CRITICAL SUCCESS FACTORS FOR E-LEARNING IN EDUCATIONAL CONTEXT: AN IRANIAN UNIVERSITY EXPERIENCE

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CRITICAL SUCCESS FACTORS FOR E-LEARNING IN EDUCATIONAL CONTEXT: AN IRANIAN UNIVERSITY EXPERIENCE

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BY

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Abstract

This study examines factors that are perceived by university students to be critical for e-learning effectiveness. The study was a cross sectional study where respondents' perceptions was measured at one point in time. 169 students around Tehran participated in this study.

Correlation analyses were conducted to test the relationship between instructor characteristics, students characteristics and information technology and e-learning system effectiveness, whereas descriptive analysis was conducted to analyze demographic characteristics of participants.

The results show that there was an association between instructor characteristics and e-learning effectiveness. The findings indicated that the role of instructor in e-learning is important in determining its success. Students' characteristics such as students' motivation to use e-learning technology and students' computing competency have also found to be related with e-learning effectiveness. As compared with the instructor and students' characteristics, technology quality in terms of access, navigation, interface and the reliability and effectiveness of technology infrastructure have the highest relation to e-learning effectiveness.

In conclusion, the results from this study indicate that instructor characteristics, student characteristics and the technology have strong relationships with e-learning effectiveness.

Acknowledgements

Every endeavor is a culmination of inspiration and partnership. Therefore, I would like to express my gratitude to those who inspired me during this journey. Their inspiration, motivation, encouragement, and support were my constant companions during this research.

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To my loving wife, Sara Aliabadizadeh, my beloved parents, Fatemeh and Mohammad, and my brother, Mohammad Iman, thank you for all your love, patience, sacrifice, and word of encouragement to pursue and complete this degree.

I also would like to thank all my lecturers at UUM, and among them are Associate Professor Dr. Haji Hamzah Bin Abd. Rahman, Dr. Faridahwati Mohd Shamsudin, Ms. Padmini Pillay, and Dr. Thi Lip Sam.

Finally, yet importantly, I would like to express my gratitude to all the students at Virtual Hadith Science Faculty for participating in my study. Without their sincere participation, this study will not be as successful as today.

Dedication

To my wife, Sara Aliabadizadeh, my mother, Fatemeh Yektaee, my father, Seyed Mohammad Bathaeian, and my brother, Iman.

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CHAPTER 1

INTRODUCTION

1.0 Background of the study

Information technology in teaching and learning has created a need to transform how university students learn by using more modern, efficient, and effective alternative such as e-learning. According to New Report by Global Industry Analysts, Inc., e-learning has emerged as an imperative tool to impart knowledge in the academic as well as corporate sectors. Since e-learning has several advantages in terms of cost reduction, simplified training programs, flexibility and convenience; it is poised to become an integral component of information dissemination, and emerges as the new paradigm of modern education. Backed by several favorable trends, the world of e-learning market is projected to exceed US$52.6 billion by 2010 (Global Industry Analysts, 2008). It is believed that the role of e-learning and information technology in education will continue to expand in scope and complexity.

Though e-learning has been growing worldwide, it is still new in Iran. One of the driving forces of implementing e-learning in Iran is due to the vastness of the country. Iran is a big country when compare to most of the European and Asian countries. Since most of the universities are located in big cities, it is difficult for majority of Iranians to get education there. Factors such as high cost of living and difficulty to travel have made e-learning an attractive alternative in education. However, the success implementation of e-

learning in Iran is still limitedly shared. This is due to the internet facility in Iran. The internet speed in Iran is very low where most of Iranian people still using dial up system to connect to the internet (56K). Very few people have ADSL system and they are mostly in big cities. Apart from that, during the early years of e-learning, it was not fully accepted by the Iranian government and ministry of higher education did not recognize certificates from the e-learning system. However, the scenario has changed where in the recent years, the ministry of higher education begins to accept this mode of learning. Though the infrastructure for e-learning has been improved, many still do not know what factors are critical to ensure the success of e-learning. Thus, this research is keen to find out what factors are critical for e-learning success, especially in the educational context.

1.1 Problem statement

The Science of Hadith University has been the first university in Iran to introduce e-learning system through its' Virtual Hadith Science Faculty (VHSF). It was introduced in 2002 and the first intake of e-learning students began in 2004. During the first year of it implementation, the number of students enrolled in e-learning was higher than targeted. However, although the number tends to increased yearly, the number was far below than what was targeted by the university. For example, based on the interview with the Dean of VHSF, the university targeted 1100 students in 2008, but only 547 students enrolled. This indicates that implementation of e-learning at VHSF was not as successful as expected. However, the university doesn't sure what

causes the unsuccessful e-learning implementation. Is it related to the technology itself, the instructor who involved with the e-learning or the student themselves?

According to studies conducted by Dillon and Guawardena (1995) and Leidner and Jarvenpaa (1993), three main variables that affect the effectiveness of e-learning environments includes the technology, instructor characteristics, and student characteristics. Similarly, Selim (2007) also found that learners perceived instructor characteristics as the most critical factor in e-learning success, followed by IT infrastructure and university support. Learner characteristics were perceived as the least critical factor to the success of e-learning. In other study, Volery and Lord (2000) have identified three CSFs in e-learning: *technology* (ease of access and navigation, interface design and level of interaction); *instructor* (attitudes towards students, instructor technical competence and classroom interaction); and *previous use of technology*. Using a multiple case study, Soong, Chan, Chua, and Loh (2001) found that human factors, technical competency of both instructor and student, e-learning mindset of both instructor and student, level of collaboration, and perceived information technology infrastructure are critical for e-learning effectiveness.

Based on the above discussion, it is clear that factor such as technology, instructors' and students' characteristics may have related to the success of e-learning. Thus, this study is conducted to examine the critical success

factors that may contribute to the effectiveness of e-learning at Virtual Hadith Science Faculty.

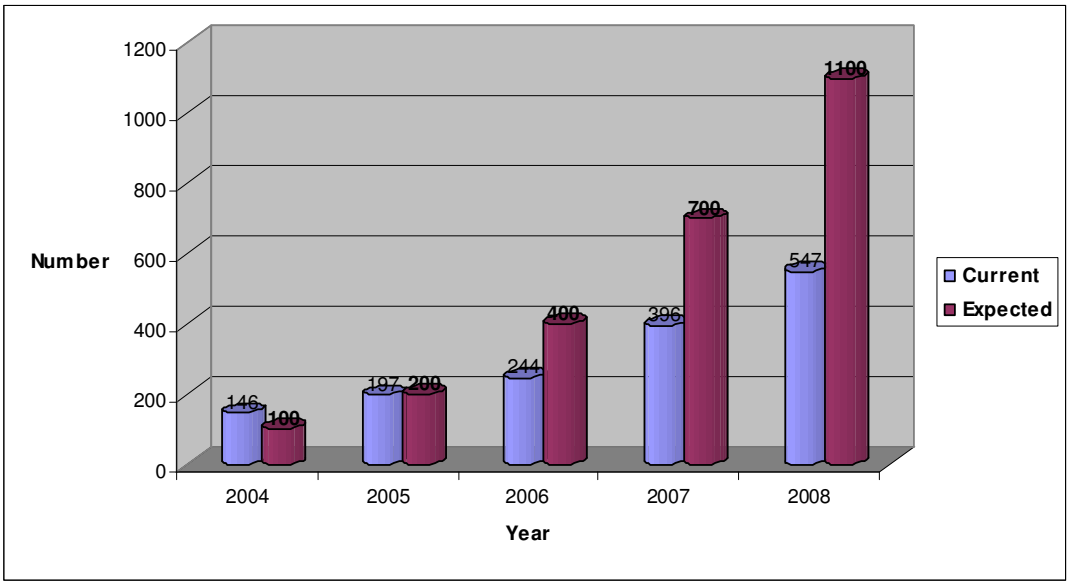

Figure 1.1. **The expected and actual number of students registered. Source Appendix B and interview with dean of public relation of university**

1.2 Research Question

Based on the problem discussed above, the central question for this study would be "*what factors are considered to be critical in determining the success of e-learning?*" Specifically:

- Do instructor characteristics related to learning effectiveness?
- Do student characteristics related to learning effectiveness?
- Do technology related to learning effectiveness?

1.3 Research Objectives

Generally, this study aims to examine factors that influence the e-learning effectiveness at Science of Hadith University in Iran. Therefore, to answer the research questions posted above, the following research objectives were formulated.

1. To examine the relationship between instructors characteristics and e-learning effectiveness;
2. To investigate the relationship between students' characteristics and e-learning effectiveness; and
3. To determine the relationship between the technology used and e-learning effectiveness.

1.4 Significant of Study

Generally, this study will produce a useful finding for empirically analyzing factors needed for e-learning effectiveness. Specifically, this study will become the first step in evaluating the successful implementation of e-learning in the educational context. The outcome from this study can be used by the e-learning administrator and the academic staffs at Science of Hadith University in Tehran to plan necessary improvement and enhancement to the system. Additionally, it can be a guideline in e-learning development purposes, particularly in Iranian universities.

1.5 Scope of Study

The main focus of this study is to examine factors that are critical for the effectiveness of e-learning system in educational context. The study was conducted using a survey and was a cross-sectional study. Data were collected from 270 students at Science of Hadith University who had been directly involved with the e-learning.

1.6 Organization of Chapters

This chapter is the first of five chapters in this project paper. Chapter 2 reviews the literature on e-learning, explaining their definition and purpose, potential benefits and limitations and the critical success factors.

Chapter 3 presents the method for the study, namely the research framework, and the research design. The chapter also reports the selection of respondents, the development of questionnaire, and data collection procedure. The chapter ends with a brief description of the strategies used to analyze data collected from the survey.

Chapter 4 discusses the interpretation of the research findings. There are reports of the descriptive statistical analysis. The results are summarized in a number of tables to facilitate interpretation.

Chapter 5 discusses the interpretation of the research findings for the study. The findings are compared to those found in the past research reviewed in Chapter 2. New findings are also discussed. The chapter ends with a discussion on limitations of the study.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter begins by giving a brief history of distance learning and the changing from distance learning to e-learning after the appearance of computers and the Internet systems world–wide; after that will be an introduction and definition of distance learning and e-learning. This part of the chapter will discuss about perspectives of e-learning and several approaches. Then there will be a discussion on previous research on the advantages and disadvantages of e-learning systems, especially in the educational perspective. The third part of this chapter will introduce critical success factors (CSFs) that are based on previous research for e-learning systems. In the last part there will be a discussion of empirical studies on e-learning systems based on Critical Success Factors (CSFs).

2.1 Definition and Purpose of E-learning

2.1.1 E-learning

E-learning commonly refers to the intentional use of networked information and communications technology in teaching and learning. A number of other terms are also used to describe this mode of teaching and learning. They include online learning, virtual learning, distributed learning, network and web-based learning. Fundamentally, they all refer to educational processes that utilize information and communications technology to mediate asynchronous

as well as synchronous learning and teaching activities. On closer scrutiny, however, it will be clear that these labels refer to slightly different educational processes, and as such they cannot be used synonymously with the term e-learning (Naidu,2006).

E-learning is one of the new learning trends that challenge the traditional "bucket theory" or the 'banking concept' of education (Freire, 1994). "E-learning or electronic learning can be defined as instructional content or learning techniques delivered or facilitated by electronic technology" (Guha & Maji 2008, p297). E-learning also can be viewed as the delivery of course content via electronic media, such as the Internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV, and CD-ROM (Urdan & Weggen, 2000).

In the background of e-learning it is important to note that there is no single evolutionary tree, and no single agreed-upon definition of E-Learning. Since the 1960s, E-learning has evolved in different ways in Business, Education, the Training sector, and the Military, and currently means quite different things in different sectors. In the school sector, 'E-Leaning' refers to the use of both software-based and online learning, whereas in Business, Higher-Education, and the Military and Training sectors, it refers solely to a range of on-line practices (Nicholson, 2007).

The first talks about e-learning go back to 1994-1995, described as online web-based school/learning systems with administrative follow-up, with real-

time classroom instruction and materials provided. Remember also the first digital TV and desktop video systems. From 1997 on were born the LMS-learning management systems. They came from all over the world; hundreds of systems were offered and used. From 2000 to 2004 many new concepts were created and disseminated, more and more came the need to integrate several separate systems like student record systems, library systems, LCMS (learning content management systems), VLE(virtual learning environment) (EF-ODL, 2008).

E-learning has been viewed as synonymous with web-based learning (WBL), Internet-based training (IBT), advanced distributed learning (ADL), web-based instruction (WBI), online learning (OL) and open/flexible learning (OFL) (Khan, 2001). It has the potential to revolutionize the basic tenets of learning by making learning individual-based rather than institution-based. E-learning is training that capitalizes upon the wide variety of new training technologies such as web-based training and CD-ROM. Although any form of e-learning may be useful for geographically-dispersed training audiences, e-learning can also take place on-site, in a self-paced fashion.

Online learning is an educational concept that implies using local, extended networks, or the Internet to spread information, to communicate, and to support any other kind of educational interaction between students and teachers. Many other terms, such as e-learning, virtual learning, distance learning, tele-learning are also used when discussing education (teaching and learning) with the aid of a computer (CAL, standing for Computer Assisted

Learning). Although not strictly synonymous, all these terms address the issues of Web-based learning or the use of NICTs (New Information and Communication Technologies), and share the aim of improving flexibility in location and time management for learners. Meanwhile, the blended learning concept also became attractive: the mix of e-learning and classic learning styles (EF-ODL, 2008). The concept of blended learning implies a mixture of traditional teaching and online education (Hadengue, 2004).

Elementary and secondary schools, as well as universities, have capitalized upon new technologies in order to provide courses and sometimes entire degrees to students that are geographically dispersed. To distinguish these college and university efforts from those being undertaken in industry, we refer to this type of coursework as distance education because e-learning requires investment of time and effort in developing new skills, new approaches, and new resources perhaps time and effort that would otherwise be spent on research (KENET, 2004).

The University of Phoenix Online, Worcester Polytechnic Institute, and Colorado State University are examples of degree-granting, distance learning institutions (Peterson's Distance Learning, 2002). Other schools offer numerous courses via distance education (Chute et al., 1999). In fact, as of 1997, it was reported that there were over 150 accredited colleges and universities with degree programs that allow students to spend little or no time physically on college campuses. Popular topics include technology-based

courses and business management courses (Herther, 1997). Incidentally, much of the research on the effectiveness of e-learning has taken place in educational settings.

2.1.2 E-learning perspectives

E-learning has a truly vast perspective. It is a collaborative learning process where people learn from one another. The learner is connected to professionals and experts both in and outside the organization. He can select activities from a personal learning menu. In e-learning the instructional material and content may be delivered by any or all electronic media including the Internet, intranet, extranet, LAN, Satellite broadcasts, audio/video tapes, CD-ROM and interactive TV. It includes computer-based training (CBT), electronic performance support systems (EPSS) and web-based training (WBT), in addition to distance learning (Guha & Maji 2008).

Up-front planning is one of the most important elements of e-learning. The user interface has to be intuitive and easy to navigate. Fancy or obscure techniques are better to be avoided, as these tend to discourage the learner. Figure 2.1 explains the various components of e-learning. In short, there will be teaching ends and learning ends technologically and synchronously.

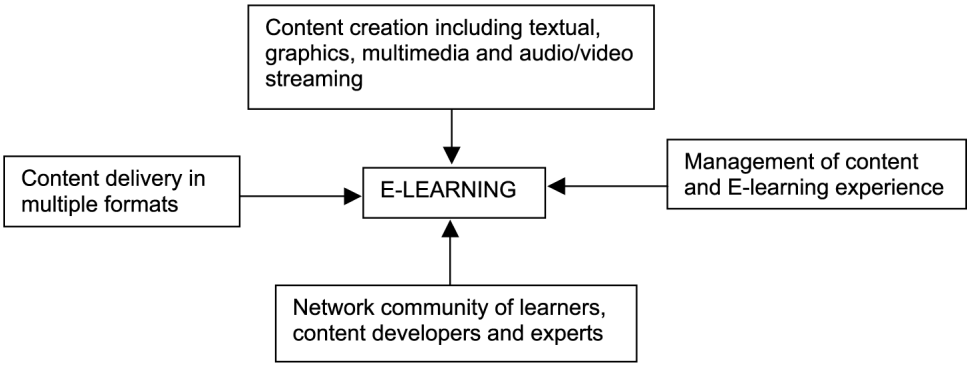

Figure 2.1. **E-learning Component, Import from Guha & Maji (2008)**

2.1.3 E-Learning: Growth, Prospects and Trends

Several inter-related factors and trends favor the growth of e-learning in higher education, both for on-campus instruction and distance learning, as well as in corporate, government and other training programs. More than half of the college and university classes on US campuses use e-mail, Worldwide Web (www) materials, or other Internet applications. The University of Delhi in India is using satellite technology to beam and transmit classroom lessons from one campus to another (Guha and Maji 2008).

Part-time degree students with jobs or other responsibilities, along with recognized needs for adult/continuing education, go for off-campus distance learning at times and places conveniently suited to the individual, compared to other distance learning media.

Distance learning is training that takes place largely synchronously; that is, the material is delivered to all participants at the same time even though

participants are separated by geographical distance. The US Distance Learning Association defines distance learning as ‘‘the delivery of education or training through electronically mediated instruction including satellite, video, audio, audiographics, computers, multimedia technology and learning at a distance’’ (Leonard, 1996). In the practitioner literature, few authors separate distance learning from the broader concept of e-learning.

Internet-based e-learning shifts the power from suppliers to customers, and thus is likely to promote more vigorous competition. This does not necessarily mean that higher education and training will become marketable commodities but rather the students with different backgrounds and varied needs and preferences will be able to select from a broader range of instructional alternatives than at present (Guha & Maji 2008).

E-learning also encourages ‘‘opening out’’ and ensuring greater efficiency of different instructional elements: content development course delivery, evaluation and testing, as well as such administrative functions like registration, payment and student record-keeping. The University of Fern at Hagen in Germany is one such good example where virtual classrooms simulate the ‘‘real’’ classroom with mechanisms and facilities for libraries and student queries.

Comparisons between traditional classrooms and e-learning indicate the following differences (Primelearning, Inc, 2001):

- Location (i.e., e-learning can be done anytime and anywhere, whereas traditional classes are dependent on certain times and locations).
- Content (e-learning can use audio, animation, video, simulation, online resources and communities whereas traditional classrooms often rely on presentation slides, textbooks, and video).
- Personalization (e-learning allows the learning pace and path to be determined by the user whereas traditional classrooms require only one learning path for all students).

The development of the Internet and the World Wide Web have signaled the beginning of a new era for distance learning, as developers became able to easily and cost effectively extend the reach of their courses to a global audience.

One reason for the dynamic growth in online distance learning is that Internet -based distance teaching allowed educators to address the major drawback of using CDROMs and radio or broadcast television for instruction - namely, the lack of a two-way communications channel between teacher and student (Ninth Bridge, 2006). Multimedia technologies and Internet-based training are beginning to facilitate more individualized, learner-based educational efforts, and collaborative technologies are allowing new environments for learning, such as virtual learning communities.

Today, courses using a variety of media are being delivered to provide specialized courses to students in remote geographic areas, to open

educational resources to a broader population, and to enhance interactions between students and teachers. Learners can take entire self-instructional courses over the Internet or on CD-ROM or can participate in facilitated courses where they can interact with the instructor and other learners in real time.

2.2 Potential Benefits and Limitations of E-learning

A good number of experimental or pilot programs have helped us evaluate the advantages and disadvantages of e-learning in general. E-learning strategies seem to offer a larger amount of information than traditional courses as well as easier access to that information. In addition, both controlled information sources (that is, provided narrowly by the teacher's textbook) and open information sources are available in parallel. This may stimulate critical review and comparison on the part of the learner and enrich the pedagogic process. In fact, the main difference between classical learning and computer-assisted learning courses probably does not lie in their raw contents, but rather in information processing and the channels used to pass such information on. Learning may be further stimulated by interactive and retroactive processes, the visual approach to communication and the enhanced ability on the part of the learner to manipulate information for themselves (Tuovinen, 2000).

The definitive pedagogic characteristics of New Information and Communication Technologies may also derive from their capacity to enable

the performance of different tasks at the same time. For example, a single session of e-learning may well deal with some aspects of information searching, information management, information production and communication, which in traditional courses would usually be approached as quite separate topics. To a significant extent, e-learning may open the way to greater diversity in the learning process through which the student masters the information provided. Finally, e-learning can be seen as a significant contributor to greater autonomy in learning in general.

However, e-learning has also been the object of a number of concerns. It is obvious that it requires more technical equipment than traditional courses, though this has become less of a problem since most students now have access to computers and to the Internet. More importantly, a minimal computer literacy rate is usually required before an e-learning course may become effective.

Computer literacy, or “the ability to use applications rather than to program” (Hadengue, 2004) as well as reading and writing abilities, may be of greater importance for an isolated e-learner than for a traditional learner within a classroom. One key concern is certainly how to generate and assess student motivation. If not addressed, usually by tutoring, the motivation of the least autonomous and/or the weakest students may become a significant problem. Thus, in most cases a tutor should help the students with the start-up process and somehow be committed to follow-up. Because it is at variance with preconceived ideas, and at least in the initial steps of most practical courses,

e-learning may indeed be as time-consuming as a traditional course. Here is the greatest challenge to e-learning: while providing unmatched flexibility, with its independence of physical location, permanent access, infinite adaptability, and its endless availability for individual follow-up by the student, e-learning cannot provide a substitute for or even adjust to the failing autonomy and/or learning drive of the student. Therefore, one drawback of e-learning may be that student motivation is a prerequisite – there is no potential benefit from the immediate help of group dynamics or face-to-face interaction with a teacher.

As already alluded to, recognition of skills through the various awarding of degrees, credits or training certificates, which represent strong incentives to students, are seldom offered by universities to e-learning students in information literacy. Indeed, even when valued by students, most such e-learning training courses remain unrecognized within the university curriculum. If lack of recognition does contribute to the sidelining of e-learning, it however remains a factor that can (and should) be effectively addressed by university boards of study.

Finally, it may be noted that ideas developed for commercial marketing have probably skewed the approach of a number of universities to e-learning strategies. Commercial “client-oriented approaches” stress the importance of creating proximity and direct relationships with potential buyers. Obviously, this does not easily transpose to university libraries. Nonetheless, it has sometimes been taken as a weak point of e-learning that it neither relies on nor stimulates direct person-to-person interaction. Again, this can be seen as

another reason for stressing the importance of some degree of ancillary tutoring in support of e-teaching.

2.3 E-learning Critical Success Factors

The purpose of e-learning, like any other learning approach, is to achieve the learning objectives. The objective attainment measures can be environmental, technological, student-related, and instructor-related.

In e-learning some of the crucial CSFs are technological, such as bandwidth, hardware reliability and network security and accessibility. Another e-learning CSF is student engagement in learning models. E-learning models are synchronous (real-time), asynchronous (anytime and anywhere), or a mix of the two. There are numerous tools that instructors can use to adopt an e-learning model; mini-lectures, electronic/conventional discussion, active/cooperative learning and many others. The third e-learning CSF is student-related. Students must be motivated and committed. In e-learning based courses, students take the responsibility for their learning pace.

In an exploratory investigation of learner perceptions according to Selim (2007), e-learning can be integrated into many university programs. There are several factors that need to be considered to identify and measure e-learning applications' critical success factors (CSFs) from learner perceptions.

Four CSFs were identified and measured, namely, instructor characteristics, learner characteristics, technology infrastructure and university support. They tested learner's attitude towards using e-learning. A sample of 37 class sections with 538 responses was used to validate the proposed e-learning CSFs. The results revealed that learners perceived instructor characteristics as the most critical factor in e-learning success, followed by IT infrastructure and university support. Learner characteristics were perceived as the least critical factor to the success of e-learning (Selim, 2007) (Figure 2.2).

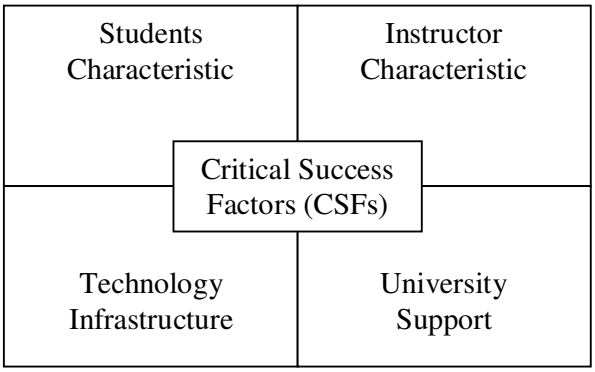

Figure 2.2. **E-learning CSFs: an exploratory investigation of learner perceptions. Source: Selim (2007)**

2.3.1 E-learning CSFs categories

E-learning CSFs within a university environment can be grouped into four categories (Selim 2007):

- Instructor;
- Student;

- Information technology; and
- University support.

As for all educational endeavors, the instructor plays a central role in the effectiveness and success of e-learning based courses. Collis (1995) and Willis (1994) believed that it is not the information technology but the instructional implementation of the IT that determines the effectiveness of e-learning. Webster and Hackley (1997) proposed three instructor characteristics that affect e-learning success:

- IT competency;
- Teaching style; and
- Attitude and mindset.

Volery and Lord (2000) suggested that instructors provide various forms of office hours and contact methods with students. Instructors should adopt interactive teaching styles, and encourage student–student interaction. It is so important that instructors have good control over IT and are capable of performing basic troubleshooting tasks.

University students are becoming more diverse and demand for e-learning based courses is increasing (Papp, 2000; Volery & Lord, 2000). Students need to have time management, discipline, and computer skills in order to be successful in the e-learning era. Student's prior IT experience, such as having

a computer at home and attitudes towards e-learning, is critical to e-learning success.

As stated before, research concludes that e-learning based courses compare favorably with traditional learning and e-learning students perform as well or better than traditional learning students (Beyth-Marom, Chajut, Roccas, & Sagiv, 2003). This shows that students like to use e-learning if it facilitates their learning and allows them to learn anytime, anywhere in their own way (Papp, 2000).

The information technology (IT) explosion resulted in changes in education. E-learning integration into university courses is a component of the IT explosion; as a matter of fact IT is the engine that drives the e-learning revolution. The efficient and effective use of IT in delivering e-learning based components of a course is of critical importance to the success and student acceptance of e-learning. So ensuring that the university IT infrastructure is rich, reliable and capable of providing the courses with the necessary tools to make the delivery process as smooth as possible is critical to the success of e-learning. IT tools include network bandwidth, network security, network accessibility, audio and video plug-ins, courseware authoring applications, Internet availability, instructional multimedia services, videoconferencing, course management systems, and user interfaces.

E-learning projects that were not successful in achieving their goals did not have access to technical advice and support (Aldexander, McKemzie, &

Geissinger, 1998; Soong, Chan, Chua, & Loh , 2001). If the technical support is lacking, the e-learning will not succeed. University administration support to e-learning is essential for its success. This study limited the e-learning CSF categories to those that were reported in the literature, while including newly-used items within each CSF category.

2.4 Empirical Studies on E-learning Critical Success Factors

A little research is available regarding how to measure e-learning effectiveness in several universities. In this part there is a brief discussion on the previous research and their findings.

Volery and Lord (2000) drew upon the results of a survey conducted amongst 47 students enrolled in an e-learning based management course at an Australian university. They identified three CSFs in e-learning: *technology* (ease of access and navigation, interface design and level of interaction); *instructor* (attitudes towards students, instructor technical competence and classroom interaction); and *previous use of technology* from a student's perspective. Soong, Chan, Chua, and Loh (2001) using a multiple case study, verified that the e-learning CSFs are: human factors, technical competency of both instructor and student, e-learning mindset of both instructor and student, level of collaboration, and perceived information technology infrastructure. They recommended that all these factors should be considered in a holistic fashion by e-learning adopters. According to studies conducted by Dillon and Guawardena (1995) and Leidner and Jarvenpaa (1993), three main variables

affect the effectiveness of e-learning environments: technology, instructor characteristics, and student characteristics. Using a survey on the perception of e-learning among postgraduates enrolled at Curtin Business School, Helmi (2002) concluded that the three driving forces to e-learning are information technology, market demands, and education brokers such as universities.

The findings of Volery in his research is divided in six items that are related to the effectiveness of e-learning systems. The first item is related to ease of access and navigation. There was no frustration experienced with access and navigation. The second item is about interfaces. This ergonomic dimension was particularly important since it was discovered that some students could spend up to two hours at a time on the Web site. The third item discusses interaction. The interaction dimension indicates that universities must not attempt to come to terms with the Internet in a fetish way, i.e. to require their lecturers to merely put their lecture notes on the Web. The result of that approach is unfortunately too well-known: lectures become even more rigid and boring. The fourth item of Volery's finding is about attitudes towards students. The instructor must show some empathy towards students both in a face-to-face setting and in cyberspace. This implies, among other things, handling e-mail queries rapidly and solving emerging problems efficiently in a remote fashion. A fifth item is about instructor technical competence. The lecturer is not only the repository of knowledge but he or she can play an important role alongside the Internet as a knowledge navigator. The last item of this finding is about classroom interaction. The Internet, however, allows a new level of interactivity as it eliminates the temporal and spatial rigidity of

office hours or class meeting times. It will virtualized the walls of the university, creating "elsewhere" learning.

In other research, which was done by Webster and Hackly in 1997, twelve hypotheses were proved by their research. The reliability of the technology used in distance learning should relate positively to learning outcomes; the quality of the technology used in distance learning should relate positively to learning outcomes.

Students will perceive the technology used in distance learning to be a less-rich medium than traditional, face-to-face instruction in original sites; they will perceive the technology used in distance learning to be richer than those at remote sites will perceive it to be. Students in courses using full-motion video will perceive the technology used in distance learning to be richer than students in courses using compressed video will perceive it to be. They will report higher learning outcomes to the extent to which they perceive the technology used in distance learning to be rich.

Students will experience more positive learning outcomes from technology-mediated distance learning with fewer student locations and instructors who exhibit more interactive teaching styles and control over the technology; they are more comfortable when their images are displayed on a screen and would experience more positive learning outcomes from technology-mediated distance learning.

To the extent that classmates have positive attitudes toward the technology used in distance learning, students will experience more positive learning outcomes, and that instructors have more positive attitudes toward the technology used in distance learning, students will be likely to experience more positive learning outcomes.

All influences on technology-mediated distance learning outcomes are related to at least three of the seven outcome variables. Perceived medium richness is related to all seven outcome variables. Thus, to the extent that instructors can exploit the full richness of the media available to them, students should experience more positive learning outcomes. Further, since medium richness is partially perceived, instructors can exhibit attitudes and behaviors that are consistent with a rich medium.

Other key influences on outcomes were students' comfort with their images on the screen (relating to six outcomes), instructor control over the technology (relating to five outcomes), and the quality of the technology, instructor's attitudes, and teaching style (all relating to four of the seven outcomes). Thus, in practice, instructors should build on opportunities for students to become comfortable with the technology employed for distance learning, learn to control the technology, project positive attitudes, and use interactive teaching styles.

Other research done by Ozkan, Kosler and Baykal in 2009 had fourteen findings. This research had been motivated by the desire to gain a better

understanding of the assessment of e-learning applications. Primary contribution of this research study is to find out how to define, assess, and promote e-learning success.

Users are positively influenced by the popularity (trend) of learning management systems and distance learning applications in the online environment and their satisfaction will positively influence perceived net benefits in the learning management system context, the quality and manipulation of e-learning systems is positively related with users' perceived enjoyment toward e-learning systems.

Learner attitudes toward computers will positively influence perceived e-learner satisfaction from learning management systems providing a valid/authoritative certification/diploma, and would influence learners positively. Learner's study habits are positively related with learner's perceived effectiveness from a learning management system.

Learners' perceived satisfaction toward e-learning is positively related to instructor's rapid responses to learner's needs, instructor's self-efficiency toward content and learning management systems, instructors' communication abilities and the capability of instructors to follow up learner problems and provide solutions to learner problems.

Three items will positively influence perceived e-learner satisfaction with e-learning. The first item is system quality, the second item is information

quality and the third item is service quality. Finally e-learning system's reliability is positively related with learners' perceived effectiveness.

Holsapple and Lee-Post's e-learning success model is adapted from DeLone and McLean's (2003). DeLone and McLean identified six dimensions of success factors: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These were incorporated into their original overall success model shown in Figure 2.3.

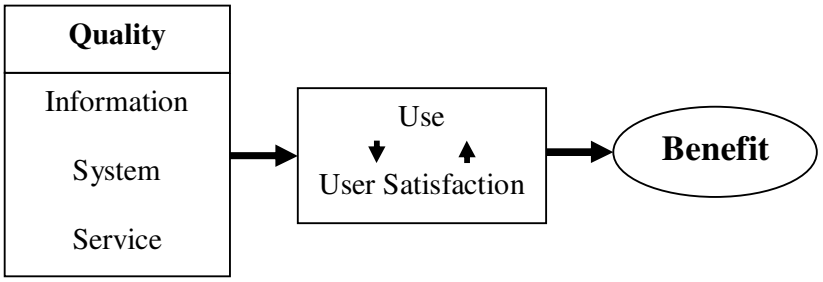

Figure 2.3. **DeLone and McLean's information system success model**

Holsapple and Lee-Post's e-learning Success Model makes the process approach explicit to measure and assess success. Their model also includes success metrics developed specifically for the e-learning context being investigated. They use the process approach to posit that the overall success of e-learning initiatives depends on the attainment of success at each of the three stages of e-learning systems development: design, delivery, and outcome analysis. Success of the design stage is evaluated along three success factor dimensions: system quality, information quality, and service quality.

Success of the delivery stage is evaluated along two success factor dimensions: use and user satisfaction. Finally, success of the outcome stage is evaluated along the net benefits dimension. The arrows shown in Figure 2.4 depict the interdependences within the three stages of success assessment. Success of system design is essential to the success of system delivery, which, in turn, affects the success of system outcome.

The success of system outcome, however, has an impact on the success of subsequent system delivery, as indicated by the double arrow linking system delivery and outcome stages (Holsapple and Lee-Post, 2006).

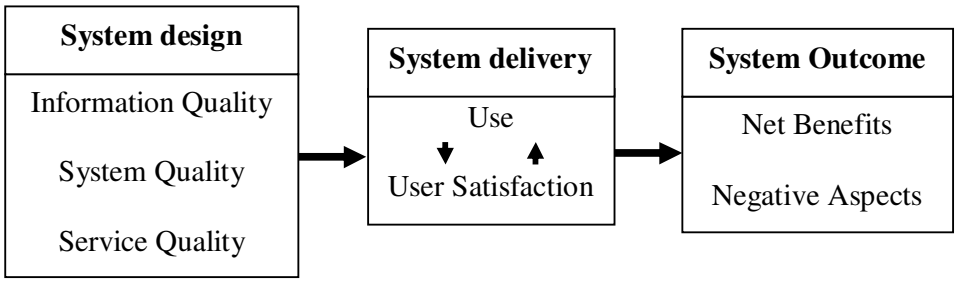

***Figure 2.4*. The e-learning success model and sample metrics. Source: Holsapple and Lee-Post (2006)**

In system design for each major factor some sub-factor is available that is mentioned in the Holsapple and Lee-Post (2006) model. Some sample factors of information quality: well-organized, effectively presented, of the right length, clearly written, useful and up-to-date. There are some available factors for system quality such as easy-to-use, user friendly, stable, secure, fast and responsive. Finally, there are some factors for system quality that are named

by Holsapple and Lee-Post (2006) according to their model: prompt, responsive, fair, knowledgeable and available. There is also available in system delivery and system outcome.

For system delivery, in terms of use, factors such as PowerPoint slides, audio, script, discussion boards, case study, practice problems, Excel tutorials, assignments and practice exams. For user satisfaction; overall satisfaction, enjoyable experience, overall success and recommend to others factors mentioned in the model.

In the next and the last step there are two major factors in system outcome, the first one is net benefits and the other one is negative aspects. For net benefits some sub-factors are available such as enhanced learning, empowered, time-saving and academic success, and for negative aspects, lack of content, isolation, quality concerns and technology dependence are factors that were introduced.

2.5 Conclusion

E-learning, or electronic learning, can be defined as instructional content or learning techniques delivered or facilitated by electronic technology. It has the potential to revolutionize the basic tenets of learning by making learning individual-based rather than institution-based (Guha & Maji 2008).

Webster and Hackley (1997) further suggested that the following dimensions can capture the concept of effectiveness: student involvement and participation, cognitive engagement, technology self-efficacy (i.e. the belief that one has the capability to interact with a given technology), perceived usefulness of the technology employed, and the relative advantage or disadvantage of online delivery.

According to studies conducted by Dillon and Gunawardena (1995) and Leidner and Jarvenpaa (1993), three main variables affect the effectiveness of online delivery:

1. Technology;
2. Instructor characteristics; and
3. Student characteristics.

Based on these three major parts of delivery on each e-learning system, the research framework and also analysis of the data gathered by the designed questionnaire will follow those three items, and the critical success factors that were introduced before.

CHAPTER 3

METHOD

3.0 Introduction

Chapter 3 describes the method for this study. In this chapter, the research design, the sample design, survey materials used in this study, the procedure for collecting data, and the reliability of the research instrument are described.

3.1 Research Framework

The research framework for this study is shown in Figure 3.1.

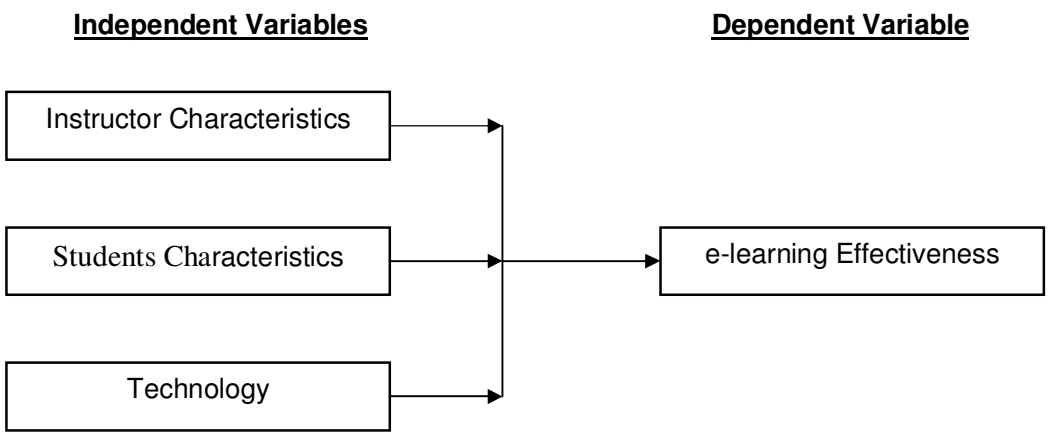

Figure 3.1. **Research framework which shows the linkage between independent variables and dependent variable.**

3.2 Research Design

Quantitative research design was used to examine the relationships between instructors' characteristics, students' characteristics and technology used and the e-learning effectiveness among undergraduate students at Science of Hadith University, Iran. The study was cross-sectional. The study was conducted in the natural environment of the organization where the researcher interference is minimal.

3.3 Operational Definitions and Measurements

Table 3.1 shows the operational definition of the variables and their measurements. All items in this study were adapted from Volery and Lord (2000), Webster (1997) and Selim (2007). In this study, each of the adapted questions asked how strongly the respondents agreed or disagreed with the statement given on a five-point scale whereby, 1 = strongly agree, and 5 = strongly disagree.

Table 3.1
Operational definitions and measurements

Variables (Dependent and Independent)	Operational Definition	Items	Authors
e-learning effectiveness	Technology effectiveness and student satisfactions	1. Easy access to Web site 2. Web site contained useful graphical and features 3. I felt personally involved in the course 4. I believe that I will be able to use this technology easily in the future 5. This type of multimedia technology interferes with communication in the classroom 6. I would recommend this type of distance learning course to someone else	Volery and Lord (2000) & Webster and Hackley (1997)
Instructor characteristics	Instructors' attitude towards technology, teaching style, and control of the technology	1. The instructor is enthusiastic about teaching the class 2. The instructor's style of presentation holds me interest 3. The instructor is friendly towards individual students 4. The instructor has a genuine interest in students 5. Students felt welcome in seeking advice/help 6. The instructor encourages student interaction 7. The instructor handles the e-learning units effectively 8. The instructor explains how to use the e-learning components 9. I feel the instructor is keen that we use the e-learning based units 10. We were invited to ask questions/receive answers 11. We were encouraged to participate in class	Selim (2007) & Soong, Chan, Chua & Loh (2001)

		12. The instructor encourages and motivates me to use e-learning 13. The instructor is active in teaching me the course subjects via e-learning	
Student characteristics	Student motivation to use e-learning, and technical competency	1. The e-learning encourages me to search for more facts than the traditional methods 2. The e-learning encourages me to participate more actively in the discussion than the traditional methods 3. I enjoy using personal computers 4. I use the personal computers for work and play 5. I was comfortable with using the PC and software applications before I took up the e-learning based courses 6. My previous experience in using the PC and software applications helped me in the e-learning based courses 7. I am not intimidated by using the e-learning based courses 8. I learn best by absorption (sit still and absorb) 9. I learn best by construction (by participation and contribution) 10. I learn better by construction than absorption 11. I only read messages in the discussion group 12. I do read as well as participate in the discussion group	Selim (2007)

		13. The instructor initiated most of the discussion 14. The students initiated most of the discussion 15. The instructor participated actively in the discussion	
Technology	Technology access, navigation and interface and technology infrastructure reliability and effectiveness.	1. Easy on-campus access to the Internet 2. Did not experience problems while browsing 3. Browsing speed was satisfactory 4. Overall, the website was easy to use 5. Information was well structured/presented 6. I found the screen design pleasant 7. I could interact with classmates through the web 8. I could easily contact the instructor	Selim (2007)

3.4 Data Collection

3.4.1 Background of Organization

Science of Hadith University, Iran is a private and one of the non-profitable universities that started its educational activities in 1999 with official license issued by the Supreme Council of Cultural Revolution. As the first and biggest scientific center of Shiism in Hadith and related sciences, the university has presented lots of products and works to the enthusiasts. Though the official activity in the field of Sciences of Hadith began with inauguration of Darolhadith Research Centre, the beginning endeavor was made to design the university discipline on the Sciences of Hadith with the

aim of training the researchers and scientists needed in this field and mitigate the severe and sensible shortage.

3.4.2 The Virtual Sciences Faculty (VHSF)

Besides the prosperous verbal training, the faculty of sciences has introduced the electronic learning in 2002 and the activities commenced in 2004. The main aim of this project is to offer Islamic teachings especially the Hadith Sciences in a new way where all approved university subjects of Hadith Sciences are presented through the internet as a virtual learning

Through this e-faculty, students can learn from anywhere, at any time using the best and most updated learning tools. For example they can receive lessons using text, sound, pictures, animations, and interactive exercises which make learning the Islamic and Hadith sciences more interesting and easy. The main reason for the university to introduce e-learning mode of study is to attract more students to get their education at the university and to offer much affordable education. At the moment this e-faculty can be accessed in Persian language by the address www.vu.hadith.ac.ir.

3.4.3 Population and Sampling

The sampling frame for this study includes all the undergraduate students at Virtual Sciences Faculty, Science of Hadith University, Iran. In selecting the research sample, there were no restrictions on the types of

students, but the respondents had to be involved directly with the e-learning. The total number of students who are currently using e-learning at the university is 547. But, for reasons of difficult access to location, only students living in Tehran were chosen for this study. Therefore, all the 270 undergraduate students living in Tehran were taken as the sample for this study.

3.4.4 Survey Materials

Survey was used to gather primary information regarding the factors that are perceived to influence the e-learning effectiveness. Acknowledging the cultural differences and since teaching is carried out in Persian, all the survey materials were prepared in Persian. The Persian version was translated using back translation. Each participant in this study received a six page questionnaire. The survey materials used in this study are shown in Appendix A.

The six page questionnaire consisted of five sections. Section 1 asked about e-learning instructors characteristics and there were 13 items. Section 2 asked about students' characteristics which consist of 22 items. In Section 3, there were 13 questions on e-learning technology. In Section 4 of the questionnaire, there were 20 items about e-learning effectiveness. The final section of the questionnaire, Section 5, sought the demographic characteristics of the participating students.

3.4.5 Data Collection Procedures

The data collection was conducted from early August until early October 2009. The process begins by obtaining permission from the university to conduct the study and to get the list of e-learning students. A representative was appointed to help researcher in distributing and collecting the questionnaire.

3.6 Techniques of Data Analysis

Out of 270 the questionnaires distributed, 169 were returned, and are potentially available for analysis. To answer the objectives of this study, analyses were conducted using descriptive statistics and the relationship of independent variables and dependent variable were tested using correlation analysis. The analyses were conducted using SPSS (version 12) program for Windows.

3.7 Conclusion

This chapter has explained the research method and strategy of the study. It described the research framework, the sample of the study, the selection of respondents, the development of questionnaire, the research materials, and the survey procedure. This chapter also briefly explains the adoption of correlation analysis and descriptive statistics. The results of the study are reported in Chapter 4.

CHAPTER 4

RESULTS

4.0 Introduction

Chapter 4 reports results of the study. The chapter begins by reporting the demographic characteristics of the respondents. It then presents the bivariate relationship between the research variables. The chapter concludes with the descriptive analysis of the findings.

4.1 Demographic Characteristics of the Participants

Detailed descriptive statistics of the participants' demographic characteristics are presented in Table 4.1. 66.86% of those who participated in this survey were male. The average age of the participants was 28 years old. On average, participants in this survey had completed 3 semesters of university study, and had 2 years of experience using the university e-learning system.

Table 4.1
Demographic characteristics of the participants

Description	Frequency	%	Mean	Std. Dev	Median	Min.	Max.
Gender							
Male	113	66.86					
Female	56	33.14					
Total	169	100.00					
Age							
Total response	169	100.00	28	6.69	28	18	40
Semester							
Total response	169	100.00	3	1.19	3	1	1
Experience							
Total response	169	100.00	1.96	.52	2	1	3

4.2 Correlation Analysis

Table 4.2 presents the means, standard deviations, and Pearson correlations of variables for the 169 participants. The internal consistency reliabilities (Cronbach's alpha) of the research measures are reported in parenthesis along the diagonal of the correlation table. As shown in Table 4.2, the Cronbach's alpha for the 13 item instructor characteristics scale was .81, .89 for the 22 item student characteristics scale and .85 for the 13 item technology scale. The 6 item e-learning effectiveness scale also has satisfactory reliability values of .81.

Table 4.2
Descriptive statistics, scale reliabilities, and correlations of variables

	Variables	N	Mean	Std. Deviation	1	2	3	4	5	6
1	Age	169	27.63	5.69						
2	Semester	169	3.18	1.19	-0.07					
3	Experience	169	1.96	0.52	0.07	0.08				
4	Instructor characteristic - overall	169	2.09	0.56	-0.05	0.03	0.06	(0.81)		
5	IC - style and control	169	1.85	0.61	-0.04	0.03	-0.02	0.81**	(0.59)	
6	IC - attitude	169	2.19	0.61	-0.04	0.02	0.09	0.97**	0.64**	(0.74)
7	Students characteristic - overall	169	1.56	0.44	0.07	-0.07	0.01	0.51**	0.53**	0.44**
8	SC - motivation	169	1.41	0.47	0.06	-0.08	-0.01	0.37**	0.39**	0.32**
9	SC – technical competency	169	1.86	0.58	0.07	-0.03	0.03	0.54**	0.58**	0.46**
10	Technology - overall	167	1.86	0.58	-0.06	0.11	0.05	0.53**	0.56**	0.45**
11	T - access, navigation, interface	167	1.90	0.60	-0.03	0.11	0.07	0.55**	0.56**	0.48**
12	T - reliability and effectiveness	167	1.72	0.70	-0.12	0.07	-0.03	0.33**	0.40**	0.26**
13	e- learning effectiveness	169	1.80	0.58	-0.01	0.00	0.02	0.54**	0.50**	0.50**
14	EE - satisfaction	169	1.81	0.65	0.01	0.00	0.05	0.48**	0.40**	0.45**
15	EE - technology effectiveness	169	1.80	0.59	-0.02	0.00	0.00	0.53**	0.50**	0.49**

Note: IC = instructor characteristic; SC = student characteristic; T = technology; EE = e-learning effectiveness
**Correlation is significant at p<.005 and **Correlation is significant at p<0.01*

Table 4.2 (Continued)
Descriptive statistics, scale reliabilities, and correlations of variables

	Variables	7	8	9	10	11	12	13	14	15
7	Students characteristic - overall	(0.89)								
8	SC - motivation	0.92**	(0.89)							
9	SC – technical competency	0.78**	0.47**	(0.80)						
10	Technology - overall	0.63**	0.46**	0.68**	(0.85)					
11	T - access, navigation, interface	0.63**	0.45**	0.69**	0.97**	(0.82)				
12	T - reliability and effectiveness	0.47**	0.37**	0.48**	0.80**	0.63**	(0.69)			
13	e-learning effectiveness	0.65**	0.53**	0.61**	0.69**	0.65**	0.60**	(0.81)		
14	EE - satisfaction	0.55**	0.47**	0.49**	0.51**	0.49**	0.42**	0.90**	(0.41)	
15	EE - technology effectiveness	0.65**	0.52**	0.62**	0.73**	0.68**	0.65**	0.97**	0.76**	(0.73)

Note: IC = instructor characteristic; SC = student characteristic; T = technology; EE = e-learning effectiveness
**Correlation is significant at p<.005 and **Correlation is significant at p<0.01*

4.2.1 Instructor Characteristics and e-learning Effectiveness

Instructor characteristics was significantly positively correlated with e-learning effectiveness ($r = .54$, $p<.01$), and all the instructor characteristic components, with correlation coefficient of .50. These results suggest that instructor who have more positive attitude towards the e-learning, have higher control of the technology and exhibit higher interactive teaching style, the more effective the e-learning.

4.2.2 Student Characteristics and e-learning Effectiveness

Table 4.2 revealed significant positive relationship between student characteristics and e-learning effectiveness ($r = .65$, $p<.01$), and all the student characteristic components, with correlation coefficient between .53 and .61. The results indicates the higher the student motivation to use e-learning technology and technical computing competency, the more effective the e-learning.

4.2.3 Technology and e-learning Effectiveness

There were significant positive correlation between e-learning effectiveness and technology ($r = .69$, $p<.01$) and all the technology components, with correlation coefficients between .60 and .65. These results imply that the more students have access, navigation and interface with the

technology, and the more reliable and effective technology infrastructure, the more effective the e-learning.

4.3 Conclusion

This chapter described the demographic characteristics of the 169 participants and the results of the correlation analyses. The result indicates that instructor characteristics, student characteristics and the technology have significant positive relationship with e-learning effectiveness. These research findings are discussed in the next chapter, Chapter 5.

CHAPTER 5

DISCUSSION

5.0 Introduction

This chapter discusses the findings of the study in light of the literature reviewed on e-learning in Chapter 2, and the objectives developed in Chapter 1. This study provides identification of factors critical to e-learning effectiveness. The findings, as presented in Chapter 4, are discussed in the section below. The chapter ends with limitations of the study and recommendation for future research.

5.1 Instructor Characteristics and e-learning Effectiveness

The results show that there was an association between instructor characteristics and e-learning effectiveness. Past researches conducted by Volery and Lord (2000) and Ozkan, Kosler and Baykal (2009) have demonstrated these relationships, and this study confirmed previous findings. The findings indicated that the role of instructor in e-learning is important in determining its success. This is may be due to the fact that the amount of time instructor takes to upload learning materials in the system, or to answer students' questions, and the instructor's involvement in the discussion may motivate students to engage with e-learning and thus, increase students satisfaction level with the system. In other words, instructor who has a positive attitude towards the systems, able to promote and has a good control of the technology are likely to experience a more positive learning outcomes.

5.2 Students Characteristics and e-learning Effectiveness

Students' characteristics such as students' motivation to use e-learning technology and students' computing competency have also found to be related with e-learning effectiveness. This finding is in accordance with Volery and Lord's (2000), Ozkan, Kosler and Baykal's (2009) and Webster and Hackly's (1997) studies.

In this study, it is found that both students' computing competency and students' motivation to use e-learning have strong relationship with e-learning effectiveness. The findings suggest that students who have the necessary computer skills or having computers at home tend to be more satisfied with the e-learning. Therefore, to attract students who did not have computer background, it is suggested that the university provides free training or prepare a comprehensive manual book on how to operate the e-learning.

Similarly, to improve and sustain students' motivation in using e-learning, it is suggested that both administrators and instructors to give more attention on the creation of tasks, material and feedback mechanism and also on course structures, processes and requirements. E-learning that offers interesting tasks and materials, provides additional student support services like creating a learning community for student-student and student-instructor interactions, and provides good assessment methods and feedback may motivate students to use e-learning.

5.3Technology and e-learning Effectiveness

The study shows that technology quality in terms of access, navigation, interface and the reliability and effectiveness of technology infrastructure have the highest relation to e-learning effectiveness as compared to other two factors. This findings is similar to Webster and Hackly (1997), Ozkan, Kosler and Baykal (2009) and Holsapple and Lee-Post's (2003) studies. The results suggest that technological aspect is one of the key successes of e-learning. Thus, the administrator of the university need to ensure that the technology use for e-learning provide convenient access to students, required minimal time for document exchange, have good user interface such as ease of use, navigation, cognitive load, mapping, screen design, and information presentation.

5.4 Study Limitations

The results discussed in this chapter are preliminary and should be accepted with some reservations. First, the study was conducted in one private university and thus, the findings cannot be generalized to other private university using e-learning mode of study. Another limitation was related to utilization of only survey as a method of data collection. The used of triangulation method which include interviews with students, academic staffs, and administrators; observation of the e-learning that took place and analyzing historical documents such as students' and academic feedback

reports concerning the use of e-learning may allow researcher to develop a rich understanding of the effectiveness of the system.

In summary, while there are some limitations associated with the approach used here and given the exploratory nature of the study, the results of this research provide useful findings that should be of interest to both researchers and practitioners.

5.5 Recommendation for future research

Since the present study was exploratory in nature, and given the small sample size, it would be beneficial for future research to consider the following suggestions:

i) replicate the present study but with large and more diverse group of e-learning users that include the academic staffs of the university;

ii) expand the study to include students and academic staff from other universities so as to enhance the consistency of the results;

iii) include more elements of e-learning effectiveness in the study in order to gain a more complete understanding regarding the factors needed for the system;

iv) include other elements like barriers and challenges to the usage of e-learning that may be correlated with the e-learning effectiveness; and

v) incorporate other method of data collection such as interview to gain more in-depth view of the system

5.6 Conclusion

The current chapter has discussed results of the study in light of the literature and limitations. The aim of this study was to examine factors that are critical for e-learning effectiveness. The results indicate that instructor characteristics, student characteristics and technology were all important for e-learning to be effective. However, since the study was conducted at one university only, the findings must be interpret with cautious and cannot be generalized to represent other university that used e-learning. It is hoped that through the examination of factors that contribute to the e-learning effectiveness, a more complete understanding of the kind of factors needed to enhance the usage of e-learning will be achieved.

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APPENDICES

APPENDIX A

SAMPLE OF THE SURVEY MATERIALS (ENGLISH AND TRANSLATED VERSION)

This appendix contains copy of the survey materials provided to respondents, namely the cover letter and the questionnaire.

COLLEGE OF BUSINESS

UNIVERSITI UTARA MALAYSIA

E-learning in Educational Context

Dear Participant,

Thank you for agreeing to participate in this research.

We would appreciate it very much if you could answer the questions carefully as the information you provide will influence the accuracy and the success of this research. It will take no longer than 30 minutes to complete the questionnaire. All answers will be treated with strict confidence and will be used for the purpose of the study only.

If you have any questions regarding this research, you may address them to me at the contact details below.

Thank you for your cooperation and the time taken in answering this questionnaire.

Yours sincerely,

Seyed Mohammad Reza Bathaeian
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E-mail: smrb2002@yahoo.com

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SECTION 1: INSTRUCTOR CHARACTERISTICS

Using the following scale, please tick (√) the given box that represents your <u>most</u> appropriate answer.

		Strongly Agree				Strongly Disagree
1	The instructor is enthusiastic about teaching the class	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
2	The instructor's style of presentation holds me interest	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
3	The instructor is friendly towards individual students	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
4	The instructor has a genuine interest in students	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
5	Students felt welcome in seeking advice/help	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
6	The instructor encourages student interaction	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
7	The instructor handles the e-learning units effectively	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
8	The instructor explains how to use the e- learning components	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
9	I feel the instructor is keen that we use the e-learning based units	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
10	We were invited to ask questions/receive answers	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
11	We were encouraged to participate in class	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
12	The instructor encourages and motivates me to use e-learning	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
13	The instructor is active in teaching me the course subjects via e-learning	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

SECTION 2: STUDENT CHARACTERISTICS

Using the following scale, please tick (√) the given box that represents your <u>most</u> appropriate answer.

		Strongly Agree — Strongly Disagree
1	The e-learning encourages me to search for more facts than the traditional methods	☐1 ☐2 ☐3 ☐4 ☐5
2	The e-learning encourages me to participate more actively in the discussion than the traditional methods	☐1 ☐2 ☐3 ☐4 ☐5
3	I enjoy using personal computers	☐1 ☐2 ☐3 ☐4 ☐5
4	I use the personal computers for work and play	☐1 ☐2 ☐3 ☐4 ☐5
5	I was comfortable with using the PC and software applications before I took up the e-learning based courses	☐1 ☐2 ☐3 ☐4 ☐5
6	My previous experience in using the PC and software applications helped me in the e-learning based courses	☐1 ☐2 ☐3 ☐4 ☐5
7	I am not intimidated by using the e-learning based courses	☐1 ☐2 ☐3 ☐4 ☐5
8	I learn best by absorption (sit still and absorb)	☐1 ☐2 ☐3 ☐4 ☐5
9	I learn best by construction (by participation and contribution)	☐1 ☐2 ☐3 ☐4 ☐5
10	I learn better by construction than absorption	☐1 ☐2 ☐3 ☐4 ☐5
11	I only read messages in the discussion group	☐1 ☐2 ☐3 ☐4 ☐5
12	I do read as well as participate in the discussion group	☐1 ☐2 ☐3 ☐4 ☐5
13	The instructor initiated most of the discussion	☐1 ☐2 ☐3 ☐4 ☐5
14	The students initiated most of the discussion	☐1 ☐2 ☐3 ☐4 ☐5
15	The instructor participated actively in the discussion	☐1 ☐2 ☐3 ☐4 ☐5

SECTION 3: TECHNOLOGY

Using the following scale, please tick (√) the given box that represents your <u>most</u> appropriate answer.

		Strongly Agree ☐1 ☐2 ☐3 ☐4 ☐5 Strongly Disagree
1	Easy on-campus access to the Internet	☐1 ☐2 ☐3 ☐4 ☐5
2	Did not experience problems while browsing	☐1 ☐2 ☐3 ☐4 ☐5
3	Browsing speed was satisfactory	☐1 ☐2 ☐3 ☐4 ☐5
4	Overall, the website was easy to use	☐1 ☐2 ☐3 ☐4 ☐5
5	Information was well structured/presented	☐1 ☐2 ☐3 ☐4 ☐5
6	I found the screen design pleasant	☐1 ☐2 ☐3 ☐4 ☐5
7	I could interact with classmates through the web	☐1 ☐2 ☐3 ☐4 ☐5
8	I could easily contact the instructor	☐1 ☐2 ☐3 ☐4 ☐5

SECTION 4: E-LEARNING EFFECTIVENESS

Using the following scale, please tick (√) the given box that represents your <u>most</u> appropriate answer.

		Strongly Agree ☐1 ☐2 ☐3 ☐4 ☐5 Strongly Disagree
1	Easy access to Web site	☐1 ☐2 ☐3 ☐4 ☐5
2	Web site contained useful graphical and features	☐1 ☐2 ☐3 ☐4 ☐5
3	I felt personally involved in the course	☐1 ☐2 ☐3 ☐4 ☐5
4	I believe that I will be able to use this technology easily in the future	☐1 ☐2 ☐3 ☐4 ☐5
5	This type of multimedia technology interferes with communication in the classroom	☐1 ☐2 ☐3 ☐4 ☐5
6	I would recommend this type of distance learning course to someone else	☐1 ☐2 ☐3 ☐4 ☐5

SECTION 5: PERSONAL BACKGROUND

Please tick (√) the given box OR fill in the blank that represents your answer:

1. I am:

   □ Male □ Female

2. My age is: _____

3. My highest educational level:

   □ Secondary Education

   □ Certificate

   □ Diploma

   □ First / Professional Degree

   □ Second degree or above

4. Since I start my course at Oloum and Hadith University, I have completed _____ semesters. (This does not include the current semester)

5. Number of years experience as e-learning user: _____

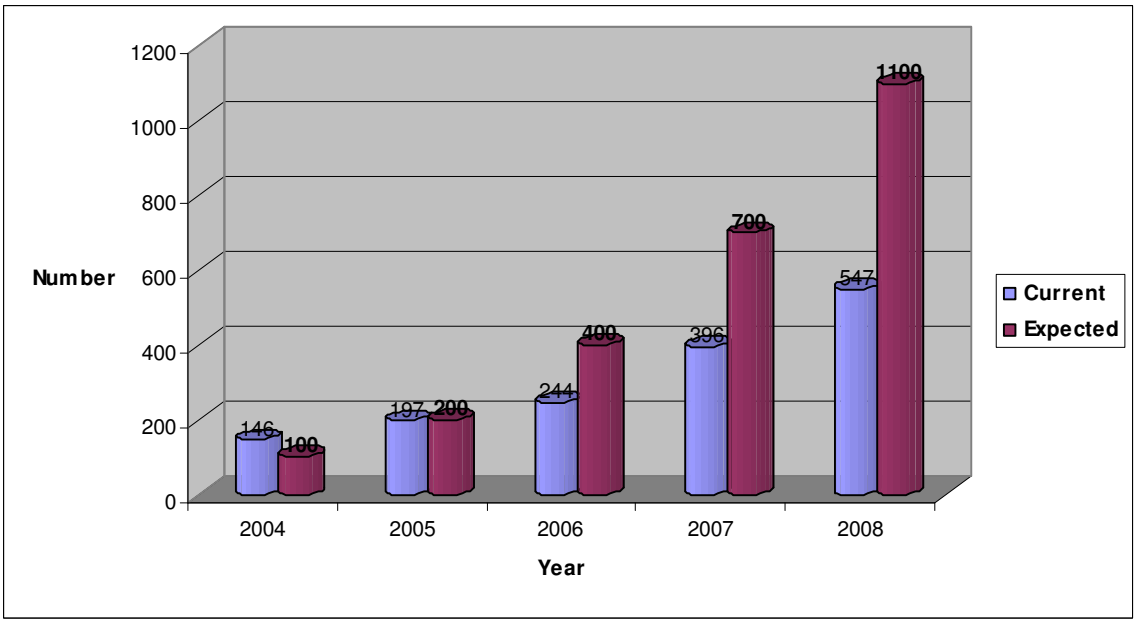
APPENDIX B

Number of students in each province and each year

No.	Province	2008	2007	2006	2005	2004
1	East Azarbayjan	3	11	2	4	1
2	West Azarbayjan	7	7	9	0	0
3	Ardabil	0	1	1	0	0
4	Isfahan	43	24	16	9	11
5	Boushehr	0	5	1	1	1
6	Eilam	1	0	0	0	0
7	Tehran	271	150	93	96	97
8	Char Mahal & Bakhtiary	0	0	2	0	0
9	South Khorasan	0	5	0	0	0
10	Khorasan Razavi	64	46	26	13	13
11	North Khorasan	2	0	0	0	0
12	Khuzestan	11	3	1	1	4
13	Zanjan	0	2	2	0	0
14	Semnan	4	6	6	1	2
15	Sistan & Baluchestan	2	0	3	3	0
16	Fars	27	18	9	1	3
17	Qazvin	2	7	1	0	1
18	Qom	35	27	22	11	5
19	Kerman	14	13	3	25	2
20	Kermanshah	1	1	0	0	1
21	Kohkeuleh & Boyer Ahmad	1	0	0	0	0
22	Golestan	4	8	2	0	0
23	Gilan	17	26	16	10	1
24	Lorestan	6	1	3	0	0
25	Mazandaran	2	7	12	16	0
26	Markazi	1	6	1	0	1
27	Hormozgan	11	5	0	0	0
28	Hamadan	9	2	2	2	0
29	Yazd	8	6	3	2	2
30	Over seas	1	8	8	2	1
	Total	547	395	244	197	146

APPENDIX C

SPSS OUTPUT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1000
800
600
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200
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Number
146
100
197
200
244
400
396
700
547
1100
2004
2005
2006
2007
2008
Year
Current
Expected

Number of students in each province in each year

No.	Province	2008	2007	2006	2005	2004
1	East Azerbaijan	3	11	2	4	1
2	West Azerbaijan	7	7	9	0	0
3	Ardabil	0	1	1	0	0
4	Isfahan	43	24	16	9	11
5	Boushehr	0	5	1	1	1
6	Elam	1	0	0	0	0
7	Tehran	271	150	93	96	97
8	Char Mohall & Bakhtiary	0	0	2	0	0
9	South Khorasan	0	5	0	0	0
10	Khorasan Razavi	64	46	26	13	13
11	North Khorasan	2	0	0	0	0
12	Khuzestan	11	3	1	1	4
13	Zanjan	0	2	2	0	0
14	Semnan	4	6	6	1	2
15	Sis tan & Baluchistan	2	0	3	3	0
16	Fars	27	18	9	1	3
17	Qazvin	2	7	1	0	1
18	Qom	35	27	22	11	5
19	Kerman	14	13	3	25	2
20	Kermanshah	1	1	0	0	1
21	Kohkeuleh & Boyer Ahmad	1	0	0	0	0
22	Golestan	4	8	2	0	0
23	Gilan	17	26	16	10	1
24	Lore Stan	6	1	3	0	0
25	Mazandaran	2	7	12	16	0
26	Markazi	1	6	1	0	1
27	Hormozgan	11	5	0	0	0
28	Hamadan	9	2	2	2	0
29	Yazd	8	6	3	2	2
30	Over seas	1	8	8	2	1
	Total	547	395	244	197	146