
Fadi R. Shahroury
Princess Sumaya University for Technology
Department of Electrical Engineering
Amman, Jordan
fadi@psut.edu.jo

Abstract—The aim of this paper is assessing the Electronic Learning (E-learning) readiness in Jordan; using the official website of the ministry of higher education and scientific research (MOHESR) in Jordan as a case study, the proposed model encompasses two factors; website assessment and two environmental factors which are IT infrastructure and culture. By reviewing the literature and evaluating the ministry's website the researcher finds that the website is delivering sufficient information and services to students and academics, recommends that many issues must be reconsidered towards the movement to E-learning website, and suggests that much emphasis on infrastructure and culture is required in the case of Jordan as it is a developing country.

Index Terms—E-learning readiness, Web assessment, Environmental factors, Infrastructure, and Culture.

I. INTRODUCTION

In today's business world where global environment is changing rapidly, there is an increasing need for continuous development and life-long learning and it is mostly rare for many employees to set in front of a traditional desktop computer due to their working hours. Additionally, employees at different levels in organizations are more comfortable with the technology, which help them to enhance their working capabilities and develop their professional skills capabilities regardless the time and location limitation. E-learning is defined as the use of information and communication technology to engage learners in an interactive process to acquire useful information, obtain knowledge, conduct training, and develop capabilities, and skills with no time or location limitations.

The continuous advancements in information technology have made technological application more affordable, where people became heavy internet users with good online experience. Besides, practice good electronic services from various private sector institutions. Thus, they started to anticipate the same high standards from governmental firms [1]. Further, [2] stated that the priorities for public E-services are enabling the submission and processing of citizens public applications for certificates and services electronically, provide an interface in which citizens can complains and track their complaints and enable citizens to access information, statistics, regulations, and laws.

Over years many studies were conducted on the concept of E-learning, E-government, and E-services. However, most of the researches have explored the E-learning concept, readiness, motivation, adoption, and future from a western perspective. Meanwhile, not much research is found about E-learning in eastern countries especially in the Arab world. Therefore, the purpose of this paper is discussing the E-learning readiness in Jordan and producing a model that can be applied on further countries in the Arab countries.

The organization of this paper is as follows. Section II discuss the concept of E-learning readiness, the case of the ministry of higher education and scientific research in Jordan is presented in section III. Finally conclusion is given in section IV.

II. E-LEARNING READINESS

E-readiness refers to the capacity to adopt opportunities enriched by the use of E-resources. E-learning readiness is defined as the psychological and physical preparation of the firm for E-learning. It reflects how ready the enterprise is to pursue E-learning from different perspectives. Measuring the E-learning readiness is the first step towards adoption of E-learning by which strategy, goals, motivation factors, resources, and constraints are clearly stated. E-learning readiness evolves around the learners capabilities to handle their own learning process, the motivation and discipline to learn in a self-directed environment, also to embrace technological challenges and be engaged in a collaborative and interactive learning and training. Further, E-learning readiness should be identified from organization, learner, and trainer perceptions, because it comprises the infrastructure availability, trainer guidance, well-defined learning objectives,
E-learning readiness is a tool that empowers managers with strategies, guidelines, questions, and models to assess the readiness of their organizations for E-learning. Over years studies have introduced many assessment models for E-learning readiness; [5] introduced 70 questions to be asked for assessing E-learning readiness which covers seven categories which are; information technology, finance, vendor, learners, content, human resource, and learning management system, and insisted that information technology, finance, and vendor are key issues to be considered. Similarly, [6] suggested a model with the same previous seven categories. Another study by [7] expressed that business readiness, the changing nature of learning and E-learning, change management, the E-learning industry, reinventing the training organization, value of instructional and information design, and personal commitment are vital areas to be considered in measuring the organizational readiness for E-learning. A different assessment model by [8] was designed to answer three major questions; can we do this?, if we can do this, how are we going to do it?, and what are the outcomes and how do we measure them?, the proposed model used eight factors; Sociological readiness, Psychological readiness, Human resource readiness, Equipment readiness, Financial readiness, Environmental readiness, Technological skill readiness, and Content readiness.

Moreover, [9] mentioned three major factors in E-learning readiness; resources which encompass the technological readiness, human resources readiness and the economic readiness, second, environment which includes the readiness of culture, leadership readiness, and entrepreneurial readiness, third, educational and content readiness. According to [10] E-learning readiness is divided into two levels, the first level includes: industry, government, education, and society. While, the second level involves connectivity, organizational ability to adopt E-learning, and culture and trends in education and training. Generally E-learning readiness is defined by the following components [11]:

1) Business Readiness refers to the relationship between business priorities and E-learning projects.
2) Culture Readiness refers to the organization’s awareness and cultural aspects about E-learning adoption and use.
3) Technology Readiness refers to the availability of appropriate technical infrastructure.
4) Financial Readiness refers to the investment for implementing E-learning.
5) Human Resources Readiness refers to the existence and willingness of humans to learn in the E-learning.
6) Training Process Readiness refers to the organizational capabilities of developing a reliable training program.

III. THE CASE OF THE MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH IN JORDAN

A conceptual model for E-learning readiness is introduced as illustrated in Fig.1. As shown in Fig.1, the model consists of two main factors; website assessment(authority, audience, context, accuracy, and currency), and environmental factors (IT infrastructure and cultural environment). This model is analyzed using the MOHESR in Jordan as a case study.

**Website assessment**
- Authority
- Audience
- Context
- Accuracy
- Currency

**Environmental factors**
- IT infrastructure
- Cultural environment

Deliver benefits to students and academics
Improve the effectiveness of educational institutions

Fig. 1. The conceptual model of E-learning readiness.

A. Website Assessment

Many researches were conducted to evaluate different types of websites, many models were proposed, and several criteria were introduced. According to [12] content, organization, design, and user-friendly are the most important criteria to assess the quality of websites. Another study by [13] introduced seven assessment criteria which are; visibility, correctness and completeness, quality assessment, authority, up-datedness, accessibility, and navigability. [14] recommended that content, service, and technical quality are key factors in evaluating websites. Meanwhile, [15] discussed the concept of website evaluation and specified that currency, accessibility, interaction, coverage, authority, accuracy, objectivity, navigation and functionality are vital issues to be considered. Finally [16] defined eight assessment criteria; manner of presentation, downloading speed, use of multimedia, maintenance, home-page design, browser compatibility, ease of navigation, and availability of further information.

This research will use authority, audience, context, accuracy, and currency as website assessment criteria and the following is an evaluation of the official website of the MOHESR in Jordan against these criteria.

- Authority
  Who wrote the information?
Who manages the site? What are their qualifications?

The website provides information about the MOHESR; its vision and mission, brief history, legislation, recognition and certificates equivalency, public and private universities, regional universities, non-Jordanian universities recognized by the MOHESR, and others. In addition the website offers many links to some related websites. However, there is no clear information about the author of these articles and reports, no information about the website manager, and neither the publishers nor manager qualifications is mentioned, thus the authority issue must be reconsidered.

- **Audience**

  What are the goals of the website? For whom is the information directed? Is the information appropriate?

  The goals of MOHESR’s website are well stated and mainly are; providing the latest rules and regulations that manage the educational process in the universities both public and private, delivering students with up-to-date list of the recognized universities outside Jordan, and facilitating the access for researchers to information and different links to support scientific research. Moreover; the main audiences are universities, colleges and higher education institutions, researchers, higher education students. Thus, the website offers an appropriate and sufficient amount of information for all parties.

- **Context**

  Why is this site on the Web? How detailed is the information? What sites are linked?

  The MOHESR has moved online in 2001 for the purpose of delivering key information to interested parties regardless the time and location limitation, since its introduction the website witnessed some major modification and upgrades and continually tends to provide comprehensive information, and as it is mentioned earlier the website offers some links to important related sites such as; the scientific research support fund, unified admission unit, higher education accreditation commission and others.

- **Accuracy**

  Are information resources identified? Can you verify the information?

  Citation and original data resources for measuring the accuracy of web documents, however reviewing the MOHESR’s website shows that most of the documents and reports lack appropriate citation, and hence in some situation verifying the provided information becomes a complicated process.

- **Currency**

  Is the website using the most current information? Are data reported timely? Is the website maintained regularly?

  Regarding the currency the website provides up-to-date information and announcements for some key situation and urgent news, yet some other information is two to three years behind date. Moreover, up to now the website is not fully compatible with web 2.0 technologies, is not adaptive with mobile and tablet devices, and does not support Rich Site Summary (RSS) technology which enables publisher to syndicate data automatically and publish frequently updated information such as blogs, news headlines, audio, video.

### B. Environmental factors in Jordan

#### IT infrastructure

Information technology infrastructure refers to the shared technology resource that provide the platform for the organizations information applications, it includes hardware, software, and services that are shared across the organization. These enterprise-wide services involves; computing platforms which provide computing services, telecommunication services, application software services, IT management services, IT education services, data management services, IT standards services, and IT research and development services. Technology have changed the world, by introducing applications that can perform enormous functions in different aspects which revolutionized the way of living, technology has made a massive contribution to the human life not limited to communication and connectivity but its contribution extended to education; making the learning experience widely accessible for remote learners all over the world, and more flexible and suitable against various constraints such as work, family or any other commitments.

Learning nowadays has been transformed from print to E-learning to M-learning; Electronic learning referred to as E-learning is a learning experience in which total automation of teaching and learning processes is achieved through Learning Management Systems, and by utilizing web-based technologies for universities and other educational institutes, E-learning has been a great success in many institutions such UK Open University, Athabasca Open University, Hong Kong Open University, and many others [17].

Software, hardware, and connectivity capacity are vital infrastructure components required to maintain...
an E-learning system that is capable of delivering services, offering a reliable access to information resources through wired or wireless networks. Jordan is a developing country and the IT infrastructure is still in its developing stages, hence much efforts and investments are needed for establishing consistent technical and physical infrastructure.

- Cultural environment

Culture is defined as the essence of society and it is a total of learned behavior that is shared by members of society, the cultural environment refers to the set of beliefs, moral values, traditions, language, and laws held in common by a nation. Hence cultural factors have significant influence on the way of learning, including the communication and interactivity methods which are the essential of E-learning process. Many Studies stressed that culture plays a key role in indorsing a successful system, cited the effect of cultural environment on the success of E-learning process, and shown that cultural factors must be considered along with technological factors in order to deliver a successful E-learning website. [18]) defined a strong relationship between culture and learning process, which is reflected on the acceptance or rejection of some E-leaning methods, thus the design of E-learning system must consider the learners cultural and ethical characteristics to promote a successful system.

Further, Jordanian society is considered as a young society science the majority of population is around the age of 10-30 years who are well educated and keen on adopting technological application as a modern way of living, and the tremendous investments in the telecommunication and informatics which made technology more applicable to citizens. This can explain the increasing demand on electronic application and information technology. No wonder, E-learning is one of the application that Jordanian students and academics value and are willing to use it.

C. Performance results

The implementation of an e-learning website for MOHESR have showed positive results in terms of delivering up-to-date information for all audience both students and academics, and releasing latest news and announcements, which offered audience more convenient way of retrieving useful information anytime, anywhere. Moreover, the MOHESR website has improved the effectiveness of all educational institutions by providing sufficient information and reports about the education process, recent laws and regulations, and links to some related websites. However, much improvements is needed to deliver better website and thus better performance results.

IV. Conclusion

In this evolutionary era; information technology is truly coming of age and offering huge scope for innovative solutions. E-learning is becoming a pioneering solution for education problems regarding constraints of work, time limitation, and it is increasingly adopted in schools, universities, workplaces, organizations, museums, and enabling a wide spectrum of new education possibilities. Despite the E-learning benefits, the organizational E-learning readiness must be assessed before any implementation.

The research have discussed many E-learning readiness models and proposed a new conceptual model to assess E-learning readiness and used the ministry of higher education and scientific research in Jordan as a case study, the proposed model consists of two factors; website assessment and environmental factors divided into two categories; infrastructure and cultural environment. The analysis on the ministry’s website recommends that authority, accuracy, and currency are vital issues to be reconsidered, further the research stresses the effect of infrastructure on the E-learning readiness in Jordan as a developing country, and the role of cultural environment.

References


