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FACULTY OF BUSINESS ECONOMICS
Master of Management: Management Information Systems

Masterproef

*The Readiness of Jordanian Companies to adopt e-learning
2.0 Applications*

Promotor :
Prof. Joanna SCHREURS

Saleh Altakrouri

*Master Thesis nominated to obtain the degree of Master of Management , specialization
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UNIVERSITEIT HASSELT

FACULTEIT TOEGEPASTE ECONOMISCHE WETENSCHAPPEN

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Applications

Master Thesis

Submitted to obtain Degree of

Master of Management

By: Altakrouri, Saleh

Promoter: Prof. Dr. Jeanne Schreurs

Preface

In the name of God most gracious most merciful

First of all, I dedicate any success that I reach to throughout my life to my beloved parents, whom without their unconditional support and great love I would have never been what I am today. My deepest appreciation and thankfulness go to them first.

Second, I would like to thank my supervisor; Professor Dr. Jeanne Shreurs for offering her guidance throughout this work until it is completed.

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I would like to thank each and every one who stood beside me and gave me their support from my dear family and friends.

And last but not least, my sincere and never ending thanks go to Almighty God, for granting me guidance, hope and patience that lead me always to success and prosperity throughout my whole life.

Summary

Rapid advances and innovation in information and communications technology are affecting the way of training and learning today. There are many terms used: web-based learning, computer-based instruction, online learning and e-learning.

The main purpose of this study was to investigate Jordanian companies' readiness on using Web2.0-based e-learning tools and to explore the potential factors that may have an impact on the adoption of such applications in general and more specific in Jordan.

Chapter one included research questions related to readiness of Jordanian companies for implementing e-learning tools as a competitive solution, Jordanian companies actual status to use e-learning applications, and how can companies make progress in the adoption of e-learning 2.0? Which factors might have impact? In addition, there are some sub-questions related to (1) web 2.0 and e-learning 2.0, i.e. what is web 2.0 technology and what is web 2.0-based applications, and what are e-learning 2.0 applications? (2) The adoption of e-learning 2.0 questions, which related to factors that might affect the adoption of e-learning and e-learning 2.0, best practices, and measurement indicators of the adoption. Finally, (3) questions related to readiness of Jordanian companies to adopt e-learning 2.0 applications, i.e. do company characteristics or demographic differences lead to different level of adoption? Are Jordanian companies ready to adopt e-learning 2.0 applications? Are Jordanian companies familiar with the subject of e-learning? What is the adoption level for companies of different sector and different size in Jordan? What is the way to evolve for these companies?

In **Chapter 2** consists of a discussion of the main differences between e-learning and e-learning 2.0 through reviewing basics of e-learning such as definition, objectives, benefits and types. Then, clearing up what is e-learning 2.0 and how this term emerged and what is the critical role played by web 2.0 in this context.

Chapter three describes the major factors that have an impact on e-learning and e-learning 2.0 adoptions. The main factors that have an important impact on the adoption of e-learning initiatives is related to the organizations' capacity to evaluate their prior knowledge of technology based learning in areas such as experience of learning technologies.

Chapter four presents the actual status of e-learning in Jordan. The most important benefits of e-learning for educational institutions in Jordan include: integration of ICT into education, decrease the number of students studying abroad, increase women enrolment rate into higher studies programs, provide alternatives for worker students, and support students living in rural areas. On the other hand, benefits for e-learning in the workplace include: decrease training cost in enterprises, upgrade fresh graduates' qualifications, enhance productivity and performance of employees, and boost lifelong learning and assist with career paths.

Chapter five introduces e-readiness subject and how to assess e-readiness for e-learning in general. It contains several assessment models proposed by different authors to assess e-learning readiness. For example, this section contains the leading model of Schreurs and Moreau (2008) as well as Kaur and Abas (2004) model, Anderson (2008) model, Haney (2002) model, Molla and Licker (2005) model and The Bulgarian E-readiness Assessment (2002) model.

Chapter six proposes a model called "the readiness of Jordanian companies to adopt e-learning 2.0 applications". In addition, this chapter presents the results of this research.

Chapter seven shows conclusions of this study. The major conclusion of this study is that Jordanian companies are ready to adopt e-learning applications. E-readiness of Jordanian companies to adopt e-learning applications is one of the most critical factors needed to success e-learning adoption initiatives.

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Chapter 1

Introduction

E-learning in general has been recognized as an important strategy in employees and students learning process in many countries in the world. (Ichikawa et al., 2006; Autio, 2006; Chi et al., 2006; Draughon, 2006; Dobbs and Allen, 2006; Chan and Dovchin, 2006; Hodges, 2009). According to Luckin et al (2008), the term e-learning covers the following subjects: the set of learner skills to utilize technology, the use of computer technology in learning, and the style of learning that focus on technology interactivity and collaboration.

Moreover, Cannata, (2008), Rupesh (2009), Miller (2009), and Ehlers (2009) showed that web2.0, which has given birth to e-learning 2.0, depends on many variables that may facilitate or make difficult the progress of e-learning 2.0 adoption in organizations. Therefore, organizations need to be aware of factors that might have an effect on e-learning applications implementation, examine if there is a relationship between company sector or company size on the adoption of e-learning 2.0 applications.

In the absence of such studies in Jordan, this research intends to fill the gap by examining the issue of Jordanian companies' readiness on using web2.0 based e-learning tools and explore the potential factors that may have an impact on the adoption of such applications in Jordan.

1.1 Research Questions:

Following research questions have to be answered:

1. To support their people in becoming skilled employees in a technology driven economy, a company can best opt to implement e-learning as a competitive solution, but is a company ready for it?
2. What is in Jordan the actual status of companies' readiness to use e-learning applications and in particular e-learning 2.0 applications based on web2.0?
3. How can companies make progress in the adoption of e-learning 2.0? Which factors might have impact?

1.2 Research Sub-question

1. Web 2.0 and e-learning 2.0:

- 1.1 What is web2.0 technology and web 2.0 based applications?
- 1.2 What are e-learning 2.0 applications?

2. The adoption of e-learning 2.0:

- 2.1 Which factors have an impact on the adoption of e-learning and which on the adoption of e-learning 2.0 applications?
- 2.2 Do best practices already exist, and what are their characteristics?
- 2.3 How can we measure the adoption? Which are the indicators?

3. Are the Jordanian companies ready to adopt e-learning 2.0 applications?

- 3.1 Do company characteristics or demographic differences lead to different level of adoption?
- 3.2 Are Jordanian companies ready to adopt e-learning 2.0 applications?
- 3.3 Are Jordanian companies familiar with the subject of e-learning?

3.4 What is the adoption level for companies of different sector and different size in Jordan?

3.5 What is the way to evolve for these companies?

1.3 Research Methods

In order to answer the research questions, the descriptive research approach was used by this study to describe data on the basis of two methodologies:

1. Primary data collected from academic experts and Jordanian companies, to analyze these data in order to come to results and recommendations.
2. Secondary data (literature review and related studies), which means review of literature to identify variables and propose the theoretical framework to understand the adoption of e-learning 2.0 applications by Jordanian companies.

1.4 Overview of the Thesis Content

The remainder of the thesis is organized as follows: chapter 2 represents Web 2.0 and e-learning 2.0 issues; chapter 3 discusses the adoption of eLearning and learning 2.0 applications; chapter 4 contains some studies and e-learning adoption in Jordan; chapter 5 introduces e-readiness and some eLearning models; chapter 6 proposes a model called "the readiness of Jordanian companies to adopt e-learning 2.0 applications. Finally chapter 7 shows conclusions and recommendations.

Chapter 2

E-learning and e-learning 2.0

Preface

The main purpose of this chapter is to explore the main differences between e-learning and e-learning 2.0. This goal can be achieved through reviewing basics of e-learning such as definition, objectives, benefits and types. Then, clearing up what is e-learning 2.0 and how this term emerged and what is the critical role played by web 2.0 in this context.

Therefore, this chapter is organized as follows: section 2.1 titled "basics of e-learning" contains the difference between traditional learning and eLearning as well as definition of e-learning, benefits of e-learning and types of eLearning. Section 2.2 named "basics of web 2.0" considers definition of web 2.0, characteristics of web 2.0, significance of web 2.0, key trends in e-learning in terms of web 2.1 and web 2.0. section 2.3 labeled "basics of eLearning 2.0" shows definition of e-learning 2.0 and differences between eLearning 1.0, e-learning 1.3 and e-learning 2.0.

2.1 Basics of e-learning:

2.1.1 Traditional learning and e-learning

It has been known that rapid developments and ever-changing conditions are the most critical features that picture our recent society. As a result of this, members and organizations must proceed to go well with these changes. One of these developments is the modern learning approach that requires new forms and practices; e-learning.

Initially, it is necessary to recognize the difference between the traditional and electronic methods of learning before defining e-learning in order to understand principles of this term. E-learning has been distinguished from traditional learning by three main characteristics related to place of learning, learner's role and time of learning process. Ehlers (2009) shed light upon these differences and indicated that e-learning takes place everywhere not only in the classroom, learners in e-learning take on the role of organizers and e-learning takes place always in formal or informal communities. Thus, we can conclude that these common differences are among the key points that must be taken into our account when differentiating between methods of learning.

2.1.2 Definition of e-learning

This section shows various points of view concerning e-learning definition. These views reflect on this term through the method used to deliver learning materials. Rosenberg's (2001, cited in Abdul Mutalib and Shiratuddin, 2008) definition of e-learning indicates that the use of Internet applications and technologies are the intended method employed to deliver learning materials. According to this definition, e-learning process conducted only by using Internet to deliver learning materials. On the other hand, Govindasamy (2002, cited in Abdul Mutalib and Shiratuddin, 2008) did not state the use of Internet as a condition to perform e-learning; Govindasamy

defined e-learning as a learning process uses aids of electronic appliances in order to access learning contents.

Another view of e-learning (i.e. Stockley, 2003 cited in Abdul Mutalib and Shiratuddin, 2008 and Schreurs and Moreau, 2008) clarifies that e-Learning includes delivering instructional content or learning experience through all electronic technology, including Internet, intranet, extranet, satellite, audio, video, interactive TV, and CD-ROM.

Rossiter (2002 cited in Moore, 2008) defined e-learning as the use of information and communication technologies (ICTs) as a base for the development of knowledge and skills to support interactions for learning, either with content, with learning activities and tools, and with other people.

It is agreed by all researchers as cited, that e-learning must be seen as an ICT enhanced learning process, in which using ICT tools are used to improve the on distance learning process and activities.

2.1.3 Types of e-learning

E-learning can be classified in many different types, i.e." (a) computer-based learning (CBL) that related to the use of computers in educational environment, (b) computer-based training (CBT) that delivered via CD-ROMs - this term is used interchangeably with the term web-based training (WBT) that delivered via the Internet, (c) technology-enhanced learning (TEL) that aims at providing a socio-technical innovations for e-learning practices, and (d) computer-supported collaborative learning (SCSL) that has the goal to enhance learning and teaching processes with the help of modern information technologies. (Wikipedia, 2010a)

2.1.4 Benefits of e-learning:

E-learning is a type of on distance education, for which learning is independent of time and of location, and where the communication between the learner and the instructor is organized on distance. In case of e-learning communication is going online or electronically.

A good example of traditional distance learning is correspondence learning, in which students and teachers are separated and a postal system used for interconnection. With the arrival of new distribution systems such as television, information technology and the Internet, distance learning evolved to cover several methods such as web-based learning, multimedia training, hypertext-based learning and e-learning.

E-learning can give learners an opportunity to gain knowledge and skills on a flexible way, with respect to time and location. As a consequence e-learning has the potential to enhance lifelong learning process. In general, benefits of e-learning include: accessibility, asynchronicity, flexibility, convenience, time efficiency, discreteness and unlimited opportunities for learning. (Serdyukov and Hill, 2008, p.1)

E-learning became a solution for professional learning and for individual lifelong learning (Hamburg 2008, Miller, 2009, Shipstone, 2008, Albalawi and Badawi, 2008 and Watkins et al., 2004). Employees have not to leave their job for training as was in traditional organization of company training. Training expenses for the company were reduced. Training content can be organized as company knowledge is made available in a central knowledge base to be searched for afterwards. The materials can also be speared on a flexible way via CD-ROM. It seems that this online training is becoming popular. Watkins et al. already mentioned that about 31% of training programs in USA in 2003 was delivered online.

2.2 Basics of Web 2.0

2.2.1 Definition of web 2.0

The first usage of the term web 2.0 was in 1999 by Darcy DiNucci in her discussion of the widespread use of portable Web-ready devices and the needed code for ever-increasing variety of hardware. However, this use of web 2.0 does not relate directly to the current use of this term (Wikipedia, 2010a). In 2003, the term web 2.0 was used by O'Reilly Radar to describe the social sense of the structure of the global net. (Colazzo et al., 2008)

O'Reilly (2005, cited in Hsu et al., 2008) states that the first arise of the phrase “web 2.0” was coined by Dale Dougherty, web pioneer and O'Reilly Vice President, in a brainstorming session within the American group O'Reilly Media and MediaLive International occurred in mid-2004, also hosted the first Web 2.0 conference in the October in the same year (Cannata, 2008) to address a new concept of the World Wide Web, which is the transition of the classic web as information source to new one, the participatory web.

Thus, web 2.0 has been defined by O'Reilly (2005, cited in Huang et al., 2008, p.2) as an active and open web architecture that values users' participation and contribution. Another definition holds the same view and defined this term as new web technologies that aim at sharing information and enhancing user creativity, freedom, participation and collaboration. Arney (2008)

Moreover, web 2.0 considered as a second generation of web development and design that focus on encouraging social networking via the Internet, by giving access to information and activate sharing and creation of beneficial content within social communities. (Burrus, 2010; Cannata, 2008)

2.2.2 Characteristics of web 2.0 technologies

The natural evolution of the classic web represented in web 2.0 technologies results in new environment of global repositories (e.g. Wikipedia) to classify knowledge within a system (Díaz et al., 2008, p. 746). The main features of web 2.0 technologies are the interaction and feedback between/from different users, and cooperative creation of knowledge through collaboration and communication tools (Díaz et al., 2008; Hsu et al., 2008). These features can be seen in the most critical trends of web 2.0 applications, which are: (1) the use of web as a platform, (2) user-generated content tools (organization and production of content) that related to strategies for selection and reception of content, which means that these applications exploit the connective intelligence, (3) relationship management tools (sharing knowledge and networking) that related to strategies for construction and maintenance of networks, which means that experience can be enriched by the user, (4) identity management tools (presentations of profiles on the web) that related to strategies for presenting oneself on the web. (Jaokar, 2007, cited in Chen et al., 2008; Chen et al., 2008; Pferdt, 2008, and O'Reilly, 2005 cited in Cannata, 2008)

Accordingly, these characteristics are suitable to build the web-based interactive learning environment, as it aims to ease creativity, collaboration and sharing between users. A good example of web 2.0 tools that provide learners with collaborative learning platform in which learners can both discuss and share their knowledge, is wiki. (Zhang et al., 2008)

2.2.3 Significance of web 2.0 technologies

Importance of web 2.0 technologies stems from the power of read/write feature labeled these technologies. This power can be utilized in formal and informal learning processes.

In the formal learning context, web 2.0 applications (e.g. e-portfolios) can be used to support learning process by facilitating information sharing, user-centered design, communication and collaboration on the World Wild Web, which in turn enhance learner's competencies. (Vuorikari, 2005, cited in Glahn et al., 2008; Chrzaszcz et al., 2008; Wikipedia, 2010a)

An empirical evidence about significance of using web 2.0 technologies can be in formal learning can be found in Al Senaidi's (2008) study that conducted to explore the use of web 2.0 technologies in education, and found that web 2.0 tools help students in their better learning and strategic implementation by enhancing students' autonomy, collaboration and academic efficiency.

On the other hand, web 2.0 applications can be used in informal learning for learners continuing their education and for corporate training (McDaniel, 2008). By consistence with Hamburg's (2008) and Aceituno et al.'s (2010) findings, one can conclude that utilizing e-learning strategies by web 2.0 applications enhance the status of the needed competencies in workplace and supports interactive learning.

Furthermore, there is a new trend in using web 2.0 by innovative companies to enhance information sharing, communications and collaboration, called "business 2.0". These applications, whether personal tools with business applicability, such as Facebook, Twitter, Wikipedia, YouTube, Digg, Visual Communications and Delicious or Pure business tools, such as Wiki, LinkedIn, Cloud Computing and Software as a Service, can be used to improve teamwork, customer satisfaction and collaboration in a low cost way. (Burrus, 2010).

2.2.4 Key trends in learning between web 1.0 and web 2.0

E-learning in the web 1.0 era can be distinguished from e-learning in web 2.0 era by indicators such as learning target, instructional design, learning place, evaluation, learning environment, media usage and learning technologies. As can be seen from Table (2.1), e-learning in the web 1.0 era can be targeted as a formal learning based on instructional design to distribute declarative knowledge through books and pictures. Some of learning technologies employed during this era were CBT/WBT.

After introducing web 2.0 technologies, e-learning possess new distinctive features such as collaboration, vocational education, informal learning and social software. Therefore, e-learning techniques were transformed into more modern, collaborative and social networks by using the interactive web (web 2.0) technologies and services. (McDaniel, 2008; Haskell and Pollard, 2008; Kurhila, 2006; Hall, 2008; Javeri, 2008b)

The main factor that differentiates web 1.0 from web 2.0 is the read/write nature of web 2.0 that permitting it to be interactive. The interactivity of web 2.0 provides two-way communication and so lends itself to collaboration, co-operation and the development of a learning community (Minocha, 2009).

Table (2.1): Key trends in e-learning between web 1.0 and web 2.0

	1989-1995	1995-2003	2003 - ?
www	Web 1.0 →		Web 2.0
e-learning	e-learning by distributing	e-learning by interacting	e-learning by collaboration (e-learning 2.0)
Learning target Vocational education	Declarative knowledge	Active learning	Vocational action competence
Instructional design	instruction		construction
Learning place	Formal learning		Informal learning
Evaluation	Input-oriented	Output-oriented	Learning process
Learning environment	content		context
Media usage	Books/pictures	TV	Internet/mobile
Learning technologies	CBT/WBT	Content management/ multimedia	Social software/ 3D-virtual worlds

Source: Pferdt (2008)

2.3 Basics of e-learning 2.0

With the arrival of web 2.0 technologies; e-learning evolved into new era called e-learning 2.0. This term refers to the use of web 2.0 for learning purposes (Ebner and Maurer, 2008). In fact, this term considered an one stage in the evolution of e-learning stages, which are (a) web-based training, (b) e-learning 1.0, and (c) e-learning 2.0 (Gonella and Panto, 2008 cited in Rupesh, 2009, p.2). As the main focus of this section is e-learning 2.0; it defines what e-learning 2.0 is and discusses the main differences between e-learning 1.0 and e-learning 2.0.

E-learning 2.0 has been defined as using web 2.0 applications for learning and teaching purposes. This term was first used by Stephen Downes in 2005 (Ebner and Maurer, 2008). In Interactive collaborative environment (ICE), e-learning 2.0 refers to context where learning process occurs through conversations about content and problem solving (Arney, 2008). This means that e-learning 2.0 emerges from the combination of e-learning trends and web 2.0 tools. (Karrer, 2007; Hamburg, 2008)

E-learning 2.0 - which builds upon the concept of Web 2.0 - is an immersive environment that integrates relational learning in an open and de-structured environment that is enhanced significantly through social construction of knowledge. This is true due to the fact that technology has a critical role at using a learner-centered environment that built upon social interactions in which learners are active partners in the learning process, with a facilitating role of the teacher. (Pettaniti and Cigognini, 2007, cited in Miller, 2009, p.56)

2.4 Differences between e-learning 1.0 and e-learning 2.0

The first emphasis was on training rather than on learning itself (Gonella and Panto, 2008 cited in Rupesh, 2009, p.2). This case was emerged in 1990s in business as a web-based training (WBT) model. WBT evolved into e-learning 1.0, in which Learning Management System (LMS) was used to create, design, manage courses, and supporting content delivery user registration, monitoring, and certification.

E-learning 1.0, which is the first generation delivered through the web. It can be synchronous courses delivered using virtual classroom software or asynchronous courses (courseware). The problem with this type is that courses management is typically done by Learning Management System (LMS) and developed following a traditional model. In addition, it requires long time to be developed, needs a onetime delivery with a content size of 1 hour, as can be seen in Table (2.2), (Karrer, 2007). After web 2.0 was introduces, e-learning was given the opportunity to include a new array of services; for example, participant contribution is not limited to services of e-learning 1.0 such as mailing lists. That is, web 2.0 has brought radical change in e-learning and gives the birth to e-learning 2.0, which is based on tools that combine three features: ease of content creation, web delivery and integrated collaboration.

However, the most important feature of this approach is that, e-learning 2.0 can be used when there are too much information and widely different unknown learning needs (Karrer, 2007). Moreover, while e-learning 1.0 was described by acquisition of learning content; e-learning 2.0 described by participation in learning process by using web 2.0 tools (Ehlers, 2009).

Table (2.2): e-learning 1.0 and e-learning 2.0 main features

	e-learning 1.0	e-learning 2.0
Components	<ul style="list-style-type: none"> • Courseware • Authoring tools • LMSs 	<ul style="list-style-type: none"> • Wiki • Blogs • Social networking and bookmarking • Add-ins • Mash-ups
Development Time	<ul style="list-style-type: none"> • Long 	<ul style="list-style-type: none"> • None
Access Time	<ul style="list-style-type: none"> • Prior to work 	<ul style="list-style-type: none"> • During work
Content size	<ul style="list-style-type: none"> • 60 minutes 	<ul style="list-style-type: none"> • 1 minute
Delivery	<ul style="list-style-type: none"> • At one time 	<ul style="list-style-type: none"> • When you need it
Needs	<ul style="list-style-type: none"> • Common 	<ul style="list-style-type: none"> • Unique
Virtual meetings	<ul style="list-style-type: none"> • Class 	<ul style="list-style-type: none"> • Peers and experts
Examples	<ul style="list-style-type: none"> • Skills (management, communication, sales etc.) • Information (product, policies/procedures, process) 	<ul style="list-style-type: none"> • Tacit knowledge work • Continuous learning.

Source: Karrer (2007)

Chapter 3

The adoption of e-learning and e-learning 2.0

Preface

The main purpose of this chapter is to represent major factors that have an impact on e-learning and e-learning 2.0 adoptions. In fact, this chapter will pave the way for chapter 4, which will discuss how to measure the e-learning readiness or the adoption of e-learning and e-learning 2.0 applications.

Section 3.1 of this chapter labeled "influence factors of e-learning adoption" shows the most critical factors that have an important influence on the adoption of e-learning initiatives. Section 3.2 labeled "critical success factors of e-learning adoption" presents success factors of e-learning in Europe and China enterprises.

3.1 Influence factors of e-learning adoption

The main factor that has an important impact on the adoption of e-learning initiatives is related to the organizations' capacity to evaluate their prior knowledge of technology-based learning in areas such as experience of learning technologies, exposure to knowledge sources, and differences between organizations' existing models of learning with new models.

Organizations' capacity can be categorized into two types i.e. potential and realized capacities. Potential capacities are related to the acquisition and assimilation of knowledge, while realized capacities are related to the transformation and exploitation of knowledge.

Acquisition relates to organization's capacity to identify and acquire knowledge about e-learning from external sources, in terms of three sub-dimensions: the potential speed of knowledge acquisition, the intensity and direction of knowledge acquisition. While, assimilation is the organization's processes to understand and process information acquired from external sources.

On the other hand, transformation refers to the organization's capability to combine the existing knowledge with the newly acquired knowledge to produce a new schema. While, exploitation is the organization's capacity to leverage existing learning competencies or to create new competencies. Martin et al. (2003)

In addition, there are various factors that have an important role in adoptions of e-learning initiatives. Leadership commitment to the successful adoption of e-learning and leadership desire to learn and use applications of e-learning will encourage staff to accept the required change and to use those applications.

The motivation of staff towards e-learning is an important factor in the success of the adoption of e-learning. Motivation can be divided into two types: internal

motivation stems from the the same staff member and external motivation comes by the administration. The definition of staff to the goals and benefits of e-learning that is acquired after the use of e-learning is the more effective way to motivate staff towards the use of e-learning.

Culture represents one of the challenges faced by organizations trying to adopt e-learning applications. A resistance to change towards the transition from traditional education to e-learning is considered a major cultural shift, and it is not easy for this transition to be done in a short time; therefore, the administration should give staff adequate time for this change to happen. In fact, the reason behind the resistance to the adoption of e-learning applications may be due to not having the capacity or the necessary skills to use technology. Harfoushi et al (2010)

In the same context, technology proficiency is very important factor to integrate technology into instruction. Thus, the lack of skills and tools related to the use of technology in education has led to a generational gap in technology proficiency (Haskell and Pollard, 2008 and Bull, 2008).

3.2 Critical success factors of e-learning adoption

The most critical factors that play an important role in success of e-learning adoption in Europe enterprises, as results of Hamburg (2008); Liu and Wang (2009) and Andreu and Jáuregui (2005) show, include the followings:

1. The lack of long-term vocational strategies such as e-learning based on qualification needs and new technological developments.
2. The lack of skills needed for a more independent training culture in these enterprises.
3. Enterprises managers are not satisfied of the effectiveness of e-learning.

4. The lack of time and motivation for the staff to experience new learning methods.
5. The lack of acceptable e-learning software and contents for these enterprises.
6. The lack of cooperation between e-learning developers and these enterprises.
7. Flexibility in training time management.
8. Active participation of trainers.
9. The establishment of control mechanisms that ensure training occurs.
10. Content type.
11. The creation of quality content.
12. Teaching style.
13. Technology facilities offered and technology satisfaction. The promotion of interactive elements among trainers and with each other.
14. Personality features of participants and learning process.
15. The use of standardized and developed technologies, and
16. Gradual implementation.
17. Evaluation system.
18. Professional profile of tutor as well as personality features, role interaction and available resources.

In another study in China some influence factors of e-learning adoption were identified by Rogers's model (1983, cited in Zhang et al., 2010). This model analyzed e-learning adoption from the following five perceptions: (p.1429)

1. Respondents' perception on relative advantage, which can be analyzed from the following indices: cost, flexibility, personal control, access (time), interaction, increase interest, increase efficiency, avoid intimidation, access (place), social prestige, and general advantages perceived.

2. Respondents' perception on compatibility, which can be analyzed from the following indices: education quality, degree recognition, personal needs, no conflict with the traditional learning, government policy, IT infrastructure, and Web security and piracy issue.
3. Respondents' perception on complexity, which can be analyzed from the following indices: IT equipment, level of computer knowledge, easiness of use, easiness of participation, awareness of technology required, access to technology, self-control ability.
4. Respondents' perception on trialability, which can be analyzed from the following indices: trialability of course before taking it, trialability of course demos from different suppliers, opportunities to talk to e-learners, and trialability of all.
5. Respondents' perception on observability, which can be analyzed by the following indices: opportunities to observe other e-learners experiences, opportunities to know e-learning and its benefits, benefits are apparent, benefits can be demonstrated by e-learners.

In addition, there are a set of factors stated by Liu and Wang (2009) in relation to important factors in China from Chinese Researchers perspectives: (1) Instructor's attitude towards e-learning, (2) participation of key personnel, (3) concrete aim of e-learning, computer and Internet environment, (4) management platform of the system, (5) professional technological staff, and (6) participation of key personnel and the development of a knowledge strategy.

Chapter 4

E-learning and e-learning 2.0 adoption in Jordan

Preface

This chapter tries to identify the actual status of e-learning in Jordan. The first section 4.1 introduces factors having an impact on implementation of e-learning 2.0, section 4.2 discusses formal and informal e-learning in Jordan. Section 4.3 presents benefits of formal and informal e-learning in Jordan. Section 4.5 shows formal e-learning in Jordanian universities. Section 4.6 shows Jordan governmental e-learning strategy. Section 4.7 presents providers of e-learning solutions in Jordan.

4.1 Some studies in Jordan

The most essential skills that enhance the transition to the use of e-learning 2.0 are: (Miller, 2009) technology, networks, online communication and collaboration, and digital literacy using the 21st century social network tools.

There are some challenges that face e-learning 2.0 applications. These challenges include: characteristics of the target group, the specification of learning content and aims, media-didactic method, didactic transformation and structuring of learning offers, characteristics and functions of media chosen, auxiliary material, educational aims, the required tools to put teaching/learning scenarios and methods into action. (Ehlers, 2009)

After reviewing the theoretical literature on e-learning 2.0 (Martínez-Aceituno et al., 2010; Ehlers, 2009; Rupesh, 2009; Hamburg, 2008; Liu and Maddux, 2008), we can draw some important factors that play an important role in the successful implementation of e-learning 2.0. First of all, learner autonomy, learner ability to be an active constructor of learning contents, and learner preparedness to use the platform are critical factors related to learner and enhance the successful implementation of e-learning 2.0.

However, the implementation of e-learning in absence of resources and varied cultures will be a hard task. In addition, lack of tools that combine creation of content easily with web delivery and collaboration will lead to the inapplicability of e-learning 2.0. Moreover, sharing of knowledge and collaboration between e-learning experts within a community of practice , as well as instructional design strategies , and the ability to manage the fear of sharing, listening to opinions and the establishment of more egalitarian relationships have an important role as a possible solution to improve implementation of e-learning 2.0.

4.1.1 Adoption of e-learning in education

A study about the adoption of e-learning in Jordan indicates that the expected expectations in using e-learning application in higher education institutions are still below the international level (Al-Shboul and Al-Smadi, 2010). The study identifies factors that have an impact on adoption of e-learning in higher education institutions in Jordan. First of all, the use of e-learning tools requires the higher education institutions to change their teaching methods, which cannot be easily changed. In addition, lack of technological skills related to using e-learning systems; lack of such skills among teachers and students will lead to lack of interest in e-learning applications or resistance to use it.

In some cases, the administration refuses to provide financial support and qualified staff necessary to facilitate the use of e-learning applications. In addition to lack of academic institutional encourage, support and incentives. Some institutions do not believe in the usefulness of e-learning and therefore do not seek to pay attention to its application. As well as the case, some teachers believe that the use of such applications reduce their role in the educational process. Finally, lack of interest in training in the absence of adequate technological capacities of the teacher and the learner will lead to the failure of those applications.

With relation to factors that have an impact on student's adoption of e-learning systems, Abbad et al. (2009) conducted a study to investigate and identifies the major factors that affect student's adoption of e-learning systems at The Arab Open University (AOU). They use an extended version of the Technology Acceptance Model (TAM) was developed to investigate the underlying factors that influence students decisions to use an e-learning system.

This model posits that there are two factors considered of primary relevance in influencing IT acceptance behaviors: (a) perceived usefulness and (b) perceived ease of use. According to their study, perceived usefulness refers to the extent to which the individual beliefs that the use of technology will lead to improved

performance in the educational system. On the other hand, perceived ease of use refers to the degree of belief that the individual education process needs a little effort.

Abbad et al. (2009) study revealed that Internet experience, self-efficacy and technical support have a strong direct effect on perceived usefulness and perceived ease of use. Finally, the study has no evidence related to system interactivity and adoption of e-learning system.

4.1.2 Adoption of e-learning in workplace

Due to its features such as flexibility of access and immediate delivery, e-learning conceded an important method for doing learning in workplace settings. In fact, this type of learning is based on practical tasks related to achievement of organizational goals. Therefore, it is very important for Jordanian companies to adopt e-learning applications to serve these goals. However, there are some factors that have an important role in this context. According to Harfoushi et al's (2010) model shown in Figure (4.1), the more common dimensions of workplace e-learning adoption are:

1. Leadership: this factor relates to leadership characteristics and leaders' support and commitment.
2. Motivation: this factor relates to reward structure, communication and marketing, involvement, collaboration, and mandatory.
3. Culture: the main sub categories of this dimension relate to uncertainty, avoidance, involvement, interest and preference, and loyalty.
4. Readiness: this factor relates to system functionalities, human capabilities, environment, and finance.

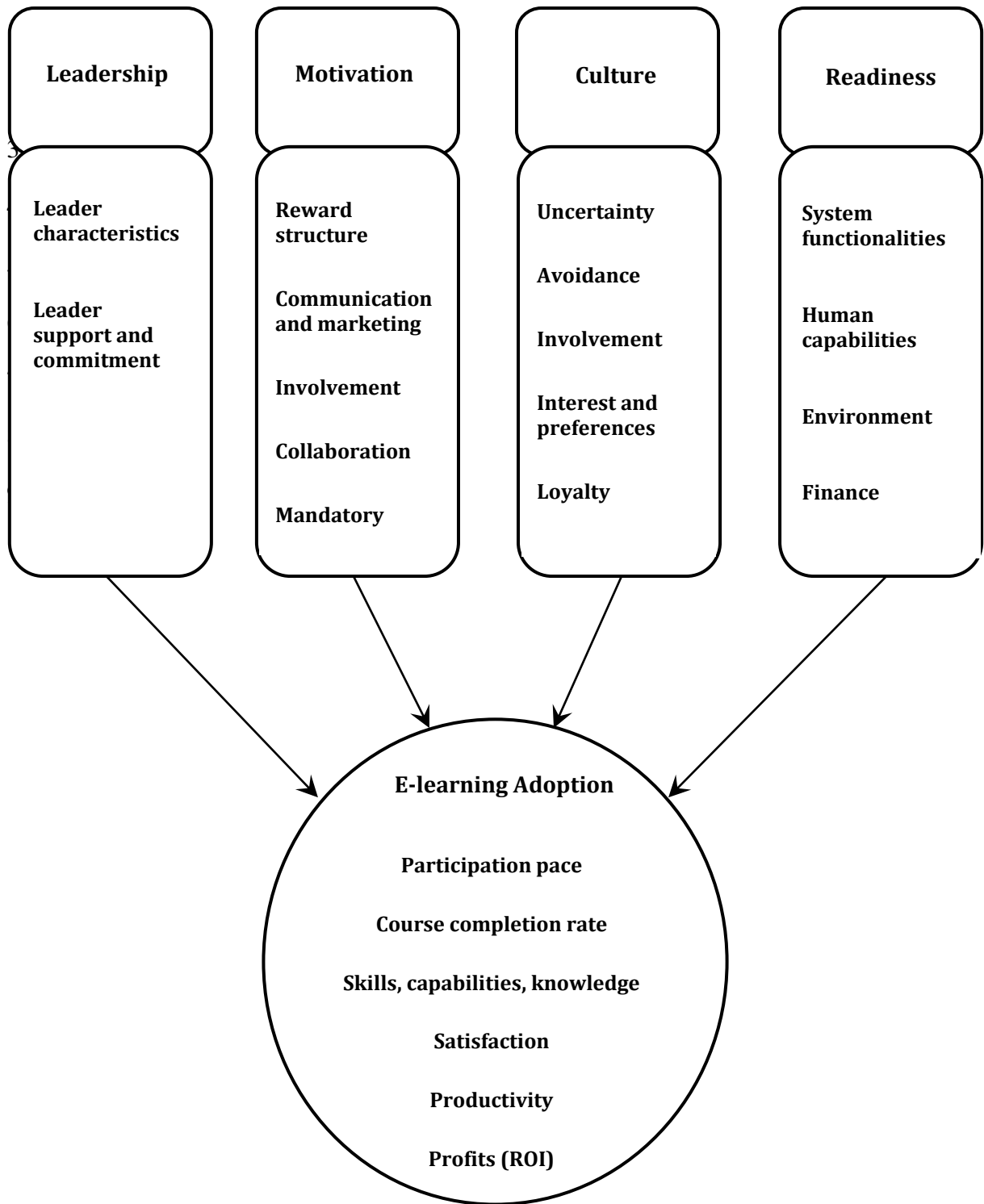


Figure (4.1): e-learning adoption model in Jordan

Source: Harfoushi et al (2010)

Based on this, adoption of e-learning in Jordanian companies includes various factors work on different levels in the company. That is, leadership characteristics, support and commitment have important effect on e-learning adoption. In addition, it is wrong to say that managers and employees are always ready to adopt e-learning applications; therefore, motivation should regard as an important requirement for encouraging stakeholders to adopt such applications. Motivation can be achieved through reward structure, communication and marketing, ensuring effective involvement of managers and employees in e-learning adoption, collaboration.

On the other hand, culture dimensions such as uncertainty, avoidance, involvement, interest and preferences, and loyalty have the same effect on e-learning adoption. Thus, these dimensions should be considered when talking about adoption of e-learning in Jordan. Finally, readiness of the organization to adopt the application of e-learning, namely, system functionalities, human capabilities, environment and financial readiness. In addition to sponsorship related to e-learning system cost and training budget

4.2 Formal and informal e-learning in Jordan

Jordan is one of several Mediterranean countries in the Middle East and North Africa (MENA) that try to overcome knowledge divide by enhancing knowledge share and diffusion. This goal can be achieved through the integration of ICT tools in education and training by e-learning initiatives that have an important role in bridging the knowledge divide and transferring a country to a competitive position in the knowledge economy. (Wael et al., 2007, p. 153)

With reference to Jordan e-readiness, the Economist Intelligence Unit and IMB (2009) indicate that Jordan e-readiness index is one of the highest in the the Middle East and North Africa (MENA) region. This result was based on six criteria used to rank countries' e-readiness, which are: (a) connectivity and technology infrastructure, (b) business environment, (c) social and cultural

environment, (d) legal environment, (e) government policy and vision, and (f) consumer and business adoption. (Wael et al., 2007)

4.3 Benefits of formal and informal e-learning in Jordan

E-learning initiatives can be divided into two parts; one related to formal e-learning (learning in educational institutions) and the other related to informal e-learning (learning in the workplace) (Wael et al., 2007). The most important benefits of e-learning for educational institutions include: integration of ICT into education, decrease the number of students studying abroad, increase women enrolment rate into higher studies programs, provide alternatives for worker students, and support students living in rural areas.

On the other hand, benefits for e-learning in the workplace include: decrease training cost in enterprises, upgrade fresh graduates' qualifications, enhance productivity and performance of employees, and boost lifelong learning and assist with career paths.

4.4 Workplace e-learning characteristics

According to Wang et al. (2010), workplace e-learning elements are: (a) learners, e.g., employees; (b) learning content, e.g., the knowledge required in work; (c) social context, e.g., groups and teams in the workplace; and (d) other learning stakeholders, e.g., organization, society. They add that, learning in educational institutions is different from learning in the workplace through the following points: (p. 168)

1. Learners of informal learning are adult learners with differential learning characteristics, due to their different job responsibilities, different needs and levels of knowledge and expertise, different educational backgrounds, different working history, and different learning performance. Therefore, workplace e-learning applications should link

learning process with work context and performance request, which can be achieved by:

- (a) identifying the expertise required for each career;
 - (b) provide advantageous learning resources for learners to develop this required expertise.
2. Learning content of informal learning is more contextual and dynamic than that non-formal learning. For example, knowledge in the workplace is disseminated within an organization and arises from employees' daily activities and interaction with the working environment. Therefore, workplace e-learning applications should be able to facilitate knowledge exchange, by linking learners to the work context and practices and by linking learners of similar background or learning interest.
 3. The workplace learning environment is a knowledge society that builds upon a community of practice. Learning in the workplace can be understood as social networking between learners, which allows the creation and transfer of knowledge among individuals and groups. Therefore, workplace e-learning applications should be able to facilitate social interaction between learning community.
 4. Learning in the workplace serves organizational goals and needs, and it focuses on organizational systems, structures, policies, and institutional forms of knowledge to link individual and organizational learning. Therefore, workplace e-learning applications should align individual and organizational learning needs, which can be achieved by: (a) identifying the organization training needs based on organization mission and vision, job design, and reward system; (b) identifying employees' learning objectives based on organization needs and individual learning performance.

4.5 Formal e-learning in Jordanian Universities

In connection with formal e-learning in Jordan, universities are the most important actors in implementing e-learning initiatives. For example, all e-learning programs offered by Jordan University combine traditional academic lecturing with liberal methodologies of instruction which are based on dialogue, research and creative thinking. Field work, practical training, and applied research are essential components of most of the programs offered by the University. (Hiary and Abu-Shawar, 2009)

The main aim of e-learning in Jordan University is to help accomplishing the educational system, i.e. to give a better service to students and tutors, to facilitate accessing the required material from anywhere, and to facilitate the communication between them by using e-learning platform such as Blackboard, which is a web-based system that supports and manages various aspects of learning and teaching. It is a course management system (CMS) used by educational institutes, business, and even individual instructors to add web technology to their courses. (Hiary and Abu-Shawar, 2009)

Furthermore, embedded e-learning at Al-Hussein Bin Talal University (AHU) was implemented in September 2005, which is composed of two parts: the electronic classroom and classroom. The electronic classroom at AHU is equipped with personal computers (PC), data show, magnetic card readers, e-beam technology, and internet service access. The e-beam technology is a small compact device, which is connected to the PC via USB or by wireless technology. (Al-Jufout et al., 2008)

The first Jordanian university that adopts e-learning systems was The Arab Open University (AOU), this university was initiated in the late 1990's by Prince Talal Bin Abdul Aziz, President of the Arab Gulf Program for United Nations Development Organizations (AGFUND), its headquarter in Kuwait and its first branch was founded in Jordan in 2002. This university has a partnership with the

UK Open University; it uses a Moodle-based e-learning system to support learners. (Abbad et al., 2009)

Dirani and Yoon (2009) explore the Open Distance Learning (ODL) program offered by the information technology and Computing (ICT) department at AOU in Jordan. The AOU-Jordan open learning system is a form of distance learning and offered the following programs: (a) English Language and Literature, (b) Information Technology and Computing (ITC), (c) Business Administration, and (d) Bachelor of Education. They state that the following factors have an effect on formal e-learning adoption in Jordan: (p.7)

1. **Instructional Approaches:** the encouragement of various means of communication between students and their instructors and between students, and the provided information technology and Internet-based resources has a critical role in this context.
2. **Course Design and Development:** the support resources for course designers play an important role in implementing e-learning systems.
3. **Course Delivery:** ways and components of e-learning courses such as online forums, teacher marked assignments (TMAs), homework, quizzes, final examinations, online group work for projects, PowerPoint presentations, and summaries encourage students and tutors to take advantage of these resources and to keep in contact with each other.

4.6 Jordan governmental e-learning Strategy

Governmental e-learning strategy in Jordan has developed by the Jordanian Ministry of Information and Communication Technology (MoICT) that was established in 2002 and Ministry of Education (MoE) with the the support of the Canada International Development Agency (CIDA). The main goal of this strategy is to provide teachers training, project coordination, implementation and technical assistance, such as equipping schools with computers. The ICT literacy curriculum project, which sponsored by Microsoft, Jordanian Ministry of

Education and Menhaj Educational Technologies, was one of the interesting initiatives implemented to bridge the digital divide and reduce the technological gap between Jordan and the rest of the world by equipping Jordanian citizens with ICT competences from their early childhood. (Wael et al., 2007)

4.7 Providers of e-learning solutions in Jordan

There are various providers of e-learning solutions in Jordan. These companies are: (Wael et al., 2007, p. 156)

1. Integrated Technology Group (ITG), this is a Jordanian company specialized in the development of e-learning, e-Government and Enterprise Resource Planning solutions. This company has the following education solutions: (ITG, 2011, www.itgsolutions.com)
2. Eduwave: it consists of more than one application. It includes a Learning Management System (LMS), a Content Management System (CMS), an Instructional Management System (IMS), and a Student Information System (SIS) integrated in a one solution; therefore it considered a comprehensive e-Learning and educational management platform. The main aim of this platform is to allow related educational elements to work together in the most effective manner.
3. EduWave Live: a comprehensive e-learning and educational management solution based on the collaborative Microsoft technologies such as Microsoft Office SharePoint, Microsoft Exchange/Live@edu and Microsoft Windows Platform.
4. EduWave Educational Management Information System (EMIS): this system provides educational institutions with reports and online access to actual performance and historical records. It can be used for planning, control and decision support systems on various educational and administrative levels.

5. E-content: this solution produced by JAID is to be used by the highest industry and instructional design standards.
6. E-Learning Arabia (eLA): an specialized custom-built e-learning and e-training services provided for the MENA region and worldwide in order to offer the full range of e-solutions for educational and training institutes. (www.e-learningarabia.com)
7. Rubicon; this company is specialized in education and gaming products and services designed to meet the best international standards and customized to confirm to the official educational curriculum matrices of various countries. Rubicon's e-Curricula and Professional Development Program (PDP) have introduced new techniques and methods to enhance teaching and learning processes for both teachers and students alike. Education products of Rubicon are: (a) e-curriculum; (b) e-business; (c) e-awareness and Professional Development Program (PDP) that trains teachers in teaching pedagogies and technology to optimize performance and enable them to exploit full potential of Rubicon's e-curricula. (www.rubicon.com.jo)

Chapter 5

Assessment models for e-learning readiness

Preface

The main aim of this chapter is to introduce e-readiness subject and how to assess e-readiness for e-learning in general. Section 5.1 shows definition of e-learning definition. Section 5.2 contains several assessment models proposed by different authors to assess e-learning readiness. For example, this section contains the leading model of Schreurs and Moreau (2008) as well as Kaur and Abas (2004) model, Anderson (2008) model, Haney (2002) model, Molla and Licker (2005) model and The Bulgarian E-readiness Assessment (2002) model.

5.1 Definition of e-learning readiness

From Schreurs and Moreau (2008) and Anderson (2008) point of view, e-learning readiness refers to how ready the organization is on several aspects to be able to adopt e-learning applications. E-readiness has been defined as a measure of the quality of country's ICT infrastructure and the ability of its consumers business and governments to use ICT to their benefit (The Economist Intelligence Unit, 2009, p.1). Another definition of e-readiness state that it is the capacity to take advantage of the available opportunities facilitated by the use of e-resources such as the internet. (Choucri, et al., 2003, cited in Kaur and Abas, 2004).

5.2 Assessment models of e-Learning Readiness

In the following sections, various models were introduced in order to identify the most important factors that can be used to assess e-readiness of Jordanian companies to adopt e-learning.

Variables that can be used to assess the organizational readiness for e-learning include: (Schreurs and Moreau, 2008, p.2)

1. Learners' ability to adapt to technological challenges.
2. Learners' ability to adapt to collaborative training.
3. Learners' ability to adapt to synchronous and asynchronous self-paced training.
4. Learners' motivation to learn in a self-driven mode and to respond to online instructions.
5. The availability of infrastructure, clear training objectives, trainer support and guidance and knowledgeable leadership.

5.2.1 Schreurs and Moreau (2008) Model

Schreurs and Moreau (2008) efforts suggest the following components of e-learning readiness:

1. Facilities and infrastructure for e-learning:

- User ICT infrastructure.
- Internet connectivity.
- Learning management system.
- E-learning room.

2. Management:

- Willingness to invest in e-learning implementation.
- Learning time for staff.

3. Organization of e-learning function/department

- Informing about available e-learning courses.
- Organization of the e-learning activity.
- Preparatory training in use of computers
- Preparatory training in use of e-learning system

4. Learner characteristics:

- Learners have ICT skills
- Learners have internet experience
- Learners are motivated to take e-learning courses
- Learners prefer their own learning style

5. E-learning course and process:

- E-learning course content

- E-learning course presentation
- Progress in the course
- Level of personalization
- Support and help
- Evaluation of the learning results
- Tracking of the participation in the e-learning course

5.2.2 Kaur and Abas (2004) Model

The purpose of e-readiness assessment is to calibrate the ability degree and the capacity to utilize knowledge in a specific context. such assessment is very important step prior to the adoption of e-learning applications due to the fact that: (Kaur and Abas, 2004, p.1018)

1. E-readiness assessment allows enablers and policy makers to employ the suitable measures;
2. E-readiness assessment enables organizations to implement development plans in order to create informed individuals in e-learning endeavors, and
3. E-readiness assessment helps educational institutions to initiate solutions to meet specific needs of learning groups.

In their 2004 study about Assessment of e-Learning Readiness at the Open University Malaysia, Kaur and Abas (2004, p.1019) employed eight constructs: learner, management, personnel, content, technical, environmental, cultural and financial readiness. The most important results of their study were:

1. Face-to-face lectures or interactive sessions are preferred channels of communication and modes of learning.

2. Participation of learners in online discussions and online lectures and the capacity of learners are crucial factors to e-learning programs success.
3. Time management is very important factor in in the success of self-directed learning.

5.2.3 Anderson (2008) Model

The use of e-learning tools for training employees requires a readiness level in using information technology (IT). Anderson (2008), in his study about e-learning in training activities, found that the required readiness level of IT proficiency is related to existence of a formal IS plan and high diversity of formats used for employees training. Watkins et al (2004) list 10 categories related to readiness for e-learning success, i.e. technology access, technology skills, online relationships, motivation, online readings, online video/audio, Internet chat, discussion boards, online groups and importance to success.

5.2.4 Haney (2002) Model

Questions that can be used for assessing the organizational readiness for e-learning can be classified into seven categories: (Haney, 2002, cited in Aydın and Tasci, 2005, p.245)

1. Human resources;
2. Learning management system;
3. Learners;
4. Content;
5. Information technology;
6. Finance;
7. Vendor.

5.2.5 Molla and Licker (2005) Model

The following factors in order to assess organizational e-readiness:
(Molla and Licker, 2005, p.86)

1. Awareness: organization's perception, comprehension, and projection of the benefits and risks of innovation. Awareness may affect the decision to adopt or reject the innovation.
2. Resources: the level of human, technological, and business resources of the organization.
3. Human resources: refer to the availability (accessibility) of employees with adequate information technology and other skills needed to adopt e-learning initiatives.
4. Technological resources: relate to the IT base of an organization, the extent of computerization, and experiences.
5. Business resources: cover capabilities and assets, including openness of organizational communication, risk-taking behavior, nature of existing business relationships.
6. Financial resources: ability of the organization to finance the adoption costs.
7. Commitment: refers to top management's commitment to the adoption of e-learning.
8. Governance: refers to the strategic, tactical, and operational model that defines the way organizations structure to establish objectives, allocate resources and make decisions.
9. Government e-readiness: refers to the role of government that may affect the adoption of e-learning. A government can encourage a country's private sector to adopt e-commerce by providing supportive infrastructure, legal and regulatory frameworks.

5.2.6 The Bulgarian E-readiness Assessment (2002) Model

According to the Applied Research and Communications (ARC) Fund report (2002), the Bulgarian E-readiness Assessment Model contains four main categories: (p.6)

1. Network access:

- Penetration of Network Access Technologies
- Network Connectivity
- Affordability of Network Access

2. E-learning:

- Technical facilities/Information and Communication Technologies (ICT) infrastructure in schools and universities
- Teachers and ICT technologies.
- Internet sites of schools and universities.
- ICT training policy.
- ICT education.

3. E-society:

- Users of computers and Internet
- Internet services
- Internet users' habits
- Public institutions and Internet

4. E-economy:

- Computers usage in business
- Internet usage in business
- Web space usage by business

- Availability of e-payment instruments
- ICT employment opportunities

5.3 The proposed model for the assessment of the e-learning adoption

With reference to literature reviewed in chapter three related to adoption of e-learning systems, the most important indicators found to have a critical impact on adoption of e-learning are e-learning technologies, organization's capacity, leadership, motivation, organizational culture, human Capabilities, training, and learning process.

1. E-learning technologies:

E-learning technologies are related to nature and features of e-learning technologies available for the organization and the degree to which these technologies are suitable in enhancing the level of e-learning adoption. In fact, this indicator assesses the usability of technologies that assist the organization to adopt e-learning. Thus, it relates to the followings:

- The nature of e-learning technologies available.
- Level of computer knowledge and experience in using learning technologies.
- The acceptable e-learning system and content for organizations.
- Level of complexity; easiness of use, use of participation, access to technology available, and self-control ability.
- Trialability of course before taking it, trialability of course demos from different suppliers

2. Organization's capacity:

In order to assess organization level of e-learning adoption; its capacity in various aspects should be considered; i.e. its capabilities related to knowledge and competencies utilization and creation, and its technological capabilities. This indicator has the following dimensions:

- Capacity to evaluate prior knowledge of technology-based learning in areas such as exposure to knowledge sources in terms of the following dimensions: the potential speed of knowledge acquisition, the intensity and direction of knowledge acquisition, and the organization's processes to understand and process information acquired from external sources.
- Organization's capability to combine the existing knowledge with the newly acquired knowledge to produce a new schema.
- Organization's capacity to leverage existing learning competencies or to create new competencies.
- Organization's capacity related to technology facilities offered and technology satisfaction.

3. Leadership:

Leadership is a critical factor that has an important impact on e-learning adoption. Its influence appears in the following issues:

- Leadership commitment and support and incentives.
- Leadership desire to learn and use applications of e-learning.
- The role of leadership in increasing staff participation in the process of e-learning.
- Effective leadership that helps the learner to accept the required change.

4. Motivation:

Since no goals can be achieved in the absence of motivation, its role is no less important than other indicators. This indicator can be divided into two types:

- Internal motivation, which stems from the the same staff member.
- External motivation that comes by the administration.

5. Organizational culture:

Culture of the organization related to e-learning usefulness and adoption is the effective environment into which organizations' believe in e-learning efficiency and effectiveness can spring. This critical indicator has two main aspects:

- Organizations believe in the usefulness and effectiveness of e-learning.
- Resistance to change towards the transition from traditional education to e-learning.

6. Human Capabilities:

Skills are very important necessity for using Information and Communication Technologies. Thus, adoption and implementation of e-learning systems require individuals to possess skills such as technological skills.

7. Training

Know-how is essential prerequisite for using any technological application and e-learning systems is one of these applications. Therefore, adoption of e-learning systems requires three conditions:

- Providing adequate training to use e-learning systems.

- Flexibility in training time management.
- The establishment of control mechanisms that ensure training occurs.

8. Learning process

Learning process aspects including place, time, content, style and other aspects have a major influence on e-learning adoption initiative in any organization. That is, restricted or weak or away of the following considerations have a negative impact on e-learning adoption:

- Access time and place.
- Content types.
- Teaching style.
- Evaluation system, opportunities to observe other e-learners experiences, opportunities to know e-learning and its benefits, benefits are apparent, benefits can be demonstrated by e-learners.
- Course development processes and course design.
- Education quality.
- Degree of education recognition.
- Personal needs.
- No conflict with the traditional learning.
- Government policy.
- Web security and piracy issue.

5.4 The proposed model for e-learning 2.0 adoption

The more common indicators related to e-learning 2.0 adoption found by this research are the use of technology, networks, online communication and collaboration and social network tools; characteristics of the target group; the specification of learning content and educational aims, media-didactic method and characteristics and functions of media chosen, didactic transformation and structuring of learning offers, the required tools to put teaching/learning scenarios and methods into action as well as tools that combine creation of content easily with web deliver and collaboration, learner autonomy and the preparedness of learners to use the platform for their benefit, resources and learning cultures and Instructional design strategies, sharing of knowledge and collaboration between e-learning experts within a community of practice, and the ability to manage the fear of sharing, listening to opinions and the establishment of more egalitarian relationships.

Chapter 6

Study of e-learning readiness in Jordan

Preface

Purposes of this chapter are fivefold. First, to propose a model that can be used to assess e-learning 2.0 adoption in Jordan based on the literature reviewed in the previous chapters. Second, to propose another model to assess e-readiness to adopt e-learning 2.0 applications in Jordan based on the literature review. Third, to integrate these two models into one model called "the readiness of Jordanian companies to adopt e-learning 2.0 applications". Fourth, to answer research questions referring to the proposed model indicators. Finally, to find out results of this research. These objectives can be seen in sections 6.1, 6.2, 6.3, and 6.4 respectively.

6.1 Study about e-learning practice in Jordan companies and Institutions.

6.1.1 Introduction

The main purpose of this study was to examine the issue of Jordanian companies' e-readiness to adopt e-learning 2.0 applications, and to find out the most important factors that may have an impact on the adoption of such applications.

This section intends to answer research questions. Three main questions have to be answered, one relates to readiness of Jordanian companies to implement e-learning systems as a competitive solution, companies' readiness to use e-learning applications, in particular e-learning 2.0. The final question related to how can Jordanian companies make progress in the adoption of e-learning 2.0, and which factors might have impact on this.

It goes without saying that the adoption of e-learning is earlier step of adopting e-learning 2.0; no organization can adopt e-learning 2.0 in case of unfamiliarity of e-learning itself because e-learning 2.0 no more than an advanced generation of e-learning.

Based on this, indicators of e-learning adoption, available indicators of e-learning 2.0 adoption and e-readiness for e-learning adoption will be employed as a proposed model to assess e-readiness of Jordanian companies for the adoption of e-learning 2.0 applications. To achieve this goal, the following indicators as shown in table (6.1) were used to assess e-learning readiness in Jordanian companies. The survey done by interviewing many companies and Educational Organization's respondents and consulting professionals in e-learning field. Company like Integrated Technology Group Company, Educational Organizations like PSUT (Princess Sumaya University for Technology) and German university in Jordan, organizations like queen Rania center, and for professional view I always consult prof.alzoubi from PSUT.

6.1.2 Survey used in the research

For the survey we have used the following Table (6.1) consists of three main columns; the first one entitled "Indicator" illustrates the indicator use to assess readiness of Jordanian companies. The second column labeled "Status" shows if the Jordanian companies meet this indicator. If yes, the column will be marked by (✓).

Otherwise, if companies don't meet the needed indicator, it will be marked by (×). The final column in the table explains why an indicator considered in line with the company status. For example, if Jordanian companies have an access to e-learning technologies, the indicator relates to availability of these technologies will be considered in conformity of Jordanian companies' status. Therefore, it will be marked by (✓).

Table (6.1): assessment of e-learning 2.0 readiness in Jordanian companies			
	Indicator	Status	Rationale
1.	E-learning technologies		
	Nature of e-learning technologies available	✓	The use of e-learning technologies such as ePortfolios, Web sites, Learning Management Systems (LMS), Discussion and bulletin boards, e-mail, Blogs, Wiki, Chats and many others are continue to expand in Jordan. In addition, Jordanian companies can have an access to these technologies.
	Level of computer knowledge and experience in using learning technologies.	✓	There is a considerable level and experience in using learning technologies in Jordanian companies.
	The acceptable e-learning system and content.	✓	There are wide ranges of e-learning systems that can be used by Jordanian companies; therefore, every company can align its specific goals with the available e-learning systems.
	Level of complexity	×	Easiness of use, access technology available and self-control ability are in low level in Jordanian companies.

	Trialability of course from different suppliers	✓	There is no trialability of course demos from different suppliers in case of Jordanian companies.
2.	Organization capacity		
	Capacity to evaluate prior knowledge of technology.	✓	Jordanian companies have the ability to evaluate their prior knowledge of technology-based learning. These companies have a good speed of knowledge acquisition and information processing
	Capability to combine the existing knowledge with the newly acquired knowledge.	×	Not all Jordanian companies can combine current and new acquired knowledge due to lack of professionals.
	Capacity to leverage existing learning competencies or create new competencies.	×	There is no considerable level of Jordanian companies that can leverage existing learning competencies or create new competencies.
	Capacity related to technology facilities.	✓	High level of Jordanian companies have the capacity related to technology facilities offered, in addition, there is a good level of satisfaction in relation to technology between companies and users.

	Governance	✓	Jordanian companies have no problem with developing a strategic, tactical and operational model that defines the way for these companies to establish objectives, allocate resources and make decisions.
3.	Leadership		
	Leadership commitment, support and incentives.	✓	Leader's commitment, support and incentives are in high level in relation to adoption of e-learning applications due to their strong believe in these systems as a tool that may enhance productivity, performance and profitability.
	Leaders' desire to learn and use e-learning applications.	✓	Leaders have a big interest to learn and sue e-learning applications; based on the potential advantages of these applications. Therefore, leaders have willingness to invest in e-learning implementation based on organization's financial resources.
	Leaders' role in increasing staff participation.	✓	Based on their strong belief in e-learning adoption; leaders have relatively a good role in increasing staff participation.

	Effective leadership	✓	In relation to the role of leadership in helping learners to accept the required change for e-learning adoption, leadership tries every way to enhance their staff tendency to learn and use e-learning systems.
4.	Motivation		
	Internal motivation	✓	Employees of Jordanian companies have an internal motivation to use e-learning applications in order to develop their technology proficiency and to gain any potential benefits.
	External motivation	✓	Administration has a motivation toward e-learning adoption due to their strong believe in benefits of these systems. Awareness may affect the decision to adopt or reject the innovation.
5.	Organizational culture		
	Organizations believe	✓	Jordanian companies have a strong believe in the usefulness and effectiveness of e-learning applications.
	Resistance to change	✓	Employees have no resistance to

			change toward the transition from traditional education to e-learning.
6.	Human capabilities		
	Necessary skills	✓	Employees in Jordanian have the capacity or the necessary skills such technological skills to use e-learning systems. In addition, they can use networks, online communication and collaboration and social network tools. Employees in Jordanian companies, enable the success of e-learning 2.0 adoption by these companies. For example, learners of Jordanian companies have ICT skills, have internet experience, motivated to take e-learning courses, can choose their own learning style and can participate in online discussions and online lectures.
7.	Training		
	Adequate training	✓	Jordanian companies can provide its employees with adequate training to use e-learning systems.
	Flexibility	✓	Jordanian companies ensure training time management.

8.	Learning process		
	Access time and learning time	✓	There is no problem with learning access and time due to availability of Internet connection here in Jordan. There are three main companies that provide Internet connectivity in Jordan.
	Content type	✓	Jordanian companies have the opportunity to choose the required content type based on their specifications of learning content and education aims.
	Teaching style	✓	Companies can choose any preferred teaching style based on their specifications and goals.
	Evaluation system	✓	Jordanian companies have the opportunity to observe other e-learners experiences, and have the opportunity to know e-learning and its benefits because benefits are apparent and can be demonstrated by e-learners.
	Course development	✓	Jordanian companies have no problem with course development and design because there are many providers of such courses.

	Education quality	✓	Companies can ensure education quality.
	education recognition	✓	There is a high level degree of education recognition in Jordan.
	Conflict	✓	Companies can ensure no conflict between traditional learning and e-learning method.
	Government policy	✓	Jordanian government policies encourage the use of e-learning systems. Jordanian government e-readiness enhances the adoption of e-learning; Jordanian government encourages the private sector to adopt e-learning applications by providing infrastructure, legal and regulatory frameworks.
	Web security	✓	Web security and piracy can be ensured due to governmental instructions in Jordan.

6.2 Results and conclusions of our study

The most important findings of the study state that Jordanian companies are ready to use e-learning applications, in particular e-learning 2.0. This statement is correct due to the following points:

1. Jordanian companies have facilities and infrastructures that can be used for e-learning implementation purposes. For example, these companies have ICT infrastructure, Internet connectivity and access to networks.
2. Jordanian government is ready and encourages the private sector to adopt e-learning initiatives.
3. Jordanian companies are familiar with the subject of e-learning.
4. E-learning technologies that available for Jordanian companies are suitable for companies' specifications and their educational aims.
5. Jordanian companies have a set of capacities that can enhance adoption of e-learning systems. For example, these companies have plans, awareness, technological experiences, financial abilities and human resources. In addition, they can provide employees with adequate training.
6. Jordanian companies have a strong believe in the usefulness and effectiveness of e-learning applications.
7. Jordanian companies can provide its employees with adequate training to use e-learning systems.
8. Leaders and employees of Jordanian companies have a motivation to use e-learning applications.

Moreover, results of the study revealed that the most critical factors that have an impact on the adoption of e-learning applications are:

1. Company characteristics or demographic differences lead to different level of adoption. Large companies have high levels of e-readiness to adopt e-learning applications than more small and medium companies.
2. E-learning technologies: nature of e-learning technologies available, Level of computer knowledge and experience in using learning technologies, the acceptable e-learning system and content, level of complexity and Trialability of course from different suppliers.
3. Organization capacity: capacity to evaluate prior knowledge of technology, capability to combine the existing knowledge with the newly acquired knowledge, capacity to leverage existing learning competencies or create new competencies, capacity related to technology facilities and governance.
4. Leadership: leadership commitment, support and incentives, leaders' desire to learn and use e-learning applications, leaders' role in increasing staff participation, and effective leadership.
5. Motivation: internal and external motivation.
6. Organizational culture: organizations believe and resistance to change.
7. Human capabilities: necessary skills.
8. Training: adequate training and training flexibility.
9. Learning process: access time, content type, teaching style, evaluation system, course development, education quality, conflict between traditional learning and e-learning methods, government policies, and web security.

6.3 e-learning in some Jordanian universities

The current status of e-learning adoption levels in Jordanian companies is still in the beginning in general. However, there are some Jordanian organization (either public or private) that adopt and use e-learning applications. According to academic and experts views, there is no Jordanian company that uses e-learning 2.0 systems. With respect to e-learning systems used in Jordanian organizations, the followings are example of these systems used in Jordan:

- a) Princess Sumaya University for Technology (PSUT) has launched an initiative to implement open-source tools in the educational process at its various departments. For example, eCourses blog was actually initiated by the students themselves at different courses to enable them connect and communicate during delivery of the course so as to share resources, documents and tools. This initiative has so far been proven useful and successful and will be extended to include other courses in other faculties and departments. One of PSUT Professors, Dr. Abdullah Al-Zoabi published a portal website as an e-learning platform for PSUT student in his classes (www.alzoubi.net).
- b) German Jordan University uses Eduwave system as a platform for e-learning for its students (<http://ew.gju.edu.jo>). EduWave is a comprehensive user-friendly e-Learning & educational management Platform. It includes a Learning Management System (LMS), a Content Management System (CMS), an Instructional Management System (IMS), and a Student Information System (SIS) seamlessly integrated in one solution, allowing related educational elements to work together in the most effective manner.

6.4 e-learning best practice: EDUWAVE

EduWave is a multilingual, flexible and customizable solution, based on “Centralized Deployment with Localized Functionalities”. EduWave’s robust architecture allows for central administration, tracking, reporting and record keeping, while allowing for flexible management and localization of functionalities, content and learning resources. Its effective hybrid model eliminates inefficiencies produced by multiple systems and provides the ability to produce and harness accurate data and impact learning at a larger scale.

EduWave offers new and compelling ways in education, allowing stakeholders to engage in virtually every aspect of the teaching and learning process.

A number of comprehensive tools and learning resources are provided in EduWave, to help students track their progress, improve their performance, and enjoy their learning experience. With EduWave, students can access their learning material and textbooks -personalized and in rich media format- from any computer, anytime and anywhere. Students can interact with their teachers and with each other through multiple communication and collaboration tools. They can also perform online tests and access their assignments, grades and learning material at all times.

The administrative and educational tools provided in EduWave, help teachers to better manage and utilize their time allowing for higher efficiency, and more room for innovation and creativity. EduWave provides an extensive collection of instructional design, authoring, and professional development tools and resources, to support the role of educators. In addition to the ability to manage learning content and curricula, teachers can easily create their own teaching material. They are also able to provide effective guidance and support, and interact with their students and colleagues through the various communication channels provided in the system. Teachers are also provided with a variety of assessment and evaluation tools that help them measure individual student performance and progress.

EduWave Provides administrators with tools that help them develop and maintain comprehensive and accurate information, monitor development and performance, and plan and adjust resources, resulting in more effective decisions. Through EduWave, administrators are able to easily and securely develop and manage administrative data files, build the organizational hierarchy, define all related resources, create users' profiles, authorize and control access to users, develop schedules, and communicate directly with related parties through multiple communication channels.

By integrating technology, innovation, and advanced educational practices, EduWave is a comprehensive tool that helps the educational sector to enhance productivity and sets the ground to foster innovation, creativity and the building of a collaborative learning community.

EduWave Tools & Key Components:

1. Content Management & Delivery:

EduWave is SCORM compliant and is based on learning objects. Content delivered through EduWave is shareable, re-usable, and delivered to learners according to relevance and individual needs. The solution can deliver content in BookZero and in rich media formats. EduWave is also based on Learning Outcomes, an important element without which, effective application of e-learning cannot be achieved.

2. Communication, Collaboration & Learning Community Building Tools:

EduWave is a fully interactive solution where all users can interact, communicate and collaborate through multiple channels including e-mail, discussion forums, online study sessions, groups, etc.

3. Assessment, Monitoring and Tracking Tools:

EduWave includes powerful, easy to use tools that allow teachers and students to evaluate progress and enhance learning. These tools include a complete Assessment Management System and creation wizard, assignments tool, grade book, tracking tools, in addition to EduWave's own SmartTeacher Module.

4. Student Information System (SIS):

EduWave provides a comprehensive, scalable, countrywide distribution system that incorporates districts, schools, users, and the supported educational community. The solution also provides a complete set of student information and management tools and functionalities including; student enrollment, scheduling, attendance, class & facilities management, family management, teachers' comments, parental tracking, grades, transcripts, year-end processing, among others.

5. Registration, Admission and Student Financials:

The EduWave registration component covers the complete admission and registration procedures including full registration management, online registration and access to related information, study plans, tuition details, courses, class schedules, student advisory.

6. Authoring Tool; EduWave Author:

EduWave Author is a SCORM compliant content authoring and publishing tool. This distinct authoring tool is powerful, highly functional, yet easy to use, enabling users to create and publish learning content that will be later accessed through the EduWave portal.

EduWave Live

EduWave Live is ITG's next-generation award-winning, comprehensive e-learning and educational management solution. It is built on the latest

collaborative Microsoft technologies including Microsoft Office SharePoint, Microsoft Exchange / Live@edu, and Microsoft Windows platform.

EduWave Live utilizes Microsoft Office SharePoint Server 2007 to deliver a comprehensive user-friendly e-Learning Platform that includes a Learning Management System (LMS), a Content Management System (CMS), an Instructional Management System (IMS), and a Student Information/Management System (SIS/SMS) seamlessly integrated in one solution, allowing related educational elements to work together in the most effective manner.

EduWave EMIS

EduWave EMIS -Educational Management Information System- serves the management level of Educational institutions, providing reports and online access to actual performance and historical records.

It acts as the core for planning, control, and decision support systems. EduWave (EMIS) channels the required data in its raw and aggregated forms for appropriate data mining to support the decision making process on various educational and administrative levels, and efficiently facilitates the path to EDSS buildup. Various level forms, fixed reports and more dynamic “power query” reporting mechanisms are provided to produce the required statistical output and dynamic KPI’s needed by EDSS.

E-Content Development

Integrated Technology Group offers exemplary e-content development services to its clients through its specialized subsidiary JAID Productions. E-content produced by JAID is SCORM Compliant, and is built to the highest industry and instructional design standards.

JAID works through a set of methodologies that govern its development cycle and ensures the production of successful e-content material. JAID’s team consists of a group of highly creative quality-oriented professionals with a vast experience in

the latest design technologies and methods. JAID's creative directors, instructional designers, graphic artists, designers, and animators, work in tandem to deliver superior results.

JAID's creative and instructional design teams work throughout the content development cycle in close collaboration with a network of highly entrenched educators. By utilizing cutting-edge technologies combined with creativity and a network of top educators, JAID delivers creative e-content that is rich, dynamic, and highly engaging.

Chapter 7

Conclusion and Recommendations

7.1 Conclusion

The major conclusion of this study is that Jordanian companies are ready to adopt e-learning applications. E-readiness of Jordanian companies to adopt e-learning applications is one of the most critical factors needed to success e-learning adoption initiatives. According to results of this study, there are five pillars regarded as critical factors in this context.

Firstly, government's e-readiness, policies and regulations, and encouragement were founded to have an important impact on e-learning adoption initiatives. At the organizational level, various prerequisites were identified to be the most important indicators that have positive influence on e-learning adoption in Jordan, i.e. ICT facilities and infrastructure (e-readiness), characteristics (size), e-learning familiarity, specifications and educational aims, technological experiences, financial abilities, organizations' believe in the usefulness and effectiveness of e-learning applications, adequate training, leadership commitment, support and incentives, and organizational culture (resistance to change).

Another critical factor relates to human resources motivation and necessary skills. In reference to the fourth factor, which is e-learning tools, the current study revealed that availability of e-learning technologies, acceptability (measured by complexity and cost) of e-learning technologies, usability of e-learning technologies, and trialability of e-courses are the most important factors related to business environment in Jordan to adopt e-learning applications.

Finally, the learning process itself should meet some conditions that enhance the adoption of e-learning in Jordanian companies. These requirements include:

access time, content type, teaching style, evaluation system, course design and development, education quality, and web security.

7.2 Recommendations

Based on the previous conclusions, this study recommends that these factors are very important to give Jordanian companies an opportunity to make progress in the adoption of e-learning applications. First of all, companies should have the ability to evaluate their current status in order to know if they are ready to adopt such initiatives. Companies should have an eye on e-learning implementations, whether in Jordan or outside, in order to derive benefits from such applications. In addition, Jordanian companies should take factors that found out by this study into their account to be ready to use e-learning systems for business purposes.

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