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Models of e-learning adopted in the Middle East

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Abstract   Traditional academic institutions as well as newly established online or hybrid educational organizations in the Middle East (ME) are still in the early phases of trying to get students and their parents to accept and adapt to the concept of e-learning. Different countries and different universities within individual countries within the ME have achieved various levels of success to this regard. While some traditional universities have already started offering a good number of e-learning courses, others are still in the very early stages of setting up such programs. This paper presents a general overview of the current situation of e-learning in the ME. It presents drivers and barriers to e-learning, the different types of e-learning initiatives, steps being taken towards overcoming the challenges, and a possible future of e-learning through a case study of ongoing developments by an authority on e-learning in Saudi Arabia.

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Introduction

Censorship in most Middle Eastern countries is common practice. For this reason, many of the countries within this region were hesitant to widely adopt the Internet. Governments were concerned about external political influences that might try to negatively manipulate their people. They were also concerned about immoral material such as pornography. Exposure to such material could be considered dangerous to youths and to the religious moral values of those nations (Mirza, 1998).

The United Arab Emirates (UAE) in 1995 was among the earliest countries to grant its citizens access to the Internet (ITU, 2001). The latest to connect to the Internet were Syria and Saudi Arabia, with connections established in the late 1990's (Wheeler, 2004). Certain academic and research organizations in both Saudi Arabia and Syria, however, did go online much before the general public were able to (Mirza, 1998; Wheeler, 2004).

Governments that resisted the Internet eventually realized that they cannot afford to remain isolated from the remainder of the World. They, as well as early Internet adopters, made sure that they had put into place strong technical measures that can be used to prohibit access to undesired sites. People of the ME typically have several ISPs to choose from when seeking Internet access, however, nationwide Internet traffic goes through proxy servers that are typically controlled by specialized governmental agencies. Saudi Arabia's gateway to the Internet for example had for many years been facilitated through the Internet Unit at the King Abdulaziz City for Science and Technology (Internet Unit, 2008), as of late, however, this responsibility has been transferred to the Commission on Telecommunications and Information Technology.

Ever since Internet access became possible, the region has been experiencing tremendous growth in the number of people going online. Table 1 shows old and recent statistics of number of Internet users in ME countries. Iran has the highest jump in Internet penetration with number of users increasing 128 folds between 2000 and 2009. Both Syria and Saudi Arabia, which were among the latest to allow Internet access to their nationals experienced the second and third highest Internet penetration growth rates by nearly 11,800% and 3,750% respectively. Israel enjoys the highest rate of Internet users in a Middle Eastern country with around 73%, followed by the UAE with almost 61%, Bahrain with 55%, Qatar with 52%, Iran with 48.5%, Kuwait with around 37%, and Saudi Arabia with around 27%. Lebanon and Jordan have Internet penetrations of just less than 24%, while remaining ME countries have internet penetrations of less than 20%. The worst level of Internet penetration can bee seen in Iraq with only 1% of the population accessing the Internet.

The most recent figures, as reported in Table 2, have the overall Internet penetration rate of the Middle East already reaching 28.3% by September of 2009. This number puts the Middle East internet penetration rate much ahead of the

Table 1 Internet penetration in Middle Eastern countries (InternetWorldStats, 2010).

Middle East	Population (2009 Est.)	Usage in Dec./2000	Internet usage, latest data	Population (penetration) (%)	User growth (2000–2009) (%)	Table of (%)
Bahrain	728,709	40,000	402,900	55.3	907.3	0.7
Iran	66,429,284	250,000	32,200,000	48.5	12,780.0	56.1
Iraq	28,945,569	12,500	300,000	1.0	2,300.0	0.5
Israel	7,233,701	1,270,000	5,263,146	72.8	314.4	9.2
Jordan	6,269,285	127,300	1,500,500	23.9	1,078.7	2.6
Kuwait	2,692,526	150,000	1.000,000	37.1	566.7	1.7
Lebanon	4,017,095	300,000	945,000	23.5	215.0	1.6
Oman	3,418,085	90,000	465,000	13.6	416.7	0.8
Palestine (West Bk.)	2,461,267	35,000	355,500	14.4	915.7	0.6
Qatar	833,285	30,000	436,000	52.3	1,353.3	0.8
Saudi Arabia	28,686,633	200,000	7,700,000	26.8	3,750.0	13.4
Syria	21,762,978	30,000	3,565,000	16.4	11,783.3	6.2
UAE	4,798,491	735,000	2,922,000	60.9	297.6	5.1
Yemen	22,858,238	15,000	370,000	1.6	2,366.7	0.6
Gaza Strip	1,551,859	n/a	n/a	n/a	n/a	n/a
Total Middle East	202,687,005	3,284,800	57,425,046	28.3	1,648.2	100.0

Table 2 Internet users in the Middle East and in the World (InternetWorldStats, 2010).

Middle East region	Population (2009 Est.)	Population of World (%)	Internet users, latest data	Population (penetration) (%)	User growth (2000–2009) (%)	Users of World (%)
Total in Middle East	202,687,005	3.0	57,425,046	28.3	1,648.2	3.3
Rest of the World	6,565,118,203	97.0	1,676,568,695	25.5	368.7	96.7
World total	6,767,805,208	100.0	1,733,993,741	25.6	380.3	100.0

World-wide rate of 25.6%. According to previously listed statistics at the same source, June 2008 figures had the Middle East trailing the rest of the world-wide internet penetration rate by 0.6% with 21.3% in comparison to a world-wide rate of 21.9%. Prior data of December 2007 had Internet penetration in the ME at only 17.4% in comparison with a World-wide rate of 20%. These figures show that the ME region has enjoyed tremendous growth over the past few years in the number of Internet users.

According to Wheeler's 2004 study, the number of Internet users in the ME represented less than 1% of world-wide users, a very low figure in contrast with a population constituting around 3% of the World population. According to September 2009 statistics however, as represented by Table 2, the percentage of Internet users in the ME has reached 3.3% of the World-wide internet user population. Additionally, the use growth column of Internet users between 2000 and 2009 shows a 380% growth World-wide, while the use growth in the Middle East for the same period is 1,648%. Such data is an indicator that as years pass by, more and more ME citizens are going online, and naturally along with it, comes the potential for more and more users of e-learning.

In the remainder of this paper we shall start by taking a look at some of the research that has been conducted especially with regard to e-learning drivers and barriers in the ME. We then present several initiatives and models for introducing and utilizing e-learning in the region. We finally conclude with a look at possible future of e-learning in the ME through a case study of undergoing developments in Saudi Arabia.

Drivers of e-learning in the Middle East

The ME in general has been a late follower when it comes to the adoption of e-learning. This can be greatly attributed to the delay in the adoption of the Internet as a whole by most governments of the region. As a result, little research with regard to the benefits, limitations, barriers, and acceptability of e-learning in the ME has been published. Generally, however, recently published research seems to indicate a high approval level by both faculty and students. We look in this section at a few research efforts that highlight the value of e-learning in the Middle East.

Tubaishat (2008) of Zayed University, an all girl university in the UAE, conducted a study regarding e-learning's impact on social and cultural limitations of higher education. He pointed out the fact that in the ME region social values and expectations with regard to males and females are different. Female students at Zayed University are not allowed to be present on campus after working hours of the day nor on weekend days. Utilization of learning management systems (LMS) makes it possible for students to interact with faculty members at any period of the day or night. When confronted with a male faculty member, female students may also feel a little shy when participating in in-class discussions. His results revealed that the 74.2% of the students were more comfortable in posting their opinions on discussion boards as opposed to having to speak-up in the classroom. 71.2% felt that they had become more confident in expressing their ideas. Additionally 85.6% of the students were satisfied with the online class environment.

Abdeen et al. (2008) describes the great advantage attained through e-learning in overcoming the difficult situations created by political problems and physical wall barriers constructed by the Israeli occupying forces in the West Bank, Palestine. As a result of the inability to move about between university campuses and hospitals, students and faculty of Al Quds University were forced to resort to videoconferencing, telemedicine, and e-learning in fulfilling parts of their educational requirements. Three campuses and seven hospitals were connected to enable a blended form of education. Online technology has been utilized to deliver courses in basic medical sciences and clinical training. Even though they were able to overcome the ban on free movement between centers of education, the author still complains of low speed Internet access and difficulties to overcome technical problems for lack of qualified technical expertise.

Abbad et al. (2009) investigated the major factors affecting the students' adoption of e-learning in Arab Open University in Jordan. They investigated the IT adoption as source of e-learning adoption. In their study they developed an extended version of Technology Adoption Model to investigate the factors influencing the students to use e-learning. The results show that prior and extensive use of the internet was one of the major factors. The students who were more confident that they are able to use e-learning on there own, are more likely to become good users of e-learning. The availability of technical support and the ease of use are the other major factors.

Additional research that presented specific country research include: research on the attitude of Kuwaitis students and people in general regarding e-learning (Al-Khashab et al., 2007); the perceived relevance of online MBA programs on citizens of the Arabian Gulf countries (Anwar, 2008); and, an Arabic language research regarding the affect of supporting a traditional course with e-learning material on the performance of English course students in Saudi Arabia in comparison with students taking the same course through solely traditional means of course delivery (Al-Jarf et al., 2003). Results of the later revealed that students benefiting from the e-learning course material who were encouraged to participate online without any grades being rewarded or deducted for such participation, performed much better than the other students. Failure rate of students in the e-learning section was only 10% in contrast to a failure rate of 30% in the mainly traditional course. Other research with regard to e-learning in the Middle East includes Furaih (2005) and Alzamil (2004).

Barriers to e-learning adoption in the ME

A 2007 nation-wide study conducted by the Saudi Arabian Communications and Information Technology Commission (CITC, 2007) of over 7,500 individuals revealed that only 49% of society members are aware of e-learning, while only 5% of those who are aware of it have ever personally used it! This represents a very low percentage of acquaintance with e-learning systems, not only at the academic level, but also at the employee development level carried out by either governmental or private organizations.

A good number of reasons can be blamed for the passive attitude that many ME governments took in response to e-learning. The biggest and probably most important reason was the very low Internet penetration rate by the general public (Al-Kahtani et al., 2005). This factor in itself can be attributed to several reasons including the high initial costs associated with Internet access, low speed and quality Internet connections, and the fear that Internet connection would bring-about immoral values and corruption to the family (Mirza, 1998). The conservative religious clerics were continuously warning of the dangers the Internet will bring to the society. Many adhered to the warning.

Another important reason for the hesitation of many university academics to resort to e-learning is the low public esteem for online learning. The online

degree is seen to have less job opportunities and is not comparable to traditional degrees (Dirani and Yoon, 2009). Additionally, the learner's attitude and lack of prior knowledge of IT use are major factors that affect the acceptance of e-learning by students (Selim, 2007; Ozkan and Koseler, 2009; Abbad et al., 2009).

Yet one more cause for not rushing into the adoption of e-learning in the Middle East is the great lack of online repositories that contain educational material in the Arabic language (Al-khalifa et al., 2008). A great percentage of faculty members may not be capable of creating such material, and hence, courses would not lend themselves to e-learning. Training and workshops are recommended to bridge the technology gap and improve faculty self-perception (Georgina and Olson, 2008). Scientific programs such as computing sciences, medicine, and engineering may be more applicable for e-learning in the ME as most scientific colleges teach their courses in the English language, and hence, electronic course material may be more readily available.

E-learning initiatives in the Middle East

The 21st century has witnessed a growing interest in most countries of the ME with regard to the adaptation and application of e-learning. Different governments have rushed to establish e-learning projects and programs. This includes e-learning for K-12 and college students. Oman's Ministry of Education for instance has established ongoing relations with Edutech Middle East, a provider of technology-enabled learning solutions, since 2002 to integrate around 590 schools around the country with e-learning solutions (Computer News Middle East, 2006). Other countries in the Middle East have been somewhat slower in adopting e-learning solutions for their schools. Saudi Arabia's Ministry of Education, for example, has just recently started a pilot study of e-learning implantation in five secondary schools within the Kingdom (Hassan, 2008).

When it comes to institutions of higher education, similar types of variations in e-learning adoption can be seen across the different parts of the ME. Three main models of college-level e-learning institutions can now be found in different parts of the region. These include a virtual e-learning model, a hybrid e-learning model, and a traditional university e-learning model.

Virtual e-learning model

The virtual model involves the establishment of specialized online universities. Examples of such universities include the Syrian Virtual University (http://www.svuonline.org) inaugurated in 2002 by President Bashar Al Asad of Syria; the Hamdan bin Mohammed e-University (http://portal.etqm.ae/en/home/), initially established as the e-TQM College out of Dubai in the UAE, also established in 2002; the Mediterranean Virtual University (http://ls-ewdssps.ces.strath.ac.uk/

MVU/) established as a Jordanian initiative in 2004; and, the Knowledge International University (http://www.kiu.com.sa/website/index.php), established in 2007 and based in Saudi Arabia.

The Syrian Virtual University offers various degrees including diplomas, bachelor's, and master's degrees in business, technology, and quality management. They offer their degrees in cooperation with several British and American universities such as Ohio University, Robert Gordon University, and University of York to name a few.

The Hamdan bin Mohammed e-University is dedicated to providing both academic degrees at the master's and bachelor's levels, as well as professional diplomas and certificates. Their college degrees include a bachelor in business and quality management, and masters of science degrees in organizational excellence, public health: excellence in health care management, and innovation and change management. For professionals they offer both certificate and a diploma programs in quality assurance, diploma in foundation and human resources, and a professional senior hospital and health services manager program.

The Mediterranean Virtual University (MVU) was a developed as a cooperative e-learning initiative. This cooperative program involved eleven different universities from five Mediterranean countries. These countries included Jordan, Egypt, Malta, Turkey, and the UK. Each partner university developed no more than four online courses for a total of 40 courses. These courses made up programs in computer science and engineering. The idea was that a student can complete a degree program through a set of online courses that originate from different universities under the umbrella of the MVU. Even though registration in the university initially started in 2006, it seems that the university is no longer active.

The Knowledge International University (KIU) is a university specializing in online degree programs in Islamic studies. They also offer degree programs in economics and management, and computer and information technology. What distinguishes this university from other virtual universities in the region is that Arabic is the main language of study. Special units within the university include the College of Islamic studies for non-Arabic speakers and the Institute of Arabic language for non-Arabic speakers.

Hybrid e-learning model

The hybrid model involves the creation of actual physical buildings that students can visit for purposes of registration, taking exams, and meeting with faculty members once every two weeks. The greater responsibility falls upon the student for using the course management system for obtaining course material, contacting the course instructor, and submitting assignments.

The Arab Open University (AOU) is the most popular institution following the hybrid e-learning model. Its headquarters is located in Kuwait with other branches set-up in Saudi Arabia, Bahrain, Oman, Lebanon, Jordan, and Egypt. The first

branches of the AOU were established in 2002 in Kuwait, Jordan, and Lebanon. In 2003, branches in Saudi Arabia, Bahrain, and Egypt also started operations. The Oman branch is expected to start excepting students in the very near future. Total number of students enrolled in all countries has already exceeded 22,000 back in March of 2007 (Golden, 2007). The Saudi Arabia branch is the largest in number of enrolled students with nine developed centers already in operation across the country.

Traditional University e-learning model

Different established universities within the Middle East have responded to e-learning differently. The greatest majority of e-learning initiatives in the ME within the traditional university e-learning model are in the form of supporting traditionally attended course with learning management systems. Going back as far as 2004, WebCT alone had 45 different customers in the Middle East. This number includes non-academic institutions as well, however, it does represent a visible level of interest in e-learning tools. The University of Sana'a in Yemen deployed in 2004 Microsoft's Learning Gateway Solution, a powerful e-learning platform, to its 70,000 students and staff (Kleeßen, 2004). Even though WebCT was available to Saudi Arabia's King Saud University faculty back in 2004, it was not received with great enthusiasm at that time. Faculty that knew about its availability complained about the effort needed to learn the tool and quickly dismissed its utilization. With very few exceptions, department heads, college deans, and the university rector cared less about encouraging faculty to use the technology.

In more advanced applications of e-learning by traditional universities, several institutions in the ME have already allowed their students to sing-up for courses on a distance-learning basis. King Abdulaziz University in Saudi Arabia, which had for many years already accepted students on a "study through correspondence" program was a perfect candidate to providing e-learning technology for its students. The Hashemite University in Jordan has taken much faster strides in its efforts to establish e-learning services. They have recently completed a project with Edutech Middle East that built an eLearning Center that enables the simulation of "a classroom atmosphere though a digitized, internet-enabled eLearning module equipped with visual and descriptive educational content" (Arabian Busines.com 2008). The partnership involved the integration of several tools for learning management (Blackboard), content capture (Tegrity), synchronous collaboration (Elluminate), content development (Lectora), and online testing and assessment (QuestionMark Perception). A custom developed web-based registration system was also produced as part of the partnership.

Future anticipated developments – a case study from Saudi Arabia

As a case study of prospective e-learning future in Middle Eastern countries, we present in this section a case study regarding such future from Saudi

Arabia. Saudi Arabia's budget appropriation for education and manpower development in 2007 was Saudi Riyals SR 96.7B (equivalent of US $25.8B) and SR 105B in 2008 (equivalent of US $28B). Expenditure for e-learning purposes in Saudi Arabia was expected to top US $125 M in 2008 (MENAFN Press, 2008).

The Saudi Arabian National ICT plan released in 2003 had called for the implementation of e-learning and distance learning and all their prospective applications in higher education. Moreover, a national center of e-learning was suggested as the means to provide the technical support as well as the tools necessary for the development of e-learning content. The carrying out of the plan's directives with regard to e-learning can be attributed to the increasing demand resulting from rapid population growth, shortage of professional instructors in terms of both quality and quantity, and high financial costs. Most higher education related costs within Saudi Arabia are paid for by the government. Students enjoy higher education at no charge. They are further encouraged to pursue higher education through a monthly stipend that is paid to them of a value almost equivalent to US $200.

An e-learning-based instructional system has been established in the form of a national center that supports the educational processes in tertiary institutes at all levels and stages, free from the restrictions of time and place. This center is to incorporate all universities collective efforts and experiences in establishing e-learning and distance learning concepts. Benefits are to be reaped by different members of society regardless of their socioeconomic or academic backgrounds.

The establishment of the National Center for E-learning and Distance Learning by the Saudi Arabian Ministry of Higher Education, has started as a project aiming to become an international leader in research, development, and implementation of an e-learning architecture and infrastructure using open standards. The vision of the center is to: ''empower people through creative e-learning in lifelong education.'' Nine universities have already signed agreements with the center to take advantage of its services (University World news, 2008). The center's mission is to deliver quality higher education through e-learning, promote education via technology, ensure quality standards for e-learning, and bridge the gap of education and technology. The center has stated many goals to achieve in the coming future, these goals include:

- To collaborate with higher education, government and corporate partners to solve complex e-learning problems.
- To provide complete e-learning solutions to strategic partners.
- To develop quality standards for e-learning.
- To establish alliance with major international e-learning bodies to share e-learning resources.
- To develop rules and regulation governing e-learning programs in Saudi Arabia.

- To establish awareness of e-learning programs.
- To develop infrastructures for e-learning in Saudi Arabian universities.

The National Center for e-Learning and Distance Learning has started many projects to achieve its goals. JUSUR is a custom-developed LMS, and is already used by three major universities in Saudi Arabia. The future release of the JSUSR project is to include other tools based on Web 2.0 technology. ZAD is a digital library project which already includes more than 90,000 electronic book titles of and other educational resources. Other projects of the center that support the e-learning initiative include promoting e-learning to the public, establishing a call center for student support, and building a national learning objects repository. The National Learning Object Repository is a promising project that enables staff and universities in Saudi Arabia to share learning objects.

Conclusion

Despite the delayed application of e-learning within most ME educational systems, the wheels of change have finally started turning. The great economic upturn experienced by many countries of the ME over the past few years, especially by those that are oil producers, has finally started to pay-off. Governments are now much more willing to confront the challenges of the educational system. Attempts at altering K-12 educational systems have already been started. This includes the introduction of technology into the classroom at early years of study in most ME countries, and likewise for the English language.

Even though a great percentage of members of society may still be unfamiliar with technical advancements and concepts of e-learning, plans are being put into place where such technology can become widely recognizable and usable in the very near future. Training and workshops should be given more attention to increase the faculty perception of e-learning. On the other hand, the availability of by laws that govern the e-learning and distance learning will help encouraging students to participate in these types of learning.

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