of action and include a strategy. The strategy provides specific guiding principles to follow in E-Learning development and implementation. Implementing strategies successfully is vital for any E-Learning projects. Therefore, there is a strong need to build a vision and a concrete strategy for promoting the E-Learning project in general and in Bahrain in particular.

- *Build the capacity of the Human Resources and Develop the Quality of Training*: Training is considered as an essential pillar in the learning process in general and E-

Learning projects in particular. In the context of the Bahraini Ministry of Education, prior to the introduction of the Future Schools Project into Bahraini government schools, the MoE provided training for teachers through the International Certificate Driver Licence (ICDL) program, which provides comprehensive training, aimed towards increasing computer competency and information technology skills. The ICDL training was initially provided for teachers of computer courses in the secondary level of education, then provided for most teachers within the same level of education, followed by teachers in the elementary and intermediate levels of education. The training covered many practical aspects that teachers need to master in the classroom such as the use of smart-boards and the preparation of electronic presentations. A study conducted by Mandora and Dhlawi (2001) reported that the teachers are considered as integrating the technology within the courses.

Furthermore, the teachers need to be capable of utilising the technology provided in the learning environment. In addition, teachers need to be capable of integrating technology with teaching methods which allow teachers to introduce the subject matter in a manner that suits different styles of students' learning. As shown in Chapter 5, the results revealed that the teachers' pedagogy and control of technology is an important factor influencing the successful implementation of E-Learning. Therefore, training programmes must address the issue of integrating technology into the learning process, and utilise the technology to enhance students' learning experience, while facilitating the teachers' role to increase their ability to deliver the learning material.

- *Provide the Quality of Content and Local Enrichments:* Content is considered as one of the main components in E-Learning. In the context of Bahrain, the implementation of King Hamad's Schools of the Future Project has provided a comprehensive educational network that has contributed to the development of e-content, and e-books, expanded the enrichment of multimedia and numbered 1240 enrichments in Mathematics, Chemistry, Physics and Biology for secondary and intermediate education. In a study conducted by the MoE in Bahrain (2007) which investigated the effect of the implementation of King Hamad's Schools of the Future Project, the survey data analysis revealed that 73.3% of students in the sample pointed out that the e-Lessons and e-content increased the students'

interaction and participation. In addition, the students and teachers surveyed preferred lessons that illustrated through e-content to traditional ones.

Moreover, the content should be characterized by availability to all students, suitable for their needs and demands and enhance the students to use more than one sense to encourage the students' learning and encourage them to be interactive with their peers and teachers. All these e-resources can help teachers introduce and establish various learning situations that take into account students' multiple intelligences and varied learning styles. In Chapter 5, the research results suggest that the quality of content represents a very influential factor for the successful implementation of E-Learning. The participants agreed that the quality of content factor is one of the most significant issues during E-Learning implementation. The students need to have content that provides them with opportunities to learn according to their learning needs and the teachers also require content that facilitates their roles in the E-Learning environment. One possible solution is to design content for learning in such a way that it provides opportunities to build their own knowledge and content. Another solution is to develop an interactive content which promotes interaction among students and teachers and provides support during the teaching and learning process by developing learning skills and broadening the scope of learning experiences. A third solution, is to provide a comprehensive electronic library which comprises different resources which would help the teachers to plan lessons and provide a better environment for the teachers to integrate technology into the learning process and to provide an E-Learning content bank.

- *Develop the Quality of Technology:* Technology is one of the important elements in the E-Learning environment. Within the Bahraini context, the Ministry of Education has provided different technologies, tools and applications and provided the schools with infrastructure which includes computers and smart boards and an electronic portal. In addition, they have provided the Internet into the schools gradually from secondary schools to primary schools. A study conducted by MoE in Bahrain (2007) showed that the students prefer the content and lessons which are enriched with multimedia and technology, which enhances the importance of technology in the learning process. Furthermore, technology is only a means to an end. The end goal is the achievement of learning objectives and an increase in the performance of the all learners. The research results suggest that technology can significantly affect the successful implementation of E-Learning. Therefore, it may be

more beneficial to provide technology tools and applications with high quality and effective technology in order to facilitate the roles of teachers, to enhance students' learning and to provide and support the technology and the environment.

6.6 The Revised Conceptual Framework for E-Learning

Based on the investigation of research issues identified and presented in Chapter 5 and the research syntheses and analysis carried out in this chapter, the conceptual framework presented in Chapter 3 can be revised. The revisions will take into account the newly discovered factors influencing implementation identified in this chapter, and the validated research hypotheses discussed in Chapter 5. Moreover, the revised conceptual framework is to consider the different perceptions of E-Learning success factors in both teachers and students. In the implementation and development of E-Learning projects and initiatives, the conceptual framework aims to provide a flexible guideline for government and educational settings to enhance the implementation and development of E-Learning projects by focusing on the success factors identified. It aims to provide a clear vision of managing these factors by linking them to teachers' and students' perceptions as summarised in Figure 6.1.

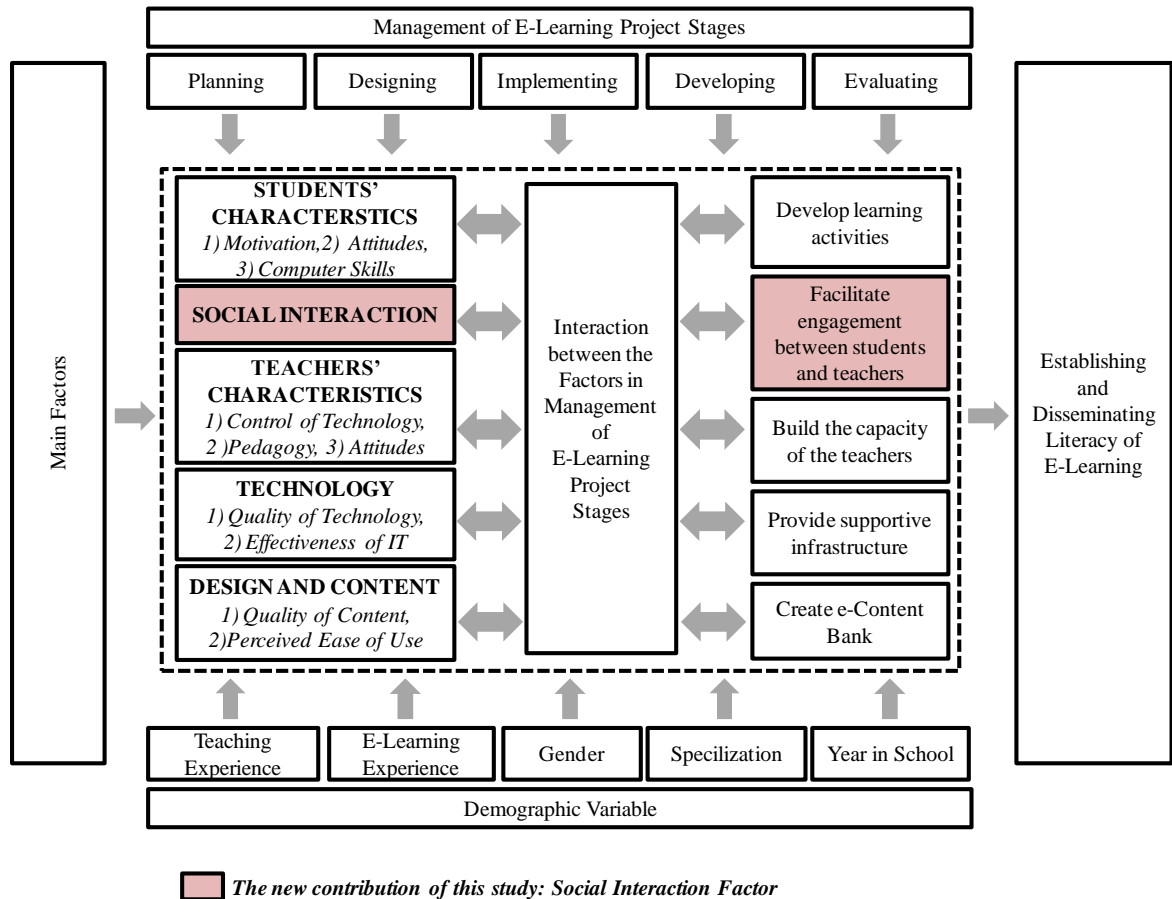


Figure 6.1: Revised Conceptual Framework for E-Learning Success

Figure 6.1 shows the new contributions of the revised framework. Firstly, it presents the new sub-factor of social interaction derived from the analysis of the survey data and which refers to the relation between students and teachers. In the literature, this has been considered important in E-Learning implementation (Malik, 2010; Mbarek and Zaddem, 2013). The analysis of the survey findings shows that teachers and students were fully aware of the importance of social interaction in facilitating successful E-Learning implementation. However, most teachers shared the same perceptions of the students' characteristics factor and viewed it as a key factor of E-Learning implementation. In addition, most students shared the same perceptions of the teachers' characteristics factor and viewed it as a key factor influencing E-Learning effectiveness. The findings of this study suggested that social interaction between students and teachers should be taken in consideration when implementing E-Learning particularly between male students and teachers and it is required more activities which enable students and teachers to interaction

and communication to enhance the meaningful and encourage the positive interaction between them with E-Learning environment.

Secondly, it shows the ranking of the sub-factors of each main factor from teachers and students perceptions and ranking based on in its important as follows: students' characteristics (motivation, attitudes and computer skills), teachers' characteristics (control of technology, pedagogy and attitudes), technology (quality of technology and effectiveness of IT), design and content (quality of content and perceived ease of use). This means that the factors and sub-factors should be considered based on its priorities and importance in successful implementation and development of E-Learning.

In order to aid the practical implementation of the framework, decision makers such as those at the MoE could adopt the following recommendations:

Recommendation 1–Develop learning activities

The aim of this recommendation is to address the issues of the lack of effective and meaningful learning opportunities to stimulate the individual learning styles and preferences of students. The potential solutions are as follows:

Firstly, teachers can provide activities which integrate visual, audio or text materials, for example by using software such as flash to allow students to explore relevant ideas and concepts and provide tailoring opportunities to adapt the learning content to the learning needs.

Secondly, teachers must show a genuine interest level in the students by replying to their e-mails promptly and allowing them to actively contribute to the course content. Additionally, teachers should be enthusiastic about teaching in E-Learning in order to motivate the students.

Thirdly, teachers should rely on E-Learning tools such as online exams, posting e-announcements, and attracting the students to rely on E-Learning tools embedded in the course. They should provide activities that encourage students to rely on e-tools embedded in E-Learning such as e-mails, e-discussions, virtual classrooms, online collaboration, and an active role in classroom. The students in an E-Learning environment should gain a high

level of computing competency. They should master applications such as e-mail, presentation and communication, and all the software applications needed to enhance the E-Learning process.

Fourthly, as teachers are keen on findings suitable teaching and learning methods that will enrich the learning experience of students and increase the learning attainment of students, teachers should be selective in finding the most suitable E-Learning activities to achieve the aforementioned factors. Teachers should include wherever possible interesting and motivating E-Learning activities such online games, educational videos, online testing to increase students' centric learning and other factors such as independence, self exploring, creativity, taking the initiative and life long learning. It is worth noting that the quality of student learning is partly a function of their learning environment. If students perceive their learning environment as positive or satisfying, their motivation to learn will increase and they become more apt to engage in positive learning. Therefore, it is important to provide a positive and rich learning environment to provide support for quality learning among students.

Recommendation 2–Facilitate engagement between students and teachers

The aim of this recommendation is to address the issue of the paucity of interaction, particularly in the male-only schools. Additionally, for male social interaction is a salient factor affecting the success of E-Learning, a potential solution is to provide educational forums through an E-Learning portal to exchange ideas and transfer experience around best practices between teachers and students either from the same schools or from other areas. Another potential solution is to provide social media such as instagram and twitter. For instance, students can record their experiments and share the results by posting them online on social media channels such as instagram and youtube. This will allow for the development of social relationships that will enrich peer learning, and allow educators to observe all students' social interaction.

Additionally, students will be more socially engaged and satisfied with their learning if they see 'liveliness' and 'dynamism' with the diverse media formats used by the teacher. This may include opening asynchronous discussions, facilitating quality interaction, and providing useful resources in the form of images, graphics and even audio or video files. In

addition, it should be noted that the primary goal in online learning is not only to increase a social presence among participants, but to ultimately enhance student's learning through constructive discussions and collaborative inquiry. Building a social atmosphere by putting welcome messages and including students' profile on course sites using humor and emoticons and disclosing the self can only be meaningful when it comes with learning activities such as generating and facilitating effective discussions, providing timely feedback and meeting overall students' academic demands via emails and the e-forum. Only then can social presence contribute to students' successful and quality learning experiences. Teachers should provide both synchronous and asynchronous tools to minimize communication barriers. They can also employ a variety of get-to-know activities to increase the initial level of social interaction.

Recommendation 3 - Build the capacity of the teachers

The aim of this recommendation is to address the issues of teachers having problems with integrating technology in their teaching methods and therefore preventing them from delivering material that suits different style of student learning. A potential solution is to introduce professional development training programmes that empower and support the teachers in developing their competencies to use multimedia and virtual laboratories. The teachers' professional development programmes should enhance teachers' skills to manage and organize the technology tools and applications during class. The teachers should be able to handle the technology used in E-Learning based courses such as e-mails, e-discussions, and website maintenance.

Another potential solution is to provide training programmes such as simulation programmes and instructional games programmes that increase the ability of teachers to integrate technology while teaching in a time and manner suitable for the students' learning style. In addition, construction of teachers' development plans in both the short and long term to enhance and improve their technology-related skills and different interactive learning methods. For teacher's content development, and management, the teachers should learn about the benefits and risks of technology.

Recommendation 4 –Provide supportive infrastructure

The aim of this recommendation is to address the issues of the inefficiency of the technology infrastructure and the lack of resources. Two potential solutions are: to provide new authoring tools, which would help both the teachers and the students to customize learning materials and also to increase the number of computers in the classroom with new ways of sharing and expanding knowledge such as a networked curriculum that promotes the results of experiments in labs. Another potential solution is to install enough bandwidth in order to have fast enough web access and browsing, and also install a wide single student authentication in order to have access to data from anywhere at any time.

Additionally, decision-makers should develop an effective information technology infrastructure that should consist of highly reliable networking facilities, a course management systems, student information systems, and medium richness; construct effective information technology infrastructure in order to facilitate fast web access, email, course management system, and other E-Learning service; and provide easy and fast internet access. Additionally, development in pedagogical methods should be parallel to the development or utilization of supporting technology. Generally, new technologies enabling the development of new communication channels and media, and therefore provide new ways for teaching and learning.

Recommendation 5–Create an e-content bank

The aim of this recommendation is to address the issues of the lack of flexible and customizable learning opportunities that are targeted at both the E-Learning content and the various learning styles and preferences of students. A potential solution is to provide a comprehensive electronic library that comprises different resources which would help teachers to plan lessons and select the most appropriate assessment to evaluate the students' level of learning. Another potential solution is to provide the content in a consistent manner that introduces the objectives and the content, and deliver the feedback and provide support and assistance to the students.

In addition, decision-makers and content developers should divide the content into small units or modules, each module related to one objective and the modules arranged based on the teaching method. Additionally, course website ease of use can grouped into three

features: consistency, flexibility and efficiency of use, and understandability. Course website consistency can be achieved by using similar concepts, terminology, graphics, layout, and navigational structure. All these features lead to minimum learning needed to use the course website. Course website flexibility and efficiency of use could be achieved by accommodating a range of user sophistication and diverse goals. Course website understandability is the use of relevant and focused information. It is preferable to use short documents with one topic, ideally on a single page, and organize information hierarchically with general information before specific details.

Decision-makers and content developers should improve the content quality of their E-Learning systems and also provide a system which promotes ease of use and user-friendliness. In addition, they should provide various types of content presentation such as multimedia, customized functions to allow students control over the system, and flexible access to fit various students' learning requirements. Teachers should also be able to contribute by developing suitable content. Moreover, content developed would be highly beneficial to students and teachers if content bank were created where content was hosted and shared amongst students and teachers. This would reduce the amount of time and efforts required for developing new content and rather focus on improving existing content. Furthermore, this would also increase the chances of accessing good practices and sharing useful content.

6.7 Summary

This chapter considered the theoretical background and the findings of this study. It set out to determine the factors influencing E-Learning. It started by discussing the findings of factors affecting E-Learning. Thereafter, the chapter revised the E-Learning conceptual framework. Therefore, based on the research gap which was presented in Chapter 2, this chapter has revised the research conceptual framework proposed in the study. It takes into account a new factor emerging from this study the influences the successful implementation of E-Learning.

The revised conceptual framework presented in Figure 6.1 is a novel contribution in itself as it summarizes the following:

- This conceptual framework is one of the first attempts to explore the critical factors in terms of E-Learning implementation. At the same time, it also aims to understand and examine teachers' and students' perceptions towards E-Learning. The initial conceptual framework provided a strong and theoretically supported frame of reference for studying E-Learning implementation.
- The revised conceptual framework (Figure 6.1) includes a comprehensive set of students' characteristics, teachers' characteristics, technology and design and contents that impact on E-Learning implementation. The factors mapped in the conceptual framework was initially influenced by the literature and later explored in practice. This resulted in the identification of additional factors and its subsequent modification.
- Decision makers can use the conceptual framework as a tool to support government institutions when taking decisions to develop and implement E-Learning projects.
- The revised conceptual framework presented in this Chapter (Figure 6.1) can be used by academics and researchers to understand and analyse factors influencing E-Learning implementation, and teachers' and students' perceptions in terms of developing and implementing E-Learning projects.
- The research also examined demographic variables for both the students (gender, years of school and area of specializations) and teachers (gender, area of specializations, teaching experience and E-Learning experience) in term of their perceptions of factors influence E-Learning.
- Finally, to re-iterate, the research has outlined the importance of students' characteristics, teachers' characteristics, technology and design and content. These are included in the revised conceptual framework as outlined in Figure 6.1.

CHAPTER 7: Conclusion and Further Research

7.1 Introduction

With the advancement of information and communication technology, E-Learning has become more widespread in educational settings. E-Learning can enhance educational reform by creating a paradigm shift from teacher-centred and retention-based education to a student-centred education where students work collaboratively, construct their own knowledge, and enhance problem solving and higher-order thinking skills.

E-Learning is also characterised by flexibility of access to the information, emphasising a learner-centred approach, and promote the opportunities to the learner to produce knowledge and enable the learner to turn the information into useful knowledge to meet their needs and capabilities. However, existing research indicates that not all E-Learning in an educational setting is successful and effective, which suggests that as the adoption of E-Learning increases, there is a need to develop a conceptual framework to successfully deploy an E-Learning environment. Therefore, this research has two major goals: firstly, to investigate the Critical Success Factors (CSFs) that influence the success of E-Learning and secondly, to develop an E-Learning conceptual framework for a successful deployment of E-Learning projects. This chapter presents the conclusions drawn from the research endeavour.

The chapter starts with key findings from the survey in Section 7.2. The contributions of this research are presented in Section 7.3. Section 7.4 presents the recommendations and implications of this research. The limitations of the study are presented in Section 7.5. Section 7.6 presents the future research directions. Finally, research benefits are presented in Section 7.7.

7.2 Research Overview and Key Findings

This section presents an overview of the research as well as the findings from the survey questionnaire.

In order to investigate the factors that influence the implementation and development of E-Learning and the most appropriate framework for secondary schools in Bahrain, data was gathered from questionnaires. The study revealed the importance of the factors related to students' and teachers' characteristics, technology, and design and content as success factors of E-Learning from the perspective of the research sample. In fact, the students' characteristics factor was highlighted as the most important with 83.75%. The factor related to design and content came in second place with 79%, then the technology factor in third place with 77.64%. Finally, teachers' characteristics factor came in the last position with 77.2%.

The findings also showed that the student's characteristics factor (student attitudes and student motivation), teacher's characteristics factor (teacher attitudes, control of the technology and teaching style), technology factor (effectiveness of IT and quality of technology) and design and content factor (quality of content and perceived ease of use) are the most important factors that influence E-Learning (teachers' and students' perceptions), but with a low level of significance given to computer skills.

Based on these findings, it can be concluded that students' characteristics, teachers' characteristics, technology and design and content affected the success of E-Learning. The findings suggest that the most important sub-factors which have a significant influence on the success of E-Learning are as follows: students' motivation and attitudes towards E-Learning, followed by the interface of design and ease of use and the quality of content, then the quality of technology and effectiveness of IT, and finally the teachers' attitudes, control of technology and style of teaching. Moreover, as a result of this finding, all factors included in the E-Learning conceptual framework were found important by both teachers and students.

In order to determine the difference between teachers' and students' perceptions of factors that impact on E-Learning, data was gathered from questionnaires. The results showed no significant differences in the teachers' and students' responses in regard to the student characteristics, but there is a significant difference for teachers' and students' responses in regard to the teachers' characteristics, technology and design and content. The difference in the survey responses showed that teachers tended to highlight teachers' characteristics,

technology and design and content factors as most important for a successful E-Learning deployment.

On the basis of the findings, it can be concluded that no difference was found in teachers' and students' perceptions in terms of the students' characteristics factor, but differences existed in teachers' and students' perceptions in term of teachers' characteristics, technology and design and content factor.

Generally, there was a difference in perceptions between teachers and students on the level of importance of many factors such as teachers' characteristics, technology and design and content. Yet despite the differences in views and perceptions of surveyed teachers and students, they agreed that student characteristics were significant factor of E-Learning.

In order to examine the differences in teachers' perceptions regarding critical success factor in E-Learning based on gender, area of specialization, years of experience in teaching and experience in using E-Learning, data was gathered from the survey. The findings revealed that there were no significant differences between male and female teachers' perceptions with regard to the teachers' characteristics, technology and design and content factors. The male and female teachers shared the perceptions of importance of teachers' characteristics, technology and design and content factors. However there is a significant difference in relation to students' characteristics. Male teachers tended to choose the student' characteristics factor as significant and important more than female teachers. The findings therefore, only partially supported Hypothesis H₀1a: There is no significant difference in male and female teachers' perceptions of factors that impact on E-Learning.

The findings also showed that teachers with different specializations held different perceptions regarding the factors influencing E-Learning. There were significant differences of perceptions among teachers with different specializations in relation to students' characteristics, teachers' characteristics, technology and design and content. The Commercial science teachers highlighted student characteristics, teacher characteristics, technology and design and content as significant factors influencing E-Learning. The findings therefore, rejected Hypothesis H₀1b: There is no significant difference between

teachers of different specializations in their perceptions of factors that impact on E-Learning.

The findings also revealed that teachers with 11-15 years' experience found the technology factor more important than all teachers with more or less experience. The findings therefore, only partially supported Hypothesis H₀1c: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers with different teaching experience.

In addition, the results found that there were no significant differences among teachers with different experience of using E-Learning in regard to teachers' characteristics, technology, and design and content factors. However, the findings revealed that there is an agreement among different groups of teachers with different experience of using E-Learning with regard to the importance of teachers' characteristics, technology, and design and content factors. The findings therefore, partially supported Hypothesis H₀1d: There is no significant difference in the perceptions of factors that impact on E-Learning between teachers of different E-Learning experience.

Based on these findings, it can be concluded that teachers with different gender, specialization, different teaching experience and different E-Learning experience held different perceptions with regard to the critical factors influencing E-Learning. However, no gender differences were found in male and female teachers' perceptions with regard to teachers' characteristics, technology and design and content factors. Nevertheless, differences were evident between male and female teachers' perceptions with regard to students' characteristics. Differences were found in teachers' perceptions from different specializations with regard to the students' characteristics, teachers' characteristics, technology and design and content. The commercial teachers tended to highlight students' characteristics, teachers' characteristics, and design and content, whereas, The languages and social studies teachers tended to highlight students characteristics, teachers' characteristics and technology. In addition, the 11-15 years teachers' perceptions tended to highlight technology as significant factor of E-Learning. Moreover, the more than 5 E-Learning experience teachers' perceptions tended to highlight students' characteristics as significant factor of E-Learning. In addition, the results found that there were significant differences among teacher with different E-Learning experience in regard to students'

characteristics. The findings also revealed that there were no significant differences among teacher with different E-Learning experience in regard to teachers' characteristics, technology and design and content.

In order to determine the difference in students' perceptions regarding critical factors in E-Learning based on gender, field of study, and level of study, data was also gathered by administering a questionnaire. The findings showed that there was no significant difference between the male and female students with regard to the students' characteristics, technology and design and content factors, but there was a significant difference with regard to the teachers' characteristics. The male students' tended to highlight teachers' characteristics as a significant factor more than female students. The findings therefore, partially supported Hypothesis H₀2a: There is no significant difference in male and female students' perceptions of factors that impact on E-Learning.

The findings also revealed that there was no significant difference in the students' perceptions from different streams (Maths and Science stream students and Commercial and Language stream students) with regard to the students' characteristics, teachers' characteristics and technology factors, whereas there was a significant difference with regard to the design and content factor. The Commercial and Language stream students' tended to highlight the design and content as significant factors more than Maths and Science stream students. The findings only partially supported Hypothesis H₀2b: There is no significant difference in the perceptions of factors that impact on E-Learning between students of different area of study (specializations).

In addition, the findings showed that there were significant differences in first level and second level students' perceptions with regard to all factors. However, the findings revealed that the first level students tended to highlight students' characteristics, teachers' characteristics and design and content factors, whereas the second level students tended to highlight the technology factor as critical. The findings, therefore, rejected Hypothesis H₀2c: There is no significant difference in the perceptions of factors that impact on E-Learning between students of different levels of study (years in school).

Based on these findings, it can be concluded that students with different gender, stream and level of study held different perceptions with regard to the critical factors influencing E-

Learning. However, no gender differences were found in male and female students' perceptions with regard to students' characteristics, technology and design and content factors. Nevertheless, differences were evident between male and female students' perceptions with regard to teachers' characteristics. No differences were found in students' perceptions from different streams with regard to the students' characteristics, teachers' characteristics and technology whereas significant differences were found in students' perceptions from different streams in relation to the design and content. The commercial and language stream students' highlighted design and content as significant factors versus Maths and Science stream students. In addition, the Level One students' perceptions tended to highlight students' characteristics, teachers' characteristics and design and content as significant factors of E-Learning, whereas Level Two students tended to highlight technology as an important factor.

7.3 Contributions of the Research

The contributions made by this research come from all parts of this work. Contributions consist of the information provided in Chapters One, Two and Three, the design and the conduct of the survey strategy in Chapter Four, the descriptive analysis of the data presented in Chapter Five, and finally the discussion presented in Chapter Six.

7.3.1 Contributions to the Knowledge of Education Field

This study contributes to the knowledge of education in the following ways. Firstly, it provides scientific evidence that there is a suite of factors. Students' characteristics, teachers' characteristics, technology and design and content considered as crucial factors that affect the success of E-Learning implementation and development projects in school settings. Existing research (Masoumi, 2006; Selim, 2007; Al-Fadhli, 2008) have only examined the influence of students' characteristics, teachers' characteristics and technology on the success of E-Learning, but the design and content factor is not examined in the aforementioned studies. This study has investigated the influence of design and content on the success of E-Learning, and has found that the design and content is considered as the most important and significant factor that influences the success of E-Learning as well as students' characteristics, teachers' characteristics, and technology. This provides a better understanding of the factors which need to be addressed to achieve an effective implementation of E-Learning. Exploring the factors that will lead to a successful delivery, adoption, and implementation as well as investigating them are all critical issues in school settings. Additionally, this research fills the void with regard to the lack of

studies in Arab and Gulf region countries in general and in the Kingdom of Bahrain in particular related to the factors that influence E-Learning in educational settings in both higher and school education. Therefore, it is important for educators and practitioners to understand the effects of CSFs of E-Learning and how the factors identified might affect the quality of E-Learning in school education and help in developing an effective E-Learning experience that can cater for teachers and students.

Secondly, the study demonstrates the differences among teachers' and students' perceptions. This provides a better understanding of the different perceptions of both teachers and students with regard to the success of E-Learning. Existing research has investigated the factors influencing the success of E-Learning from the point of view of either teachers or students (Selim, 2007; Sun et al., 2008; Abbad et al., 2009; Malik, 2010; Mosakhani and Jamporzmay, 2010; FitzPatrick, 2012). This research fills the gap with regard to the lack of studies in the Arab and Gulf region countries in general and in the Kingdom of Bahrain in particular, focusing on feedback from both teachers and students.

Thirdly, the findings indicated that the differences among teachers' and students' perceptions of E-Learning CSFs. This research has examined four demographic variables with regard to teachers: gender, area of specialization, and experience in teaching and employing E-Learning in teaching, which are considered in the literature as important variables that affect the teaching and learning process within an E-Learning environment. Existing research has examined the view of teachers based on one or more variables such as gender and experience in employing ICT in teaching. This research fills the gap with regard to the lack of studies in the Arab and Gulf region countries to the concern of the teachers' perceptions according to the aforementioned four variables. The results of this study appear to suggest that all teachers consider the teachers' characteristics, technology, and design and content factors as the CSFs of E-Learning, while there were differences among the teachers with regards to students' characteristics. In addition, the findings indicate that there were differences among teachers from different specializations with regards to all factors.

This research arises a crucial issue and a question arises: what is the shape and content of the professional development training programs delivered to the teachers? The program should be offered to the teachers based on their needs and to promote job satisfaction and

enhance self-efficacy. Therefore, the findings of this research contribute towards a better understanding of teachers' and students' perceptions. Thus, this research leads to highlighting the new positive learning environment to promote the teachers' roles as supports of learning, advisers, facilitators, designers of learning environments and coaches for students rather than merely transmitting knowledge. Studies that address this issue in another context will help provide insight into how E-Learning can transform the role of the teacher in the near future to better adapt to technology and fit into an E-Learning environment.

Finally, it is interesting that the findings indicate that the male teachers considered students' characteristics as CSFs of E-Learning. In addition, the findings also indicate that male students considered the teachers' characteristics as CSFs of E-Learning. This research highlights crucial aspects with regard to the social dimension which appears when addressing interactive relationships between individuals. Among many issues recently studied in E-Learning, social factors were often considered as essentially important. The social factors focus on the relationship between the student and the educator in the first place as a humanistic relation between two equals. This social aspect plays an essential role in the success of any learning process. The social role is typically employed to promote a friendly environment and a community feeling to support the students' cognitive learning processes. This research helps in better understanding the social issue which needs to be addressed when implementing an E-Learning environment in a social and collaborative context. In addition, the aim is to explore the social interactions within an E-Learning environment to overcome the major challenges facing E-Learning.

7.3.2 Contributions to the Knowledge of E-Learning Success framework

The final contribution provided by this work is the proposal of an E-Learning Success framework for the successful implementation of E-Learning in education settings especially in school education and in the Arab and Gulf region countries. This E-Learning Success framework was designed, modified and presented in detail in Chapters 3 and 6, based on the data analysis of the research about CSFs, the review of previous frameworks, the researcher's experience and the researcher's work as Chief of Quality Assurance (Q-9) of the E-Content team and Chief of E-Content. Different dimensions were considered. Firstly, the E-Learning conceptual framework attempts to investigate the CSFs affecting E-Learning by integrating these direct factors, which emerged from the survey used in this

research, with the indirect factors to represent the internal factors within the educational settings. Secondly, it investigates the supportive factors which represent the factors that surround the educational settings and are considered as external factors. Thirdly, this conceptual framework attempts to investigate the managerial elements that considered the management of E-Learning projects in educational settings including the different critical stages of planning, design, execution and application, development, and assessment. Finally, it investigates the dimension related to the outcomes of E-Learning which aim to establish and disseminate E-Learning Literacy within society.

The second contribution of the E-Learning Success framework is to implement it in the educational settings of both higher and school education as a conceptual framework and means of examining E-Learning planning, development and successful implementation in order to achieve the success of E-Learning. Therefore, the E-Learning Success framework is believed to enhance the success of E-Learning when implemented or developing E-Learning in educational settings as it concentrates on integrating internal and external factors within managerial stages. Moreover, the E-Learning Success framework will provide a clear guide and conceptual framework for educational settings in the Kingdom of Bahrain and in the Arab and Gulf region countries. The third contribution is to assist in decision making in different educational settings to understand the most relevant critical factors and challenges that are expected to arise during the implementation of E-Learning. Therefore, decision makers in education settings considering critical factors may increase the chance of the success and effectiveness of E-Learning and eliminate any obstacles. Additionally, the findings can help decision makers to construct and formulate robust decisions suitable for different E-Learning environments.

7.4 Recommendations and Implications

The research highlights some implications to build upon the success of E-Learning implementation and development and provide the educational settings with a suitable conceptual framework.

7.4.1 Increase E-Learning Success

Based on the conceptual framework phases and the findings of this research, stakeholders can improve E-Learning quality and provide teachers and students with a suitable E-Learning experience by identifying and investigating some key factors that might assist the

successful implementation of E-Learning in the educational sector in general and in school education in particular.

Firstly, based on the CSFs identified, stakeholders (the decision makers, the educators and the practitioners) should take into consideration students' needs, skills and capabilities to provide the appropriate preparation for navigation, interaction between students and teachers, and among students, and facilitate access to resources effectively. It is important that the learning environments be usable to students, that they are encouraged to use the E-Learning environment frequently, and that these environments enhance motivation and students' attitudes to E-Learning and encourage them to learn. The educators should prioritise the development and design of the curricula to provide enrichment of E-materials and build and design E-content, develop learning and teaching methods and develop assessment approaches and tools based on students' and teachers' needs and demands. This will lead to the enhancement of students' learning abilities, provide for the possibility of teachers' utilisation of E-Learning effectively, and provide teacher time and decrease effort during the learning and teaching processes.

Secondly, the stakeholders should classify the teachers' background before attempting to improve the quality of E-Learning for which they identify the applicability and capability of potential. Therefore, the stakeholders should take into consideration, when implementing E-Learning, the need for the continuous training of teachers in the new trends of E-Learning in the learning process. Moreover, it is essential to provide training for the teachers to develop and design E-lessons as well as training with regard to managing the classroom and how to deal with students during the learning process.

Thirdly, stakeholders should provide strategy for the relevant environmental and social issues which both teachers and students can relate to and work comfortably in. Fourthly, the stakeholders should create an appropriate environment including the infrastructure, techniques, tools, and E-Library while considering the number of students in the classroom to improve E-Learning quality. Finally, according to the E-Learning Success framework proposed, the decision maker in the Ministry of Education should adopt this conceptual framework to provide adequate support to the teachers and students to develop their performance and roles and the development of their attitudes towards the effective use of E-Learning. With a careful consideration of all the outlined factors, stakeholders in the

education sector in general and in the school education in particular, can have a clear vision to deploy an attractive and positive meaningful learning environment and achieve a suitable, success, effective and sustainable E-Learning environment.

7.4.2 Develop and Implement E-Learning Success Framework

In addition to investigating the influence of CSFs in successful E-Learning, the E-Learning success conceptual framework provides the stakeholder in educational settings with a clear and holistic model for the development and implementation of E-Learning. A small number of previous studies attempted to develop an E-Learning CSFs conceptual framework in the Arab and Gulf region countries without a clear vision of the CSFs influencing E-Learning. In addition, there was a lack of previous studies in Bahrain with regard to the E-Learning framework. Other frameworks had been developed and implemented in western countries and in higher education. The proposed conceptual framework identifies the internal and external factors and links these factors to the managerial stages. Moreover, the conceptual framework identifies the components of the internal (direct and indirect factors) and the external (supportive factors) to provide a holistic approach and clear vision of successful E-Learning. This conceptual framework can be considered as a conceptual framework for any future E-Learning projects for the Ministry of Education in the Kingdom of Bahrain in particular, and in the Arab and Gulf region countries in general.

7.5 Limitations of this Research

This study has some limitations that should be considered when interpreting its findings. Firstly, this study adopted a quantitative approach that included a survey strategy with questionnaires for both teachers and students to identify the critical success factors of E-Learning. However, the research could have more validity if this study adopted mixed methods of quantitative approach (questionnaires) and qualitative approach (interviews) to define and reveal several important aspects of E-Learning. Secondly, the results are limited to secondary school education. The applicability of secondary school settings to other educational settings may be questionable. Thirdly, the E-Learning Success framework in this study was developed based on previous literature, the experience of the researcher in terms of E-Learning and a discussion of the issues with stakeholders, so this conceptual framework needs to be tested and justified in the appropriate educational context. In order to pursue further investigations of the E-Learning framework, it would be appropriate to

introduce more factors such as environmental factors, especially system support and social factors, if it will be adopted in other educational and training settings.

7.6 Further Research Directions

7.6.1 Studying E-Learning Internal and External Factors

The literature on E-Learning in the Arab and Gulf region lacked studies on CSFs of E-Learning especially in identifying internal and external factors. Due to the similarities and differences between the Arab and Gulf region countries in terms of internal and external factors such as the participants, technology infrastructures and the support of the government etc., factors that affect E-Learning success are expected to have similarities and differences. Therefore, it is proposed to conduct a comparison study identifying E-Learning CSFs (internal and external factors) for E-Learning projects in the Arab and Gulf region countries. Further research that involves data collection in another educational setting is needed. It will be possible to conduct analyses on both educational and training settings.

7.6.2 Implementing the E-Learning Success Framework

The proposed E-Learning Success framework for the success of E-Learning development and implementation was developed mainly on the basis of previous literature, the findings in this research and the researcher's experiences. Therefore, firstly, the researcher suggests implementing this conceptual framework in educational settings to assess the validity and feasibility of the extended research conceptual framework. Secondly, the conceptual framework could be implemented in other Arab and Gulf region countries in educational settings to examine the CSFs effects on successful E-Learning.

7.6.3 E-Learning Success Framework

The third research objective was to develop the E-Learning Success framework to successfully deploy E-Learning. Firstly, the E-Learning Success Framework attempts to investigate CSFs of E-Learning within a conceptual framework by integrating these direct factors which emerged from this research with the indirect factors to represent the internal factors that must be addressed within the educational settings. Secondly, the support factors, which are considered external environmental factors and identified in the E-Learning Success Framework, influence educational institutions and must be thoroughly considered for E-Learning to fit into, and possibly create, a collaborative community.

Thirdly, this conceptual framework attempts to focus on the managerial elements that consider the management of E-Learning projects in educational settings including the different critical stages of planning, design, execution and application, development, and assessment. Finally, an important factor is the dimension related to the outcomes of E-Learning which aim to achieve E-Learning Literacy within the community and quality of education.

7.7 Research Benefits

The benefits of this research are generated from its usefulness to various fields. The research extends the line of developing an E-Learning success Framework by identifying the critical factors of E-Learning. The educators and the practitioners may use the findings of this research to design the learning and teaching process in learning environments to create suitable E-Learning based on specific elements of the environment. In addition, the research provides the E-Learning Success framework as a guide to unravel and investigate key factors that might help and drive the successful implementation of E-Learning in school education in particular and the educational sector as a whole. Therefore, it is significant that educators and practitioners understand the effects of E-Learning CSFs and how this might affect the quality of E-Learning in school education and help to develop effective E-Learning that can cater to both teachers and students.

As a result, some consideration should be taken when implementing E-Learning in school education in Arab countries in general and Bahrain in particular. The reason for considering such awareness is the impact of three main elements as follows: fundamental internal elements, external support elements, and managerial elements.

Fundamental internal elements: As the current study has shown, these elements are considered the Critical Success Factors (CSFs) that directly influence the E-Learning environment. Students' characteristics, teachers' characteristics, and technology as well as design and content are the CSFs that lead to the success or failure of the E-Learning experience. Moreover, indirect factors should be considered in the conceptual framework: support, supervision and guidance. Indirect factors activate CSFs beyond the limitation of a traditional physical learning experience dictated by regular school hours and the physical school environment. These indirect elements ensure that the potential of CSFs is maximized through feedback, review and support.

External support factors: Financial support options are considered external supportive elements. Financial options considered are: family support, community support, and governmental and community institutions, as well as training departments. Financial support provides the elements necessary for the CSFs to reach their full potential. In contrast to the indirect factors previously mentioned, financial support has a direct influence on the internal E-Learning environment by providing the means to create and support the CSFs.

Managerial elements: These elements include the management of E-Learning projects including the critical stages of planning, design, execution and application, development, and assessment. The reason for including these elements is that the management aspect of E-Learning projects is critical for creating a clear roadmap for the project and to avoid a chaotic approach to deploying it. Moreover, the conceptual framework includes three dimensions for maximizing the benefits of, and for stimulating the interaction between, the aforementioned main elements of the conceptual framework: skills, technology and supervision. Skills include the ability to use technology by the various stakeholders involved. Technology includes providing the technological tools and developing an E-Learning environment in order to create the critical learning infrastructure which provides the foundation of any E-Learning project. Supervision includes the managerial skills of managing E-Learning projects which develop managerial abilities for the stakeholders involved in the administrative aspects of an E-Learning project: teachers, supervisory team and administration.

Therefore, decision makers in educational settings considering the CSFs may increase the chance of the success of E-Learning and eliminate any obstacles. Additionally, the findings can help decision makers to construct and formulate robust decisions suitable for different environments that are essential for the success and effectiveness of an E-Learning environment. Moreover, decision makers may refer to the E-Learning Success Framework for E-Learning in the Arab and Gulf region countries as an exemplar in the rest of the world in order to assist in achieving a satisfactory quality of education and to transfer from a knowledge based society to an innovation and creativity based society.

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Appendices

Appendix (A): Questionnaire Items and Sources

Independent variables	Items	Sources
Student dimension	<p>The E-Learning encourages me to search for more facts than the traditional methods</p> <p>The E-Learning encourages me to participate more actively in the classroom activities than the traditional methods</p> <p>I enjoy using personal computers</p> <p>I use the personal computers for homework and play</p> <p>I was comfortable with using the PC and software applications before I took up the E-Learning lessons</p> <p>My previous experience in using the PC and software applications helped me in the E-Learning lessons</p> <p>I am not intimidated by using the E-Learning lessons</p> <p>I learn best by absorption (sit still and absorb)</p> <p>I learn best by construction (by participation and contribution)</p> <p>I learn better by construction than absorption</p>	Selim (2007); Bathaeian (2009); Self-developed
Teacher dimension	<p>The teacher is enthusiastic about teaching the class</p> <p>The teacher's style of presentation holds me interest</p> <p>The teacher is friendly towards individual students</p> <p>The teacher has an authentic interest in students</p> <p>Students felt welcome in seeking advice/help</p> <p>The teacher encourages student interaction</p> <p>The teacher handles the E-Learning lessons effectively</p> <p>The teacher explains how to use the E-Learning lessons components</p> <p>I feel the teacher is keen that we use the E-Learning lessons</p> <p>We were invited to ask questions/receive answers</p> <p>We were encouraged to participate in class</p> <p>The teacher encourages and motivates me to use E-Learning</p> <p>The teacher is active in teaching me the subjects via E-Learning</p>	Selim (2007); Bathaeian (2009); Self-developed
Technology dimension	<p>Easy access to the Internet</p> <p>Did not experience problems while browsing</p> <p>Browsing speed was satisfactory</p> <p>I can use any PC at the school using my account and password</p> <p>I can use the computer labs for practicing</p> <p>I can use the e-classroom for practicing</p> <p>I can rely on the computer network</p> <p>Overall, the information technology infrastructure is efficient</p>	Selim (2007); Bathaeian (2009); Self-developed
Design and content dimension	<p>It would be easy for me to become skillful at using E-Learning systems</p> <p>Learning to operate E-Learning systems would be easy for me</p> <p>I would find it easy to get an E-Learning system to study and to do my homework</p> <p>Overall, the website was easy to use</p> <p>I found the screen design pleasant</p> <p>I could interact with classmates through the web</p> <p>I could easily contact the teacher</p> <p>Conducting the lessons via the E-Learning improved the quality of the subjects</p> <p>The quality of the subject via the E-Learning compared favorably to my other subjects</p> <p>I feel the quality of the subject I took was largely unaffected by conducting it via the E-Learning</p>	Selim (2007); Sun (2008); Self-developed

Appendix (B): Names of the Experts Participated in Review the Questionnaire

Names	Occupation	Place
Dr. Ahmad Azam	Vice Directorate of academic affairs	Arab Open University
Dr. Al- SaeedAwedah	Senior evaluation Specialist	Curriculum Directorate
Mr. EmadAlsaderi	English Specialist	
Dr. FatenAbdullhamid	Head of Science Section	Bahrain Teachers college
Dr. Mohd Al-Rayahnh	Science Specialist	Curriculum Directorate
Dr. Samir Ekresat	Science Specialist	Curriculum Directorate
Dr. TyasserAlkhteb	Senior evaluation Specialist	Curriculum Directorate
Mr.YousafMahfoot	Consultant of Science curriculum	Curriculum Directorate

Appendix (C): E-Learning Questionnaire-Teacher Form

The main purpose of this questionnaire is to study the key factors that affect E-Learning environment. E-Learning is the use of electronic technologies, applications, processes, and tools in the teaching and learning process. These key factors provide innovative opportunities to support the implementation of E-Learning in education. In addition, this questionnaire aims at obtaining your feedback regarding the factors that influence E-Learning. This feedback will be used to develop E-Learning in order to achieve a satisfactory and quality education.

By completing this questionnaire you will help us assess the future of E-Learning. Please complete this form and return it to the researcher.

SECTION A

For demographic purposes, please check the boxes that are appropriate:

The field of teaching	Gender:	Age:	Years of teaching:
<input type="checkbox"/> Science & math	<input type="checkbox"/> Male	<input type="checkbox"/> 20 – 30	<input type="checkbox"/> 5-10
<input type="checkbox"/> Languages &social	<input type="checkbox"/> Female	<input type="checkbox"/> 31– 40	<input type="checkbox"/> 11-15
<input type="checkbox"/> Commercial		<input type="checkbox"/> > 41	<input type="checkbox"/> 16-20
			<input type="checkbox"/> > 20

What is the average size of your class?	Do you have access to a computer:	Are you familiar with E-Learning environment? Where?	How long have you been using E-Learning in your teaching process?
<input type="checkbox"/> 25-30	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes,	<input type="checkbox"/> Never
<input type="checkbox"/> 31-35	<input type="checkbox"/> No		<input type="checkbox"/> 1-5 years
<input type="checkbox"/> > 36		<input type="checkbox"/> No	<input type="checkbox"/> 6-10
			<input type="checkbox"/> >11

SECTION B

Please justify your level of agreement based on the statements below.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

Student characteristics	SD	D	N	A	SA
1. The use of E-Learning is more encouraging than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. The use of E-Learning is more exciting than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3. The use of E-Learning facilitates learning more than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4. The use of E-Learning enables students to complete tasks more easily than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5. The use of E-Learning requires a more help with the application than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6. The use of E-Learning provides more attractive learning environment than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7. The use of E-Learning provides more opportunities to participate in activities than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8. The use of E-Learning is more satisfactory than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
9. The use of E-Learning improves the learning performance	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
10. The use of E-Learning is more is more enjoyable than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Teacher characteristics	SD	D	N	A	SA
1. The use of E-Learning method is better in the learning and teaching process	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2. The use of E-Learning is more beneficial than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

3.	The use of E-Learning is more advantageous than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4.	The use of E-Learning is more enjoyable and satisfactory than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5.	The use of E-Learning provides more control over learning and teaching process than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6.	The use of E-Learning is more encouraging and motivating for interaction than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
7.	The use of E-Learning requires more time and effort than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
8.	The use of E-Learning is more effective and efficient than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
9.	The use of E-Learning is more productive than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
10.	The use of E-Learning improves the quality of learning and teaching process more than the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Technology		SD	D	N	A	SA
1.	E-Learning is more difficult to use in the learning and teaching process	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2.	Having E-Learning materials online 24/7 is practical for learning and teaching process	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3.	E-Learning environment provides me with the opportunity of participating in E-Classes	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4.	Usually I need assistance or training when using an E-Learning system for the first time	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5.	Overall, E-Learning environment infrastructure is effective and efficient	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Design and Content		SD	D	N	A	SA
1.	E-Learning environment is easy to integrate with the learning and teaching process	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
2.	It is easy to manage and update my e-content	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
3.	In E-Learning the student is more engaged with the content than in the traditional method	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
4.	I find that designing E-Learning content and materials is time consuming and a waste of efforts	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
5.	Overall, the E-Learning improves the quality of content, learning and teaching process	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
6.	Availability of E-content is an essential point in E-Learning implementation.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Please use this space to provide us with suggestions for helping us to make this a most successful E-Learning.

Please contact Mrs. Madina Taha if you require further information or explanation of any part of this questionnaire:

Madina Taha

P. O .Box 525, Manama, Bahrain

mhtaha@hotmail.com

Thank you for completing this questionnaire.

Appendix (D): E-Learning Questionnaire-Student Form

The main purpose of this questionnaire is to study the key factors that affect E-Learning environment. E-Learning is the use of electronic technologies, applications, processes, and tools in the teaching and learning process. These key factors provide innovative opportunities to support the implementation of E-Learning in education. In addition, this questionnaire aims at obtaining your feedback regarding the factors that influence E-Learning. This feedback will be used to develop E-Learning in order to achieve a satisfactory and quality education.

By completing this questionnaire you will help us assess the future of E-Learning. Please complete this form and return it to the researcher.

SECTION A

For demographic purposes, please check the boxes that are appropriate:

Field of study:	Gender:	Age:	Level of study:
<input type="checkbox"/> Science & math	<input type="checkbox"/> Male	<input type="checkbox"/> 15 – 16	<input type="checkbox"/> 1
<input type="checkbox"/> Languages &social Sci	<input type="checkbox"/> Female	<input type="checkbox"/> 17 – 18	<input type="checkbox"/> 2
<input type="checkbox"/> Commercial		<input type="checkbox"/> > 18	<input type="checkbox"/> 3

Can you use a computer?	Home internet connection is available to you?	Have you ever used an E-Learning environment before?
<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No

SECTION B

Please justify your level of agreement based on the statements below.

1 = Strongly disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly agree (SA)

Student characteristics	SD	D	N	A	SA
1. The use of E-Learning is more encouraging than the traditional method	1	2	3	4	5
2. The use of E-Learning is more exciting than the traditional method	1	2	3	4	5
3. The use of E-Learning facilitate learning more than the traditional method	1	2	3	4	5
4. The use of E-Learning enable students to complete tasks much easier than the traditional method	1	2	3	4	5
5. The use of E-Learning require more help with application than the traditional method	1	2	3	4	5
6. The use of E-Learning provides more attractive learning environment than the traditional method	1	2	3	4	5
7. The use of E-Learning provides more opportunities to participate in activities than the traditional method	1	2	3	4	5
8. The use of E-Learning is more satisfactory than the traditional method	1	2	3	4	5
9. The use of E-Learning improves the learning performance	1	2	3	4	5
10. The use of E-Learning enjoyable than the traditional method	1	2	3	4	5
Teacher characteristics	SD	D	N	A	SA
1. The use of E-Learning method is better in the learning and teaching process	1	2	3	4	5
2. The use of E-Learning is more beneficial than the traditional method	1	2	3	4	5
3. The use of E-Learning is more advantageous than the traditional method	1	2	3	4	5
4. The use of E-Learning is more feasibility than the traditional method	1	2	3	4	5

5.	The use of E-Learning provides more control on learning and teaching process than the traditional method	1	2	3	4	5
6.	The use of E-Learning is more encouraging and motivating for interaction than the traditional method	1	2	3	4	5
7.	The use of E-Learning requires more time and effort than the traditional method	1	2	3	4	5
8.	The use of E-Learning is more effective and efficient than the traditional method	1	2	3	4	5
9.	The use of E-Learning is more productive than the traditional method	1	2	3	4	5
10.	The use of E-Learning improves the quality of learning and teaching process more than the traditional method	1	2	3	4	5
Technology		SD	D	N	A	SA
1.	E-Learning is more difficult to use in learning and teaching process	1	2	3	4	5
2.	Having E-Learning materials online 24/7 is practical for learning and teaching process	1	2	3	4	5
3.	E-Learning environment provides me with the opportunity of participating in E-Classes	1	2	3	4	5
4.	Usually I need assistance or training when using an E-Learning system for the first time	1	2	3	4	5
5.	Overall, E-Learning environment infrastructure is effective and efficient	1	2	3	4	5
Design and Content		SD	D	N	A	SA
1.	E-Learning environment is easy to integrate with learning and teaching process	1	2	3	4	5
2.	It is easy to manage and update my e-content	1	2	3	4	5
3.	In E-Learning the student is more engaged with the content than the traditional method	1	2	3	4	5
4.	The use of E-Learning content and materials is time consuming and a waste of efforts	1	2	3	4	5
5.	Overall, E-Learning environment improves the quality of content, learning and teaching process	1	2	3	4	5

Please use this space to provide us with suggestions for helping us to make this a most successful E-Learning.

Please contact Mrs. Madina Taha if you require further information or explanation of any part of this questionnaire:

Madina Taha

P. O. Box 525, Manama, Bahrain
mhtaha@hotmail.com

Thank you for completing this questionnaire

Appendix (E): Arabic Version of Questionnaire-Teacher Questionnaire

مملكة البحرين
الجامعة الأهلية

"استبانة عن آراء المعلمين حول التعلم الإلكتروني"

تحية طيبة وبعد،

تقوم الباحثة بدراسة عن "العوامل المؤثرة في تنفيذ التعلم الإلكتروني"، وهي دراسة تقع ضمن متطلبات الحصول على درجة الدكتوراه. وقد صممت الباحثة هذه الاستبانة كأحد الأدوات التي ستطبق في الدراسة، التي تهدف إلى تعرف العوامل المؤثرة في فاعلية تنفيذ التعلم الإلكتروني. ويعرف التعلم الإلكتروني بأنه نظام تعليمي يتم باستعمال أدوات وتطبيقات متنوعة إلكترونياً أثناء عملية التعلم. إن المشاركة في تعبئة هذه الاستبانة سوف تسهم في إيجاد بيئة تعلم جاذبة ومحفزة للتعلم، وتساعد في الوقت نفسه على تطوير التعلم الإلكتروني في المستقبل، وتجويد عملية التعلم والتعليم بصورة عامة، علماً بأنه سوف يتم التعامل مع المعلومات المدونة في هذه الاستبانة لأغراض البحث فقط.

الباحثة

القسم الأول: معلومات عامة

المادة التي تدرس:
 العلوم الرياضيات
 اللغة العربية اللغة الإنجليزية
 المواد الاجتماعية العلوم الإنسانية
 العلوم التجارية أخرى

الجنس:
 ذكر
 أنثى

السن:
 20-30
 31-40
 أكبر من 41

عدد سنوات التدريس:
 5 - 10
 11 - 15
 16 - 20
 أكثر من 20

عدد الطلبة في الصف
 25 - 30
 31 - 35
 أكثر من 36

هل التحقت بدورة تدريبية لاستخدام جهاز الحاسوب؟
 نعم
 كلا

هل استخدمت بيئة التعلم الإلكتروني من قبل؟
 نعم ، أين
 كلا

منذ متى تستخدم التعلم الإلكتروني في عملية التعلم والتعليم؟
 ولا مرة
 1 - 5
 6 - 10
 أكثر من 11

القسم الثاني:

حدد رأيك في العبارات الآتية ، يمثل رقم (1) غير موافق بشدة، رقم (2) غير موافق ، رقم (3) لا أعلم ، رقم (4) موافق ، رقم (5) موافق بشدة

خصائص الطالب	5	4	3	2	1
1. استخدام التعلم الإلكتروني يشجع عملية التعلم أكثر من التعلم التقليدي	5	4	3	2	1
2. استخدام التعلم الإلكتروني يحفز على عملية التعلم أكثر من التعلم التقليدي	5	4	3	2	1
3. استخدام التعلم الإلكتروني يبسر عملية التعلم أكثر من التعلم التقليدي	5	4	3	2	1
4. استخدام التعلم الإلكتروني يمكن من إنجاز بعض مهمات التعلم بشكل أسهل من التعلم التقليدي	5	4	3	2	1
5. استخدام التعلم الإلكتروني يتطلب مساعدة أثناء العمل أكثر من التعلم التقليدي	5	4	3	2	1
6. استخدام التعلم الإلكتروني يوفر بيئة تعلم جاذبة أكثر من التعلم التقليدي	5	4	3	2	1
7. استخدام التعلم الإلكتروني يتيح فرصاً للمشاركة في الأنشطة أكثر من التعلم التقليدي	5	4	3	2	1
8. استخدام التعلم الإلكتروني يبعث على الارتياح والرضا أكثر من التعلم التقليدي	5	4	3	2	1
9. استخدام التعلم الإلكتروني يحسن مستوى الأداء	5	4	3	2	1

5	4	3	2	1	
5	4	3	2	1	10. استخدام التعلم الإلكتروني أكثر متعة أثناء عملية التعلم من التعلم التقليدي
5	4	3	2	1	خصائص المعلم
5	4	3	2	1	1. استخدام التعلم الإلكتروني أفضل في عملية التعلم والتعليم
5	4	3	2	1	2. استخدام التعلم الإلكتروني أكثر فائدة من التعلم التقليدي
5	4	3	2	1	3. استخدام التعلم الإلكتروني يوفر مزايا متعددة لعملية التعلم والتعليم
5	4	3	2	1	4. استخدام التعلم الإلكتروني أكثر جدوى من التعلم التقليدي
5	4	3	2	1	5. استخدام التعلم الإلكتروني يوفر القدرة على التحكم في عملية التعلم والتعليم وضبطها
5	4	3	2	1	6. استخدام التعلم الإلكتروني يثير الدافعية ويشجع على التفاعل أثناء عملية التعلم
5	4	3	2	1	7. استخدام التعلم الإلكتروني يتطلب وقتاً وجهداً أكبر من التعلم التقليدي
5	4	3	2	1	8. استخدام التعلم الإلكتروني أكثر فاعلية وكفاءة من التعلم التقليدي أحياناً
5	4	3	2	1	9. استخدام التعلم الإلكتروني يزيد المثابرة والانتاجية أثناء عملية التعلم والتعليم
5	4	3	2	1	10. استخدام التعلم الإلكتروني يزيد من جودة عملية التعلم والتعليم
5	4	3	2	1	تقنية المعلومات
5	4	3	2	1	1. توجد صعوبات أثناء تطبيق التعلم الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	2. توافر المواد التعليمية في صورة إلكترونية 24 ساعة ولمدة أسبوع إجراء عملي لعملية التعلم والتعليم
5	4	3	2	1	3. بيئة التعلم الإلكتروني تهيء فرصاً للمشاركة والتفاعل في الدروس الإلكترونية
5	4	3	2	1	4. استخدام التعلم الإلكتروني يحتاج إلى تدريب ومساعدة في البداية
5	4	3	2	1	5. البنية التحتية لبيئة التعلم الإلكتروني عموماً فعالة وذات كفاءة عالية
5	4	3	2	1	التصميم والمحتوى
5	4	3	2	1	1. التعلم الإلكتروني يمكن ادماجه في عملية التعلم والتعليم بكل سهولة
5	4	3	2	1	2. استخدام التعلم الإلكتروني يسهل إدارة وتحديث المحتوى الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	3. استخدام التعلم الإلكتروني يساعد في الانخراط في المحتوى الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	4. تصميم وإعداد المحتوى الإلكتروني يضعف الوقت ويستهلك الجهد
5	4	3	2	1	5. استخدام التعلم الإلكتروني يزيد جودة المحتوى ويطور عملية التعلم والتعليم
5	4	3	2	1	6. توافر المحتوى الإلكتروني أمر أساسي وهام عند تطبيق التعلم الإلكتروني

يمكنك مشكوراً تقديم مقترحات إضافية للمساهمة في بناء وتصميم تعلم إلكتروني فعال.

شكراً على تعاونكم

Appendix (F): Arabic Version of Questionnaire-Student Questionnaire

مملكة البحرين
الجامعة الأهلية

"استبانة حول آراء الطلبة حول التعلم الإلكتروني"

تحية طيبة وبعد،

تقوم الباحثة بدراسة عن "العوامل المؤثرة في تنفيذ التعلم الإلكتروني"، وهي دراسة تقع ضمن متطلبات الحصول على درجة الدكتوراه. وقد صممت الباحثة هذه الاستبانة كأحد الأدوات التي ستطبق في الدراسة، التي تهدف إلى تعرف العوامل المؤثرة في فاعلية تنفيذ التعلم الإلكتروني. ويعرف التعلم الإلكتروني بأنه نظام تعليمي يتم باستعمال أدوات وتطبيقات متنوعة إلكترونياً أثناء عملية التعلم. إن المشاركة في تعبئة هذه الاستبانة سوف تسهم في إيجاد بيئة تعلم جاذبة ومحفزة للتعلم، وتساعد في الوقت نفسه على تطوير التعلم الإلكتروني في المستقبل، وتجويد عملية التعلم والتعليم بصورة عامة، علماً بأنه سوف يتم التعامل مع المعلومات المدونة في هذه الاستبانة لأغراض البحث فقط.

القسم الأول : معلومات عامة

المجموعة :	الجنس:	السن:	المستوى الدراسي :
<input type="checkbox"/> العلوم والرياضيات	<input type="checkbox"/> ذكر	<input type="checkbox"/> 16 - 15	<input type="checkbox"/> 1
<input type="checkbox"/> اللغات والعلوم الإنسانية	<input type="checkbox"/> أنثى	<input type="checkbox"/> 18 - 17	<input type="checkbox"/> 2
<input type="checkbox"/> العلوم التجارية		<input type="checkbox"/> أكبر من 18	<input type="checkbox"/> 3

هل لديك القدرة على استخدام الحاسوب ؟	هل تتوفر خدمة الانترنت في المنزل ؟	هل استخدمت بيئة التعلم الإلكتروني من قبل ؟
<input type="checkbox"/> نعم <input type="checkbox"/> كلا	<input type="checkbox"/> نعم <input type="checkbox"/> كلا	<input type="checkbox"/> نعم <input type="checkbox"/> كلا

القسم الثاني:

حدد رأيك في العبارات الآتية ، بمثل رقم (1) غير موافق بشدة، رقم (2) غير موافق ، رقم (3) لا أعلم ، رقم (4) موافق ، رقم (5) موافق بشدة


خصائص الطالب	1	2	3	4	5
1. استخدام التعلم الإلكتروني يشجع عملية التعلم أكثر من التعلم التقليدي	1	2	3	4	5
2. استخدام التعلم الإلكتروني يحفز على عملية التعلم أكثر من التعلم التقليدي	1	2	3	4	5
3. استخدام التعلم الإلكتروني يبسر عملية التعلم أكثر من التعلم التقليدي	1	2	3	4	5
4. استخدام التعلم الإلكتروني يمكن من إنجاز بعض مهمات التعلم بشكل أسهل من التعلم التقليدي	1	2	3	4	5
5. استخدام التعلم الإلكتروني يتطلب مساعدة أثناء العمل أكثر من التعلم التقليدي	1	2	3	4	5
6. استخدام التعلم الإلكتروني يوفر بيئة تعلم جاذبة أكثر من التعلم التقليدي	1	2	3	4	5
7. استخدام التعلم الإلكتروني يتيح فرصاً للمشاركة في الأنشطة أكثر من التعلم التقليدي	1	2	3	4	5
8. استخدام التعلم الإلكتروني يبعث على الارتياح والرضا أكثر من التعلم التقليدي	1	2	3	4	5
9. استخدام التعلم الإلكتروني يحسن مستوى الأداء	1	2	3	4	5
10. استخدام التعلم الإلكتروني أكثر متعة أثناء عملية التعلم من التعلم التقليدي	1	2	3	4	5
خصائص المعلم	1	2	3	4	5
1. استخدام التعلم الإلكتروني أفضل في عملية التعلم والتعليم	1	2	3	4	5
2. استخدام التعلم الإلكتروني أكثر فائدة من التعلم التقليدي	1	2	3	4	5
3. استخدام التعلم الإلكتروني يوفر مزايا متعددة لعملية التعلم والتعليم من التعلم التقليدي	1	2	3	4	5
4. استخدام التعلم الإلكتروني أكثر جدوى من التعلم التقليدي	1	2	3	4	5
5. استخدام التعلم الإلكتروني يوفر القدرة على التحكم في عملية التعلم والتعليم وضبطها	1	2	3	4	5
6. استخدام التعلم الإلكتروني يثير الدافعية ويشجع على التفاعل أكثر من التعلم التقليدي	1	2	3	4	5
7. استخدام التعلم الإلكتروني يتطلب وقتاً وجهداً أكبر من التعلم التقليدي	1	2	3	4	5
8. استخدام التعلم الإلكتروني أكثر فاعلية وكفاءة من التعلم التقليدي أحياناً	1	2	3	4	5
9. استخدام التعلم الإلكتروني يزيد المثابرة والانتاجية أثناء عملية التعلم والتعليم أكثر من التعلم التقليدي	1	2	3	4	5
10. استخدام التعلم الإلكتروني يزيد من جودة عملية التعلم والتعليم	1	2	3	4	5

5	4	3	2	1	تقنية المعلومات
5	4	3	2	1	1. توجد صعوبات أثناء تطبيق التعلم الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	2. توافر المواد التعليمية في صورة إلكترونية 24 ساعة ولمدة أسبوع إجراء عملي لعملية التعلم والتعليم
5	4	3	2	1	3. بيئة التعلم الإلكتروني تهيء فرصاً للمشاركة والتفاعل في الدروس الإلكترونية
5	4	3	2	1	4. استخدام التعلم الإلكتروني يحتاج إلى تدريب ومساعدة في البداية
5	4	3	2	1	5. البنية التحتية لبيئة التعلم الإلكتروني عمومًا فعالة وذات كفاءة عالية
5	4	3	2	1	التصميم والمحتوى
5	4	3	2	1	1. التعلم الإلكتروني يمكن ادماجه في عملية التعلم والتعليم بكل سهولة
5	4	3	2	1	2. استخدام التعلم الإلكتروني يسهل إدارة وتحديث المحتوى الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	3. استخدام التعلم الإلكتروني يساعد في الانخراط في المحتوى الإلكتروني أكثر من التعلم التقليدي
5	4	3	2	1	4. تصميم وإعداد المحتوى الإلكتروني يضيع الوقت ويستهلك الجهد
5	4	3	2	1	5. استخدام التعلم الإلكتروني يزيد جودة المحتوى ويطور عملية التعلم والتعليم

يمكنك مشكوراً تقديم مقترحات إضافية للمساهمة في بناء وتصميم تعلم إلكتروني فعال.

شكراً على تعاونكم

Appendix (G1): Ahlia University Letter to the Schools



 الجامعة الأهلية
 AHLIA UNIVERSITY
 International Education .. locally

1st February, 2011

To whom it may concern

This is to certify that Ms. Madina Hasan Taha, is a student registered in the PhD (WR) programme of Brunel University. She is conducting a survey as part of her research titled "Critical Success Factors Influencing E-learning Implementation in Higher Education". Towards this we request you to help the student by allowing her to distribute the survey questionnaire to the subjects concerned in your esteemed organisation for collecting data. We will be thankful if you could extend full cooperation to the student in completing her survey as this will go a long way in helping her to complete her PhD.

This letter has been issued at the request of the student.



S. Gowrishankar
Administrative Coordinator for PhD Programme

عمادة
الدراسات العليا والبحوث
AHLIA UNIVERSITY

U 1 FEB 2011

DEANSHIP OF
GRADUATE STUDIES AND RESEARCH

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Appendix (G2): Ministry of Education Letter to Schools

**Kingdom of Bahrain
Ministry of Education**

Directorate of Curricula



**مملكة البحرين
وزارة التربية والتعليم
إدارة المناهج**


الرقم: ٤٢٢/م هـ ج - ع ت / ٢٠١١م

في: ١٧/٥/٢٠١١م

**المحترمة
الأستاذة الفاضلة بدور عجلان
مديرة مدرسة خوله الثانوية للبنات**

السلام عليكم ورحمة الله وبركاته،

في إطار إعداد دراسة حول العوامل المؤثرة في تنفيذ التعلم الإلكتروني في المدارس الثانوية ، لإيجاد بيئة تعلم جاذبة ومحفزة للتعليم ، تساعد في الوقت نفسه على تطوير التعلم الإلكتروني في المستقبل ، وتجويد عملية التعلم والتعليم بصورة عامة ، أعدت استبانته للتعرف هذه العوامل .
لذا نرجو التكرم بتسهيل مهمة تعبئة هذه الاستبانته من معلمي المواد الدراسية ؛ علما بأنه سوف يتم التعامل مع المعلومات المدونة فيها لأغراض البحث فقط .


لطيفة محمد محمود
مديرة إدارة المناهج

هاتف بدالة : ١٧٢٧٨٥٥٥ / ١٧٢٤٣٣٧٨ (٠٠٩٧٣) - فاكس : ١٧٢٤٣٤٧٢ (٠٠٩٧٣) - ص.ب : ٤٣ - المنامة
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